Nasjonal kommunikasjons-myndighet

Analysis of the market for access and call origination on public mobile telephone networks

Annex 1

Case 2300455

1. March 2024

Executive summary

The Norwegian Communications Authority (Nkom) has previously issued decisions on the wholesale market for access and call origination on public mobile networks (formerly market 15 - hereinafter referred to as the market for access and origination on mobile telephone networks) on 23 January 2006, 5 August 2010, 1 July 2016, and 14 May 2020.

This document presents Nkom's updated assessment of whether there is still a need for sector-specific ex ante regulation in the relevant markets in the next three years (the three-criteria test) and an updated analysis of whether there are provider(s) with significant market power.

Chapter 1 contains a description of the background and framework for the analysis.

Chapter 2 contains Nkom's definition of the relevant market. Nkom finds that the relevant wholesale market is technology-neutral and includes wholesale access to be able to offer bundled products (origination of voice, text messaging and data services) to the residential and business market for the following external types of access:

- Access by national roaming
- MVNO access
- Service provider access

Access to offer dedicated mobile broadband is no longer included in the relevant market. This is because the number of subscriptions and revenue is limited compared with traditional bundled products, and the market is declining. The pricing of dedicated mobile broadband is disciplined to some extent by data traffic over ordinary mobile subscriptions, and market shares are more evenly distributed among the three network owners than for ordinary mobile subscriptions.

Co-location is included as a separate type of access within the relevant wholesale market, as this type of access is of key importance to the goal of sustainable competition in the relevant market.

The geographical market is defined as Norway.

Chapter 3 provides an overview of the market developments and operators on the supply and demand sides in the relevant market.

Chapter 4 provides an overview of the development of prices and usage patterns in the retail market. Norwegian end users have access to high-quality mobile telephone networks and have a variety of

options when it comes to the number of providers in the retail market. At the same time, the revenue per customer in the Norwegian market is significantly higher than in the other Nordic countries. This, combined with the fact that data usage per customer is lower, indicates a high price level in Norway. The access buyers in the market have the lowest retail prices. However, these operators depend on access to national mobile telephone networks and thus depend on sustainable competition in the wholesale market in the absence of regulation. Nkom believes that the market developments in the retail market do not provide clear evidence that there is sufficient competition in this part of the market without wholesale regulation.

In Chapter 5, Nkom has assessed via the three-criteria test whether the market is still susceptible to sector-specific ex ante regulation. The three cumulative criteria on which the assessment is based are:

1. High and non-transitory structural or regulatory entry barriers exist in the relevant market.
2. The market structure is not tending towards sustainable competition within the relevant period.
3. General competition law alone is not sufficient to remedy the identified competition problems.

Nkom believes that the market for access and origination on mobile telephone networks continues to be characterised by high and non-transitory entry barriers in the form of very costly roll-outs and a high percentage of sunk costs. Norwegian end users have elevated expectations for good coverage and high network quality, and the requirements for speed and capacity in mobile networks are constantly increasing. The rapid technological developments require continuous upgrading and expansion of the mobile telephone networks, and all the mobile network owners make significant investments. However, due to the size of their customer bases, the established operators can utilize economies of scale to a far greater extent. These factors contribute indirectly to increasing the entry barriers for a new operator and making entry into the Norwegian market extremely difficult. Based on this, Nkom has concluded that there are high and non-transitory entry barriers, which means that the first criterion is met.

When assessing the second criterion, Nkom has considered any changes in the market structure and behaviour since the previous analysis, and the impact this will have on the market dynamics within the time horizon of the analysis. Telenor and Telia still control a substantial part of the market. At the end of the first half of 2023, the two established operators accounted for 77 per cent of bundled mobile subscriptions and around 85 per cent of the revenue in this retail market. Despite slightly falling market shares for the two largest operators, the Norwegian mobile communications market is still highly concentrated.

At the network level, there are still only two providers of access to alternative operators, Telenor and Telia. Telia's access agreements are based on commercial terms, but in several cases, these are

affected by the sector-specific regulation in the market. Therefore, Nkom believes that the services would not exist on the same terms without the regulation. Ice only provides traffic to its own retail business. Telenor has a market share of 48 per cent based on the number of subscriptions, while Telia's market share is 39 per cent. Ice has almost 14 per cent of the number of subscriptions. Of the total data traffic in the market, around 49 per cent goes via Telenor's network, 38 per cent via Telia's network and only 13 per cent via Ice's network. The market shares have fallen slightly for both Telenor and Telia. Since the previous analysis, Ice has increased its share of subscriptions by four per cent. As the company now produces a significantly larger share of traffic in its own network, the share of traffic in its network has increased by seven per cent. Developments show that the third network is gradually strengthening, but the expansion has been slow since the previous analysis. Several studies show that an efficient mobile operator must have a minimum 20 per cent market share to utilize economies of scale and ensure profitability over time.

The high expectations and coverage requirements of Norwegian end users mean that Ice depends on national roaming to be competitive until the network is expanded with approximately the same level of coverage as the established network owners. Predictable access conditions are key, even though the importance of access conditions will diminish as the share of traffic in the operator's own network increases. Lyse's acquisition[1] of Ice and the planned development will facilitate the efficient roll-out of a national third network within the time horizon of the analysis. However, the development plans are extremely ambitious, and several uncertainties could affect progress, including external factors over which Ice has limited control. Nkom does not expect the third network to be able to sufficiently discipline the established operators in the wholesale market within the time horizon of the analysis.

Based on this, Nkom believes that there is insufficient evidence of dynamics in the market within the time horizon of the analysis to indicate that the market structure will tend towards sustainable competition without ex ante regulation. The second criterion is therefore met.

Reliable access to infrastructure is important to achieving the goal of sustainable competition in the market for access and origination on mobile telephone networks. Nkom finds that general competition law alone is not sufficient to achieve this predictability and thereby, the third criterion is also met.

Based on this, Nkom has concluded that the three criteria for sector-specific ex ante regulation are still met.

[1] From 1 February 2024, the telecommunications operations in the Lyse group are combined under the name Lyse Tele AS. Altibox, Ice and Nicemobil exist as brands under Lyse Tele AS. In the analysis, Ice is used as the name of the provider for the company's mobile network and end-user offers. Lyse is used when referring to the group.

In Chapter 6, Nkom assesses whether one or several providers alone or together have significant market power in the relevant market, i.e. whether any provider has the financial strength to act independently of its competitors, customers, and consumers. The assessment is based on the providers' market shares. Telenor's sustained high market share, both at the retail and wholesale level, indicates that Telenor has significant market power alone. Telenor's share of the number of subscriptions in the retail market shows a slightly declining trend, and Telia's acquisition of Fjordkraft has affected the figures in the first half of 2023. Telenor's share of the revenue remains more stable above 50 per cent.

Telenor has also had stable high profitability over time, and for 2022, the EBITDA margin for the Norwegian operations was close to 47 per cent. Telia currently has approximately the same profitability for its Norwegian telecom business, while Lyse had somewhat lower profitability at the end of 2022, which is explained by the acquisition of Ice. As regards the mobile network operators, Telenor and Telia differ significantly from Lyse/Ice.

Furthermore, Nkom believes that Telenor has particularly good prerequisites to maintain its position, both by acquiring new customers through an extensive network of its own stores and distributors and by holding onto existing customers. Coverage is particularly important for Norwegian mobile subscribers, and there is a clear perception in both the residential and business markets that Telenor has the best cellular coverage. Nkom's market research shows that Telenor's customers are extremely loyal and have strong preferences for Telenor's coverage. In addition, Telenor's customers are more interested in additional services in the residential market and total packages of more electronic communications services in the business market than the customers of other providers.

Telenor's high revenue per customer shows that the company has succeeded in differentiating its products in a way that allows the company to charge more than other operators in the market. No other providers in Norway or our neighbouring countries have a similarly high revenue per mobile subscriber. This supports the view that Telenor will continue to maintain its strong position in the relevant market, and in Nkom's view, the prerequisites for maintaining its position within the time horizon of the analysis are present.

Nkom has also considered whether there are disciplining factors which mean that the company nonetheless cannot act independently of competitors, customers, and consumers within the time horizon of the analysis. Neither the assessment of buyer power nor potential competition indicates that there are sufficient disciplining factors.

Based on this, Nkom finds that Telenor can act independently of competitors, customers and consumers during the period covered by the analysis and thus Telenor has significant market power in

the wholesale market for access and origination on mobile telephone networks. The existence of single dominance precludes finding collective SMP in the same market.

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1 Background and framework for the analysis

1. The regulatory framework for electronic communications is based on five Directives adopted by the European Union (EU).[2] These Directives have been implemented in Norwegian Law by Act no. 83 of 4 July 2003 relating to electronic communications (Electronic Communications Act) and associated regulations, including the Regulations of 16 February 2004 on electronic communications networks and services (Ecom Regulations).

2. In 2018, the EU adopted a Directive revising the common European framework for electronic communications. The Directive replaced four of the five original Directives with a new Directive (the Electronic Communications Directive). The Electronic Communications Directive was incorporated into the EEA Agreement on 24 September 2021 and has resulted in a need for amendments to the Electronic Communications Act and associated regulations. Proposals for a new Electronic Communications Act and regulations were circulated for comment on 2 July 2022[3]. The Ministry of Local Government and Regional Development is currently working on a draft text of the bill for consideration by the Storting. In this analysis, the market definition will be based on the applicable Electronic Communications Act and associated regulations. References to provisions of the Act or regulations will also have references to updated provisions in the proposed new Electronic Communications Act and associated regulations.

3. It follows from Sections 3-2 and 3-3 of the Electronic Communications Act[4], and Norway's obligation under the EEA Agreement, that the identification of providers with significant market power must take place in accordance with the guidelines and recommendations established by the EFTA Surveillance Authority (ESA) under the framework directive for electronic communication services. ESA has established guidelines for market analyses and the assessment of significant market power[5] (hereafter referred to as the Guidelines) and a recommendation on relevant markets[6]. The Commission published an updated recommendation on relevant markets on 18 December 2020[7]. Nkom uses this as a basis in the analysis, and it is hereafter referred to as the Recommendation.

4. The ESA Guidelines state that an assessment of relevant markets and significant market power must be based on a market analysis. The assessment must be in accordance with competition law methodology. Therefore, the Guidelines and the Recommendation, together with relevant provisions in the Electronic Communications Act, particularly Sections 3-1 to 3-3, will form the legal framework for the market analysis. [8]

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[2] Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services (Framework Directive); Directive 2002/20/EC on the authorisation of electronic communications networks and services (Authorisation Directive); Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive); Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive); Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications).

[3] The Ministry of Local Government and Regional Development's consultation on a new Electronic Communications Act, new Electronic Communications Regulations and amendments to the Numbering Regulations: Consultation - Proposal for a new Electronic Communications Act, new Electronic Communications Regulations and amendments to the Numbering Regulations - regjeringen.no

[4] Proposed new Electronic Communications Act, Sections 6-2 and 6-3

[5] EFTA Surveillance Authority Guidelines of 16 November 2022.

[6] EFTA Surveillance Authority Recommendation of 11 May 2016 with the Commission's Explanatory Note.

[7] COMMISSION RECOMMENDATION (EU) 2020/2245 of 18 December 2020 (Commission updated the Recommendation on Relevant Markets | Shaping Europe's digital future (europa.eu) tilhørende Explanatory Note (staff_working_document_-_recommendation_on_relevant_markets_33639264-B9C7-DFFD-D21E9A15C6C46B9B_72442 (1).pdf)

[8] Proposed new Electronic Communications Act, Sections 6-1 to 6-3

5. The ESA's guidelines are identical to the Commission's guidelines for market analysis and the assessment of significant market power dated 7 May 2018. The applicable Guidelines must be applied in light of the additional information contained in the Commission's Explanatory Note[9].

6. The wholesale market for access and call origination on public mobile telephone networks (previously market 15 - hereafter referred to as the market for access and origination on mobile telephone networks) is not a relevant market in the Commission's updated Recommendation from 2020. However, Nkom can define markets that depart from the Recommendation. For a market that departs from the Recommendation to be susceptible to sector-specific ex ante regulation, the three cumulative criteria (three-criteria test) specified in Article 67 of the Ecom Directive must be met. According to Section 6-3 of the proposed new Electronic Communications Act, the three criteria are:

1. There are high and non-transitory structural, legal, or regulatory entry barriers.
2. The market structure does not tend towards sustainable competition.
3. General competition law alone is not sufficient to remedy the identified competition problems.

7. If the three criteria are met, a market analysis must be performed to uncover whether any service provider(s) has/have significant market power in the market. The term "significant market power" in the Norwegian Electronic Communications Act is very close to the competition law standard of "dominant position".

8. This is Nkom's fifth analysis of the market for access and call origination on public mobile telephone networks. The previous analysis is dated 14 May 2020. Nkom then performed a three-criteria test and concluded that the market was susceptible to sector-specific ex ante regulation. Telenor has been identified as a provider with significant market power.

9. This Annex will hereafter be referred to as the "market analysis" and comprises Nkom's definition of the relevant market, an updated assessment of whether the three criteria are met, and an analysis of whether there are one or several providers with significant market power.

10. Market shares and other statistics in the market analysis are mainly based on Nkom's ecom statistics for the first half of 2023. Nkom has also conducted market research referred to in the analysis. Nkom's survey in the residential market was conducted by Respons Analyse in November 2021[10]. The corresponding survey for the business market was conducted in September 2022.

11. The market analyses will be subject to regular review. In markets with frequent and comprehensive changes, such reviews will have to be carried out relatively frequently. Therefore, the market analyses are limited in the extent to which they are forward-looking. In the proposal for a new Electronic Communications Act, the market analysis is limited to apply within a time-frame of five years[11]. The proposal requires the Authority to conduct a new market analysis and notify ESA of market decisions within five years from the date of the current market decision. The law also states that the time limit may be extended by up to one year in exceptional cases. The current market analysis is carried out in light of the new provisions for Nkom's market analyses that have been proposed in the new Electronic Communications Act. Considering the expectation of a certain dynamism in the market within the next five years, this market analysis has a time horizon of three years, which is shorter than

[9] Commission staff working document accompanying the document communication from the Commission Guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services, Explanatory Note.

[10] Afraid to change your mobile provider? - Nkom

[11] Proposal for a new Electronic Communications Act circulated for comments on 2 July 2021, Section 6-4, eighth paragraph, concerning obligations for providers with significant market power.

the maximum time horizon in the proposed new Electronic Communications Act. Three years corresponds to the time horizon for market analyses in Section 9-3 of the current Electronic Communications Act.

2 Definition of the relevant market

2.1 Market definition in general

12. The market definition defines the framework for the analysis and the use of policy instruments, both regarding products and geographical area. The definition of relevant markets must follow the same procedure as the market definition under competition law. However, in some cases, markets defined by the competition authorities may deviate from markets defined in the Recommendation or by national regulatory authorities in accordance with the Guidelines.[12]

2.1.1 The product market

13. A relevant product market consists of products or services (the terms are used interchangeably below without any difference in meaning) that are sufficiently substitutable. The starting point for the definition of a relevant product market is an assessment of demand-side substitutability. Demand-side substitutability exists when two or more products in the market are, in the perception of the end-user, mutually exchangeable based on characteristics, price and area of utilisation.

14. If demand-side substitution does not exist to any sufficient degree, supply-side substitution must be considered. Supply-side substitution presumes that as a reaction to small but significant and non-transitory changes in relative prices, providers can redirect their production to the products or services in question and market them. If this can be done in the short term without entailing substantial additional costs or significant risk, the additional production could have a disciplinary effect on the competitive behaviour of the enterprises concerned. Such immediate and direct effects will have equivalent effects to demand-side substitution.

15. However, the ESA's announcement[13] regarding the definition of the relevant market states that demand substitution must be assigned the most emphasis:

> *"From an economic point of view, for the definition of a relevant market, demand substitution constitutes the most immediate and effective disciplinary force on suppliers of a given product, in particular in relation to their pricing decisions. [...] Therefore, the exercise of market definition essentially consists in identifying the effective alternative sources of supply for the customers of the undertakings involved, both in terms of products/services and the geographical location of suppliers."*

16. The same notice further states that supply-side substitutability "[...] may also be taken into account when defining markets if it has the same immediate and direct effects as demand-side substitution."

17. An acknowledged method of assessing substitutability is the "hypothetical monopolist test" (SSNIP[14] test), which seeks to find the most defined market in which a hypothetical monopolist can

[12] Chapter 1.2, paragraph 11 of the Guidelines.

[13] EEA Supplement to the Official Journal of the European Union, no. 28, 16.7.1998: Announcement by the EFTA Surveillance Authority regarding the definition of the relevant market within competition law in the European Economic Area (EEA), Section 13, et seq.

[14] "Small but Significant Non-transitory Increase in Price". See the Guidelines, paragraph 29.

exercise market power. This test assesses the effect of a marginal, but significant (in practice 5-10 per cent) and non-transitory increase in the price of the relevant product. The assessment is made using the assumed price level in a market with effective competition. All other prices are assumed to be unchanged. The question is whether the price increase can be made profitable for the hypothetical monopolist. An alternative product is a substitute if the price increase cannot be implemented without losing sales on a scale that makes a price increase unprofitable. The price increase may be unprofitable because customers switch to the alternative product (demand-side substitutability) or because providers of other products change their production to the relevant product (supply-side substitutability).

18. The Recommendation does not make the use of the SSNIP test an absolute requirement in the market definition. Therefore, similar methods may also be used. The hypothetical assessment should be supplemented by factual information about behaviour on the supply and demand sides to the extent that such information is available. On the demand side, factors such as the end-users' access to information, the costs of switching providers and other lock-in mechanisms should be taken into consideration. On the supply side, account should be taken of the actual opportunities a provider has to change production as well as any regulatory conditions that prevent rapid market entry by competitors in the market.

19. The absence of substitution between two products indicates that the hypothetical monopolist can price the products independently of each other but does not exclude that there may be reason to include the products in the same market. When assessing whether two or more products are included in the same market, consideration must also be given to how requesting operators perceive the products. If requesting operators consider the products to be close complementary services and view the pricing of these products as a whole, any such joint pricing constraint could indicate that the products are in the same market.

20. The Commission opens for other conditions to justify that products are included in the same market, even though this is not indicated by the substitution assessments. In the Commission's original Recommendation, the market for access and call origination on public mobile phone networks also included services that are not substitutable. In the Explanatory Note from November 2007, the Commission states that, in some cases, end-users may prefer to purchase a bundled product instead of purchasing the products separately, and that the bundled product is thus the relevant product market[15]:

> "*Communications companies provide a multitude of services to their customers, which are often sold as a bundle. In most cases the individual services in the bundle are not good demand-side substitutes for each other yet may be considered to be part of the same retail market if there is no more independent demand for individual parts of the bundle. On the supply side, bundling two or more components into one product is driven by savings in production, distribution and transaction costs, and the ability to improve the quality of the product. Bundling may also be related to the technology used where a given network can be configured to provide a large range of services.*"

21. Reduced transaction costs from purchasing products together, plus the convenience of being able to receive multiple services via the same handset and SIM card, have been cited as factors for arguing that the bundled product constitutes the relevant product market.

22. However, the Commission emphasises that the bundled product will still not constitute the relevant product market if a sufficient number of end-users will purchase the products separately in

[15] Commission Explanatory Note,13 November 2007, Chapter 3.2. Commission Explanatory Note 27. April 2018 also addresses “Bundling of services and products” on page 12.

the event of a marginal, but significant and non-transitory, relative price increase for the bundled product.

2.1.2 The geographical market

23. After the relevant product market has been determined, the geographical market is defined. In accordance with section 48 of the Guidelines, the geographical market may be defined as that area in which the relevant product is offered on almost similar and sufficiently homogeneous conditions of competition.

24. Geographical markets within electronic communications have traditionally been defined based on the diffusion of the relevant network and the jurisdiction for the legal regulation of the market.

25. Nkom can define regional or national markets. The jurisdiction for defining transnational markets is vested with the Commission and ESA.

26. It might make sense in the case of some product markets to divide them into geographical markets that are smaller than the national state since there are local providers of electronic communications services covered by the relevant product market, or to identify local variations in the competitive conditions. See Chapter 2.3 of the EFTA Surveillance Authority Guidelines for a more detailed description.

27. The Norwegian Electronic Communications Act applies presumptively to Norwegian land territory. According to Section 1-3 of the Electronic Communications Act, cf. Regulation no. 882 of 4 July 2003, the Act also applies to Svalbard, Jan Mayen, the dependencies, and Antarctica. In terms of Svalbard, exemptions have been made for Chapter 3 (significant market power), Chapter 4 (access) and Section 9-3 (consultation procedure).[16] However, electronic communications on Jan Mayen, the dependencies and Antarctica are assumed to have little significance for the market analyses Nkom carries out according to the Electronic Communications Act.

28. In the following, references to Norway as a local jurisdiction refer to mainland Norway/ Norwegian territory.

2.2 Market definition in the previous decision

29. In its decision of 14 May 2020, Nkom defined four retail markets:

- The retail markets for bundled mobile services (residential and business).
- The retail markets for mobile broadband (residential and business).

30. The relevant wholesale market is technology-neutral and includes wholesale access for being able to offer call origination, text messaging and data services for the following external access types:

- Access by national roaming
- MVNO access
- Service provider access

31. Both the possibility to provide ordinary mobile services and to provide mobile broadband are included.

[16] Section 1, first paragraph, states that the Norwegian Electronic Communications Act applies to Svalbard, cf. Section 3 of the Svalbard Act, except for Chapter 3 on significant market power, Chapter 4 on access and Section 9-3 on consultation procedure.

32. Access supplied to MNOs' internal service provider level ("self-supply") was included in the same market as access purchased by external providers.

33. Co-location was included as a separate form of access within the relevant wholesale market.

34. The geographical market was defined as mainland Norway.

2.3 The overall product market

35. Over time, the mobile telephone networks have evolved with new technologies that have enabled new services. Data services were not included in Nkom's initial market analysis in 2006, but data services in the 2G and 3G networks were included as of the analysis in 2010, and data services over LTE networks were included as of the analysis in 2016.

36. The fifth-generation mobile telephone network (5G) is under development. 5G technology enables mobile telephone networks to offer a wider range of services than has been the case up to now. While 4G has primarily provided increased capacity for mobile Internet access compared to 2G and 3G, 5G has technological improvements that, in addition to providing even greater transmission capacity, also have the potential to provide lower latency, higher reliability for the signals transmitted and support for a far higher number of active devices. These characteristics are particularly relevant to meet diverse needs from specific industries and the so-called verticals such as e-health, transport, media, broadcasting, and industry. So-called network slicing using virtualization will be important when the mobile telephone networks must adapt to the special needs of the verticals.

37. For industrial operators who want a high degree of control over their own infrastructure and service production, access to dedicated frequencies for local private networks can be another way of meeting special needs for digital services. However, this analysis only includes access to public mobile communication networks, and local private networks are thus not part of the analysis.

38. When awarding frequencies in the 3400-3800 MHz band in 2021, access obligations were included in the frequency permits aimed at industry operators. Frequency holders were obliged to comply with reasonable requests for access to 5G services or, in special cases, to frequencies, within geographically defined areas where the requestor operates.

39. The full potential of 5G technology and full utilization of the possibilities inherent in the technical specifications require that 5G is also implemented in the core networks. This work is underway, but still at an early stage.

40. As mentioned, the ecosystem around 5G provides new business opportunities, services, and potential new product markets. The product market definition in this market analysis is based on the same focal product in the retail market as in previous market analyses, namely the bundled product. The question then becomes whether new products and services are in the same market as the focal product. However, according to the EFTA Surveillance Authority's guidelines, new markets, so-called "emerging markets", should be regulated with caution, as premature implementation of regulatory obligations may have adverse consequences for market developments.

41. With this as a starting point, Nkom will make an updated market definition. Nkom first defines the relevant product market at the retail level and then derives the relevant product market at the wholesale level. However, there is not necessarily a one-to-one relationship between the products in the relevant retail market and the relevant wholesale market.

2.4 Definition of the product market at the retail level

2.4.1 Bundled services

42. The end-users gain access to the mobile network to make and receive calls, send, and receive text messages, and use data services for Internet access, etc. However, the end-users must be connected to the mobile network and have access to the related services at the same time to be able to use the mobile service. Access to mobile networks and the option to use the related services are sold as a bundled product. It is mainly the amount of data traffic and available speed that determines the monthly cost of a mobile subscription, as domestic calls and text messaging are often unlimited. This means that prices for calls, text messaging and data must be viewed together. Based on this, Nkom considers access to the mobile network, calls, text messaging and data to be part of the same relevant product market at the retail level.

2.4.2 Prepaid subscriptions/cards and post-paid subscriptions

43. Both prepaid and postpaid subscriptions give the end user access to the mobile services (voice, SMS and data) which are part of the relevant retail market. Previously, there was a clearer distinction between prepaid and postpaid subscriptions. The introduction of fixed-price subscriptions where the subscription price is paid in advance, and only use beyond what is included in the package is paid postpaid, means that the distinction between prepaid and postpaid has partly been blurred. The starting point is therefore that there is substitutability on the demand side between the two different subscription types at retail level.

44. At the same time, prepaid cards have a declining trend. In the first half of 2020, the number of prepaid cards was close to 600,000, while at the end of the first half of 2023 they amounted to just under 470,000. Prepaid cards currently only account for around 8 percent of the total number of subscriptions. It must therefore be assumed that end users are more willing to switch from a prepaid to a postpaid subscription, rather than the other way around.

45. Fewer and fewer providers offer prepaid cards. The players who offer this also offer postpaid subscriptions. There are no players who only offer prepaid cards. This suggests that there is a high degree of substitutability on the demand side.

46. On the basis of substitutability and the fact that prepaid cards make up a very small proportion of the total market, Nkom finds that the two product types are part of the same relevant market at end-user level.

2.4.3 International roaming

47. Subscribers expect and can normally use their mobile subscriptions when travelling abroad. As a rule, the use of mobile services when travelling within the EEA should not cost more than at home. However, the rules are only intended to apply to subscribers while travelling and not so that subscribers should be able to replace their national subscriptions with roaming services (permanent roaming). The provisions on the "Fair use policy" will enable providers to prevent permanent roaming. Therefore, Nkom assumes that international roaming will not be a substitute for access and origination of voice, text messaging and data services on national networks, but a complementary service. This is also in line with the Commission's Recommendation from 2014 and Nkom's previous market decisions. Based on the bundling of ordinary mobile subscriptions with international roaming, Nkom finds that international roaming is part of the relevant product market at the retail level.

2.4.4 Access and origination in the fixed network

48. Access and origination are also offered via fixed networks, including broadband telephony. Broadband telephony is a telephone service that uses VoIP technology[17] to transfer voice calls via IP networks. Nkom has previously concluded that broadband technology arranged for all-to-all communication must be considered a public telephone service and thereby subject to the Electronic Communications Act's regulation of such services.

49. In recent years, mobile-originated voice traffic has increased steadily, at the expense of voice traffic in fixed networks. In 2005, mobile-originated traffic amounted to around 30 per cent of total voice traffic from landlines and mobile phones. The corresponding figure for 2022 was 96 per cent. Thus, there is a significant degree of substitution from landline to mobile phone use.

50. However, the assessment focus of this market definition is whether a marginal, but significant and non-transitory price increase for mobile telephony would entail a switch to landline telephony on a scale which made the price increase unprofitable. However, Norwegian end-users' patterns of use today do not indicate this scenario to be likely. The growth in both voice and data traffic from mobile phones indicates that the end-users will not swap the mobility and the bundled services that mobile phones provide, with landline phones that only provide a voice service.

51. Based on this, Nkom finds that landline telephone services are not included in the relevant product market at the retail level.

2.4.5 Mobil broadband telephone and OTT services

52. Mobile broadband telephony is used here to refer to voice calls over mobile networks based on IP[18] technology. Such solutions are normally based on an application being installed on the user's smart telephone thereby establishing a connection between the user's handset and the telephony provider's infrastructure. To transfer voice, the mobile telephone must have an internet connection. Access can take place via an available wireless access point (WLAN) or by using data access via the mobile network. The latter therefore requires that the end-user has a mobile subscription.

53. The mobile operators offer voice calls over IP technology (VoLTE) without the user having to download an application. We refer to Chapter 2.4.10 for assessing access to mobile telephony across various technological platforms.

54. When operators other than traditional mobile providers offer mobile broadband telephony, it is often referred to as an OTT (Over-The-Top) service. Examples of such OTT services are Facebook Messenger, Snapchat and Facetime, Instagram, WhatsApp, Signal and Viber. Nkom's market survey on the residential market identified the use of such services in Norway, among other things. The survey showed that Facebook Messenger is the most widely used voice and messaging service in Norway. The survey showed that 31 per cent of respondents used the voice service daily or weekly, 35 per cent used the service monthly or less frequently and 34 per cent never used the service. A larger proportion of the respondents used the service as a messaging service. Of those surveyed, 72 per cent stated that they used the service daily or weekly to send messages, 11 per cent used the service less frequently and 17 per cent never used the service. Thus, the survey showed that a substantial proportion of Norwegian end-users regard such services as a supplement or possibly a substitute for ordinary text messaging but to a lesser extent for voice services.

55. However, a key factor is that these services can only be used for calls and messages between users of the same service. However, Article 7 of the Digital Markets Act sets requirements for

[17] VoIP (Voice over IP) involves digitisation and compression of voice in IP packages. These IP packages are transmitted via IP networks. The SIP (Session Initial Protocol) signalling protocol is used to find the correct recipient and to set up and disconnect the actual call.

[18] Internet Protocol

interoperability between certain OTT actors, and the new Electronic Communications Directive also allows for such requirements in certain situations if all-to-all communication is at risk. However, this is further ahead in time. It is also not possible to reach emergency numbers via these services. The Services also require end users to have a mobile or broadband subscription to access mobile networks to use the Services unless they wish to use the Services only over Wi-Fi. As such, OTT Services do not provide access to the same bundled services as the traditional bundled mobile product.

56. The services are free to use as long as the user is connected to Wi-Fi. However, if the user is connected to a mobile network, the transport of voice data between the application and the provider's infrastructure will use mobile data. This will not normally constitute a major cost because the amount of data is limited. However, if the end-user is travelling outside of the EEA and uses mobile data, the cost can rapidly become higher than it otherwise would be due to unregulated prices for international roaming.

57. Another example of an OTT service with slightly different features is Telio's "Teliophone Pro" service. This is an additional service for landline customers of Telio, where the customer can make calls using broadband telephony via an app on their mobile phone. The prices for calling are the same as from Telio's landline product no matter where the customer is located, and all phone numbers can be reached regardless of whether the recipient is a customer of Telio.

58. Mobile broadband telephony from OTT providers depends on a certain available bandwidth and response time, and Wi-Fi, 4G or 5G data rates are normally required for the service to work adequately. Calls to and from such apps will not have their own priority in the networks, so call quality will always depend on sufficient capacity and low enough latency in the network to which the user is connected.

59. If a solution for mobile broadband telephony cannot use mobile numbers, many end-users will not experience it as a substitute for traditional mobile telephony either, for example for end-users who are accustomed to an existing mobile number and who cannot transfer this number. For solutions for mobile broadband telephony to be allocated eight-digit mobile numbers, the services must be described as full mobile telephone services. Nkom's principle document for the allocation and use of numbers for land mobile services (the 4 and 9-series) for mVoIP and other new services sets out the requirements that must be met in order to be able to use mobile numbers for mobile broadband services.[19] One of the requirements made of a full mobile telephone service is that the end-user must only need to deal with one provider in order to receive the mobile telephone service, i.e. the customer does not need to have a separate subscription for access to land mobile networks (e.g. mobile broadband) in addition to a subscription for the voice and text messaging service.

60. The EU's new Electronic Communications Directive and the proposed new Electronic Communications Act also distinguish between number-based and number-independent person-to-person communication services, where the number-independent services are not subject to obligations related to market regulation[20].

61. Based on this, Nkom finds that mobile broadband telephony, where the use of ordinary mobile numbers is not permitted, is not part of the relevant product market at the retail level. However, the data traffic generated by this type of service is covered by the relevant product market.

2.4.6 Mobile broadband

62. Nkom assesses in this chapter whether dedicated mobile broadband is part of a the retail market for bundled services. The question from a demand perspective is whether a price increase for

[19] Principle document of 11 December 2014 with the same title.

[20] Chapters 3 and 4 of the proposed new Electronic Communications Act contain the obligations for market regulation.

the bundled mobile product will mean that the customers will switch to purchasing dedicated mobile broadband on a scale that makes the price increase unprofitable.

63. Dedicated mobile broadband appears to cover other end-user needs than traditional mobile subscriptions. Traditional mobile subscriptions provide the end-user with simultaneous access to voice, SMS and data services, cf. Chapter 2.4.1 above. As a starting point, mobile broadband only provides access to data services and is therefore no substitute for all the bundled services from an end-user perspective. Furthermore, an end-user may find that a mobile broadband subscription will not fully provide the same mobility as a traditional mobile subscription because they use routers, which in some cases can be less practical to carry around than traditional handsets/mobile phones. Mobile broadband is also often marketed as a product suited for having at your holiday cabin, i.e. mobile to a certain extent, even if the intended use is more stationary.

64. The number of subscriptions for dedicated mobile broadband has been falling. This development supports the notion that end-users will not consider a dedicated mobile broadband subscription to be an adequate substitute for a traditional mobile subscription. The figure below shows the development in the number of mobile broadband subscriptions from the first half year of 2016 to the end of 2023.

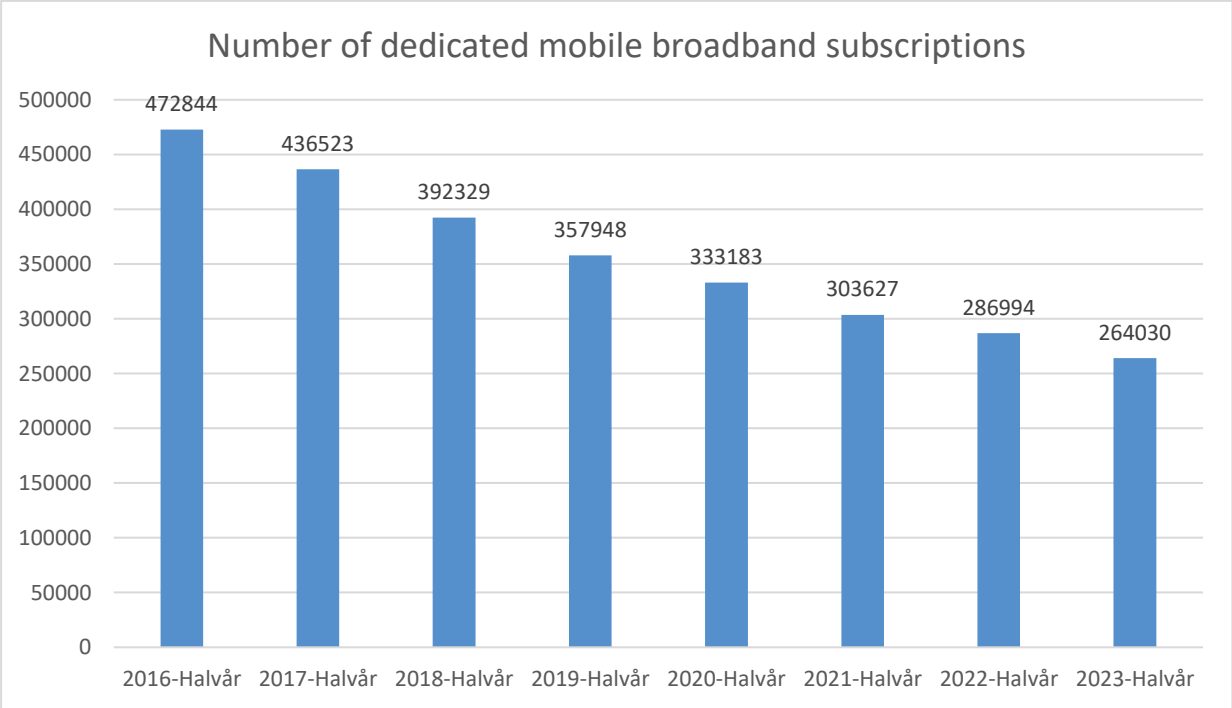

Figure 1 shows the development in the number of mobile broadband subscriptions from the end of the first half of 2016 to the end of the first half of 2023.

65. On the supply side, the question is whether an operator that only offers dedicated subscriptions for mobile broadband can rapidly switch to offering traditional mobile subscriptions without incurring significant costs. If so, such a switch could make a price increase for traditional mobile telephony unprofitable. However, Nkom believes that such a switch would be demanding in the sense that there are new services to be provided, it would require significant marketing and testing, which will entail delays which means that the impact would not be sufficiently immediate and direct.

66. Based on this, Nkom is of the view that there are no grounds for including dedicated subscriptions for mobile broadband as part of the same retail market as traditional mobile telephony.

67. In chapter 2.4.12 Nkom considers if there is a need to define and analyse mobile broadband as separate relevant market.

2.4.7 Fixed wireless broadband

68. Fixed wireless broadband (FWB) is broadband delivered to a fixed location over the mobile networks.

69. Nkom made a preliminary assessment in October 2018[21] of the relationship between FWB and market regulation. Nkom then concluded that the product would not be included in market 15 but could be included in the broadband markets (then markets 4 and 5).

70. Telenor launched FWB based on 4G technology in the retail market in the spring of 2019, under the product name “Home Broadband Mobile", as a substitute product for copper-based broadband (DSL). Today, the product is marketed as "Wireless Broadband" and is offered over both 4G and 5G to residential and business customers in areas where Telenor does not have alternative services based on fixed infrastructure. Telia also offers FWB over 5G under the same product name in selected areas. Both Telenor and Telia also offer wholesale services that enable other operators to offer FWB in the retail market.

71. FWB differs from the bundled product and other products within market 15, especially in the absence of mobility opportunities. The possibility of mobility is a key product feature of the end-user products in market 15 and means that they can be used throughout the provider's mobile network and abroad. The FWB product is currently delivered to the subscribers with a fixed antenna, and according to the terms and conditions, must only be activated and used at the installation address agreed with the provider. FWB also does not give the subscriber direct access to the same services as the traditional bundled mobile product where both voice, text messaging and access to data services are covered. In Nkom's opinion, FWB is thus not sufficiently substitutable with the end-user products in the relevant market from the end-user's point of view (demand-side substitution).

72. On the supply side, it is uncertain how fast and at what cost a provider can switch from offering FWB to traditional mobile subscriptions. Entering into an access agreement, testing, marketing, and time spent would indicate that the effect of supply-side substitutability will not be sufficiently direct and immediate for FWB and traditional mobile subscriptions to be considered part of the same market.

73. In the spring of 2019, Telenor launched FWB but it still took almost a year before Telia launched a similar service. Some Altibox partners were in the process of offering FWB in certain areas[22] by the end of 2023. This also indicates that the effect of supply-side substitution will be limited.

74. In 2020[23], Nkom concluded that FWB should be included in the retail market for standardized broadband access and that wholesale access related to the product should be included in the wholesale market for central access to fixed access networks (market 3b). Nkom also announced on 14 June 2023 that FWB is substitutable with fixed broadband based on fibre and HFC (cable TV network) and will be included in the retail market for standardized broadband access.

75. Based on this, Nkom finds that FWB is not included in the relevant product market at the retail level.

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[21] Letter from Nkom to Telenor clarifying the relationship with the current market regulation for fixed mobile broadband as a DSL substitute, case 1803643-3

[22] Altibox coming soon on 5G - Altibox, Lyse has now started FWB sales (telecomrevy.no)

[23] Supplementary decision in Market 3b – Wholesale access to fixed mobile broadband, case 1505331-169

2.4.8 Machine-to-machine communication (M2M) and the Internet of Things (IoT)

76. Machine-to-machine communication (M2M) over mobile networks was not included in the relevant retail markets in Nkom's decision of 14 May 2020.

77. M2M is an automated or semi-automated exchange of voice, text messaging or data services between machines and is a communication carrier that is necessary for a number of services. M2M communication services via mobile networks differ significantly from services that are offered via ordinary mobile subscriptions intended for communication between people. M2M communication via the mobile network is, for example, used to transmit information on stock inventories, automatic meter readings of power consumption, holiday cabin heating systems, alarms, emergency calls from vehicles and for executing transactions via payment terminals.

78. From an end-user perspective, voice, text messaging or data traffic for M2M purposes via the mobile network will not constitute a substitute for voice, text messaging or data via ordinary mobile telephony subscriptions, since M2M is not used for communication between people.

79. The proposed new Electronic Communications Act also distinguishes between three categories of electronic communication services: a) Internet access services, b) person-to-person communication services, or c) other services that wholly or substantially include the transmission of signals, such as transmission services used for machine-to-machine communication and broadcasting.

80. On the supply side, it is uncertain as to how fast and at what cost a provider can switch from offering M2M to traditional mobile subscriptions. Marketing costs, testing and time spent would indicate that the effect of supply-side substitutability will not be sufficiently direct and immediate for M2M and traditional mobile subscriptions to be considered as part of the same market.

81. M2M was initially based on ordinary data traffic over GPRS or GSM. However, in 2018, Telenor launched NB-IoT and LTE-M specifically for M2M and the Internet of Things (IoT). Both technologies are based on 4G and continue in 5G. They both have good penetrating power. NB-IoT is adapted to solutions that only need to send small amounts of data and that need a long battery life. LTE-M can also be used for sensors that will have voice or text messaging and is suitable for slightly larger amounts of data, and preferably connected to power.

82. The operators in this market are mainly Telenor, Com4 and Telia. At the end of the first half of 2023, Com4 had around 49 per cent of the number of SIMs, while Telenor had 46 per cent of the number of SIMs. Telia had only 6 per cent of the number of SIMs. However, the distribution of revenue in this market is different. Telenor accounted for 66 per cent of the revenue at the same time, while Com4 accounted for 20 per cent and Telia for 14 per cent.

83. Both Telenor and Telia sell access to operators who will offer M2M/IoT. Since 2021, Telenor has offered separate access agreements for service providers and MVNOs for M2M/IoT based on LTE-M and NB-IoT. The reason for offering these services in separate access agreements was that Telenor found that it was often not the same operators who wanted to be able to offer M2M/IoT as the operators within the market for traditional bundled products. These services are also invoiced according to different price models than for traditional telephony due to different usage patterns (small amounts of data).

84. Connectivity between physical objects (things) and the Internet may also use technologies in an unlicensed spectrum (such as SigFox) and residential networks (such as Wi-Fi, Bluetooth, and ZigBee). These technologies are suitable for more locally restricted areas, and there is less or no certainty of uptime. These technologies may in some applications be a substitute for M2M/IoT in mobile networks but are not a substitute for technologies to offer traditional bundled mobile services. Therefore, any analysis of a market for M2M/IoT access must have a broader scope than this market analysis, where several different technologies and applications are included.

85. Furthermore, there is a limited basis for being able to appropriately formulate potential regulatory requirements for access and pricing. In 2021, when assessing new regulations for international roaming[24], the Commission concluded that price regulation of M2M/IoT was not appropriate. The reason for this was that it would require separate cost models and also that intrusive regulation could have unintended and negative effects on innovation, as this is an area that is still under development, including in light of 5G.

86. However, Nkom expects the three mobile network owners to negotiate and enter into agreements on commercial terms with operators wishing to offer M2M/IoT and will follow developments in this segment.

87. Based on the substitution assessments, like previous assessments, Nkom believes that M2M communication via mobile networks is not part of the retail market for bundled mobile services. Any regulation requires a separate analysis of the market and assessment of any competition problems, as well as appropriate instruments for the products in question. Nkom can assess the basis for potential regulation at a future point in time.

2.4.9 Business and residential subscriptions

2.4.9.1 Assessment of demand-side substitutability

88. Business and residential customers demand the same basic mobile services (voice, SMS, and data), but business customers are more likely to demand more advanced and complex services than residential customers.

89. In the residential market, the products are largely standardised in terms of product features and price. Nkom's market survey on the residential market shows that the key factors for the customers are price, followed by coverage and customer service.

90. According to Nkom's market survey on the business market, price is also a key factor for business customers when choosing a provider. However, the proportion of customers who believe price is important for the choice of provider is lower in the business market than in the residential market. Coverage and data speed are almost as important as price for business customers. In addition, customer-specific development of the network is often required in the business market, as well as better coverage and quality indoors. Business customers that have established and paid for such additional coverage with a mobile operator normally commit to a minimum period.

91. Furthermore, it is often important for business customers to be able to purchase a total package that is tailored to their needs. In addition to mobile telephony, this type of total package may include other additional services such as unified communications and switchboard solutions, as well as other electronic communications services such as fixed telephony, leased lines, M2M and data communication. The above-mentioned market research shows that technical solutions for interaction and switchboards, as well as the possibility of self-service and administration of subscriptions and services, are important for business customers when choosing a mobile provider. However, the data also shows that this type of service is far more important for medium-sized and large business customers (more than twenty employees) than for small business customers.

92. Business customers also set other requirements for customer service, including greater demand for availability and personal service. Business customers often set different and stricter requirements for security solutions and services than residential customers.

93. The possibility of receiving customised total solutions, better customer service and other security solutions are factors that contribute to business customers being less inclined to switch to

[24] Impact assessment report SWD(2021)28 page 102 Roaming charges – review & extension of current rules (europa.eu)

residential subscriptions in the event of a marginal, but significant increase in the price of subscriptions aimed at the business market. However, sole proprietorships and small businesses will be more inclined than medium-sized and large businesses to select residential subscriptions over business subscriptions. However, high early termination fees and more lengthy agreements are also widespread in this part of the business market, which in practice makes it less attractive to switch providers. Figures Nkom has obtained also show that over 71 per cent of the businesses asked responded that they choose to purchase business subscriptions for their employees[25]. The share accounted for 60 per cent among the smallest companies (1-4 employees), while 88 per cent of the largest companies (over twenty employees) stated that they bought a business subscription. Nkom believes this supports the assessment that business subscriptions cover other needs for companies than the residential market. About 30 per cent of the companies that purchased a business subscription had a lock-in period and termination fee.

94. For most residential customers it will not be an option to switch to a business subscription because this requires an organisation number.

95. Based on this, the assessment of demand-side substitutability indicates that sales to residential and business customers constitute two separate retail markets.

2.4.9.2 Assessment of supply-side substitution

96. If a provider wants to switch its production and reach from the residential to the business market, this entails different requirements regarding knowledge of the technological and market conditions to meet the requirements for more complicated and, in part, customized services. Digitisation in companies and the public sector also increases the complexities of the services in the business market.

97. In its response to the consultation, Telenor points out that business customers have high demands for service and support, future coverage expansion, advanced services and functionality, customer-specific adaptations, clear roadmaps with plans for further development of current services, the ability to support customers' needs to become more environmentally friendly and sustainable, and not least credibility as a competent advisor in a constantly changing spectrum of technological opportunities. Telenor notes that when service providers submit bids for customers with more than 1,000 employees, they are often disqualified early in the process due to an inability to meet the customers' many and extensive requirements. To the extent that it is challenging for access buyers to serve the largest B2B customers, according to Telenor, this is because they do not offer systems and products that meet the customers’ needs and requirements.

98. The sales processes in the business market also place different demands on the sales and distribution apparatus than in the residential market. More advanced and complex services mean that contracts are often entered into based on dialogue and negotiations, which results in tailored agreements. Thus, both costs and risks are incurred in establishing sales organisations and dedicated sales personnel in the business market. This principally applies to medium-sized and large businesses. In the public sector, agreements are entered into after public competitive tenders. Therefore, committing to the business market involves a much higher level of tender management and contract negotiations.

99. Therefore, such a change in market focus means higher investments and increased costs. It must also be considered that many customers in the business market have a lock-in period and therefore, it would be costly for a new operator to buy these out. On the other hand, providers that wish to switch their production from business customers to residential customers, will most probably

[25] Survey conducted by Kantar for Nkom.

have to significantly increase their marketing costs to reach the mass market, for example, through TV and cinema advertising.

100. Network owners offer services to both the residential and business markets. However, MVNO providers and service providers tend to focus their activities on one segment. This supports the above assessment that there are different requirements for establishment in the residential and business markets.

101. Table 1 shows the market shares within mobile telephony for the business and residential segments at the end of the first half of 2023, measured by the number of subscribers. The table shows the different presence of the operators in the two segments. Operators that have a presence in both segments are highlighted in blue.

Providers of mobile phone services in the first half of 2023		
	Residential	**Business**
Telenor Norge	38.28%	52.31%
Telia Norge	32.94%	36.26%
Ice	17.20%	3.51%
Fjordkraft	2.78%	
Lycamobile Norway Ltd	1.36%	
Chili Mobil	1.95%	
Xplora mobile	1.87%	
Happybytes	1.10%	0.03%
Plus Mobil	0.97%	
Vipps mobil	0.36%	
Saga mobil	0.04%	0.15%
Unifon	0.01%	3.58%
Gudbrandsdal Energy	0.01%	
SMB Mobil		0.21%
Nortel		3.94%

Table 1 Markets shares for the business and residential segment for mobile telephony at the end of the first half of 2023, measured in the number of subscriptions[26].

102. The table shows that the three network owners are present in both segments, albeit to varying degrees. Access buyers have mainly chosen to focus within one of the segments. The access buyers who offer products in both the business and residential segments have only managed to build up the customer base in one of the segments, for example Unifon with a market share of 3.58% in the business market and 0.01% in the residential market respectively. Measured in terms of the number of subscriptions, the residential segment is significantly larger than the business segment. The number of access buyers is also highest in this segment and the largest access buyers, measured in number of subscriptions, are present in this segment. This indicates that it is somewhat easier for access buyers to establish themselves and achieve a certain market share in the residential segment than in the business segment. Fjordkraft, which is the largest access buyer in the residential segment, as well as Unifon and Nortel, which are the largest access buyers in the business segment, have achieved their market shares partly through acquisitions of other service providers. Both Unifon and Nortel are access buyers at Telenor and profile Telenors' coverage in marketing. Unifon bought Nortel in November 2023. The combined market share of the two players, based on statistics for the first half of 2023, amounts to approximately 7.5 percent. The acquisition thus means fewer players in the business market, but that they can collectively constitute a stronger challenger to the established players in the market. Different presence of providers in the two segments indicates that there are different requirements for becoming established in the two markets and that the competitive conditions are thus different.

103. Supply-side substitution can also occur when operators who are already in the market shift their focus to a greater extent than previously towards one of the markets. However, the high concentration in the business market shows that it is exceedingly difficult for challengers to establish or shift their focus towards the business market. While Ice and other challengers account for around 28 per cent of the number of subscriptions in the residential market, these providers only account for 11 per cent of the number of subscriptions in the business market. Nkom believes this supports the

[26] Providers with a market share of less than 0.01 per cent in the business or residential market are not included in the table.

view that supply-side substitution cannot be considered sufficient to prevent a hypothetical price increase in the business market.

104. Based on the above assessment, Nkom is of the view that there will not be a sufficiently immediate and direct effect of supply-side substitution between sales to residential and business customers for these to be considered one retail market.

105. The presence of different providers also varies within various parts of the business market, where the smaller access buyers do not compete for the largest business customers. Nkom has analysed margins in various parts of the business market (depending on the number of subscriptions/ users per contract). This work has shown that the margin is significantly lower for the largest companies, which indicates that competition to attract the largest customers is fiercest. Therefore, competitive conditions may also vary within the business market. These findings suggest that this is a differentiated market, however the degree of differentiation is not sufficient to identify multiple markets within the business segment.

2.4.9.3 Conclusion

106. Based on the assessments above, Nkom is of the view that there are grounds for defining two separate residential markets, i.e. for business and residential subscriptions.

107. Within the business market, complexity and the degree of customized solutions also vary with the size of the company. At the same time, the largest and most attractive customers get the best deals. These findings suggest that it is a differentiated market, however the degree of differentiation is not sufficient to identify multiple markets within the business segment. Splitting the business market into several markets, would also not be a practical solution. However, Nkom acknowledges that competitive conditions vary within the business market.

2.4.10 Access to mobile networks via various technological platforms

108. Access to mobile networks, voice, SMS, and data services can be provided across several different technological platforms. In previous market analyses, Nkom has assumed that the market is technology-neutral, so there is no reason to differentiate regarding over which technology the relevant services are delivered.

109. Voice and SMS can be sent both over 2G networks and as IP packets in 4G or 5G networks, referred to as VoLTE or VoNR.[27] The end-users will not have to install their own application to be able to use VoLTE, but must have a mobile phone that supports the technology and the provider must have activated this support for the relevant handset. All new mobile phones support VoLTE. Voice and SMS pricing depends on whether the customer uses the services over LTE or other technologies. Nkom believes that voice and SMS via LTE in ordinary mobile subscriptions is substitutable with voice and SMS via 2G for end-users since they have handsets which support the service.

110. VoLTE will also allow for the handover of calls between wireless networks (Wi-Fi) and mobile networks. Provided that it supports the technology, and the provider has activated this support in the network, the end-user's mobile phone can then move seamlessly between Wi-Fi zones and the 4G network with almost identical voice quality and security. Nkom assumes that so-called VoWiFi (voice via Wi-Fi) is a complementary service to voice service via 4G or 5G mobile networks.

111. Data services are sold jointly in standard mobile subscriptions, irrespective of whether access is based on a 5G, LTE or 2G network. The mobile phone chooses whether the data traffic should go over 5G or LTE (or possibly 2G) depending on which technology is available and which provides the best user experience.

[27] Voice over New Radio, is not yet activated in the Norwegian mobile networks.

112. In summary, Nkom believes that there is no basis for defining separate product markets depending on the type of mobile technology and that the market is thus technology-neutral.

2.4.11 Conclusion on the retail market for bundled mobile telephone services

113. Nkom has concluded that the relevant market at the retail level includes access to mobile networks, call origination, text messaging, mobile data services and international roaming. Both access by prepaid subscriptions/pre-paid cards and post-paid subscriptions are included. The retail market can be divided into a business market and a residential market and is hereafter referred to as the retail market for bundled mobile services. The retail markets are technology-neutral.

2.4.12 Mobile broadband as a separate market

114. Mobile broadband is not included in the product market for telephony-connected services, as there is not a sufficient degree of substitution from telephony-connected mobile services to mobile broadband, as described in chapter 2.4.6.

115. However, in Nkom's decision on 14 May 2020, dedicated mobile broadband was defined as a separate, adjacent retail market.

116. In this chapter, Nkom assesses whether the market for mobile broadband is disciplined by other products to such an extent that a price increase cannot be made profitable. Then whether there is a basis for defining a separate, relevant market for mobile broadband.

117. Mobile broadband is a relatively small product compared to traditional mobile subscriptions. Revenue from dedicated mobile broadband subscriptions accounted for around four per cent of total revenue from bundled subscriptions and mobile broadband at the end of the first half of 2023, and the trend is declining.

2.4.12.1 Assessment of disciplinary effects on the provision of mobile broadband

118. In Nkom’s view, it will be data traffic in ordinary mobile subscriptions and fixed broadband in particular that can have a disciplinary effect on mobile broadband. Below is an assessment of the extent to which the retail market for mobile broadband is subject to disciplinary effects from these services.

Disciplinary effects from ordinary mobile subscriptions

119. Data traffic via ordinary mobile subscriptions represents a steadily growing part of the total data traffic. The figure below shows the development in data traffic from 2016 to 2022, measured in millions of GB.

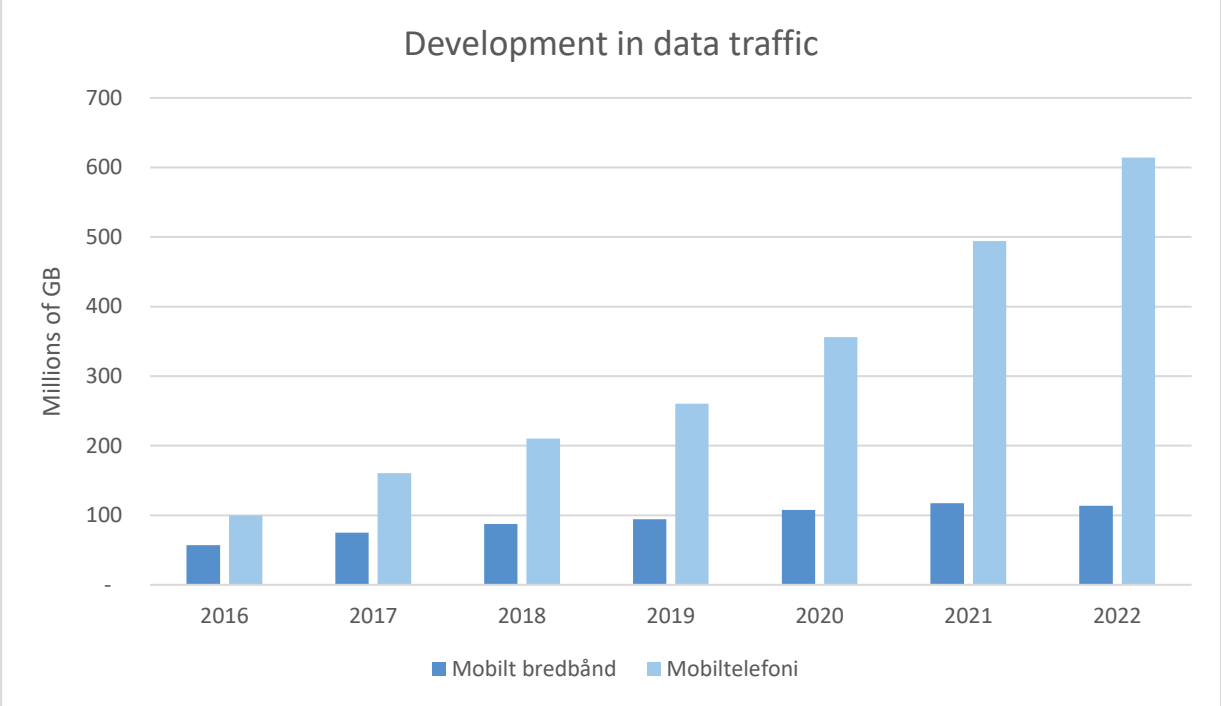


Figure 2 Development in data traffic (millions of GB) for ordinary mobile subscriptions and dedicated subscriptions for mobile broadband.

120. In the first half of 2023, data traffic from mobile broadband amounted to just over 55 million gigabytes, while data traffic from regular mobile subscriptions amounted to over 340 million gigabytes.

121. In the period from 2016 to the first half of 2023, the share of total data traffic generated from ordinary mobile subscriptions has increased from 64 per cent to 86 per cent. This trend indicates an increasing degree of substitutability from dedicated subscriptions for mobile broadband to data traffic over ordinary mobile subscriptions. The decline in the number of subscriptions for mobile broadband shown in Figure 2 also support an increasing degree of substitutability from mobile broadband to ordinary mobile subscriptions.

122. There have been major differences in how mobile subscriptions and mobile broadband subscriptions are sold, with far higher data quotas for mobile broadband subscriptions. However, several providers, including Telenor, Telia and Ice, offer mobile subscriptions with free use of data. However, the speed of this type of subscription is usually reduced to 3 Mbit/s when 100 gigabytes have been used. However, subscriptions with free use of data contribute to blurring the boundaries between mobile broadband and traditional mobile subscriptions and therefore, will most probably cause customers to increasingly use traditional mobile subscriptions as a substitute for mobile broadband.

123. However, there are still major differences in consumer patterns for mobile broadband and data traffic via ordinary mobile subscriptions. The figure below shows the average usage per subscription per month for mobile broadband and ordinary mobile subscriptions.

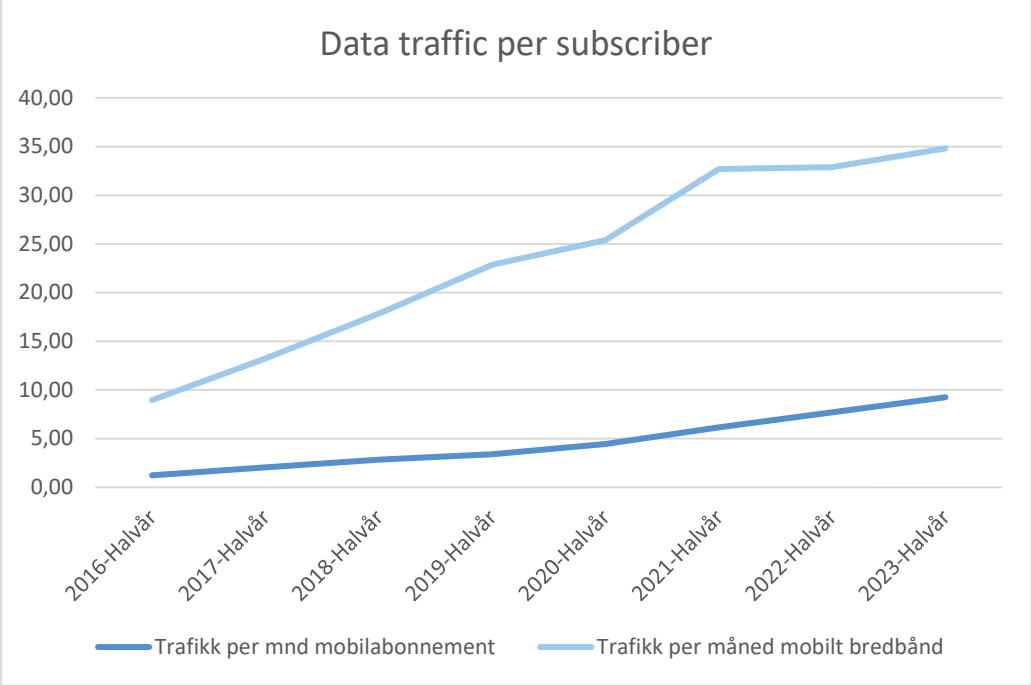


Figure 3 shows the development in data traffic for ordinary mobile subscriptions and dedicated subscriptions for mobile broadband

124. The figure shows that customers who have mobile broadband use much more data per subscription than an average mobile customer uses via ordinary mobile subscriptions. Some mobile customers use little or no data traffic via ordinary mobile subscriptions and therefore, these lower the average. However, this proportion is declining. If you disregard mobile subscribers who do not use data, the average data traffic via ordinary mobile subscriptions is marginally higher than is shown in the figure above. From full-year 2022 to the first half of 2023, average data traffic in mobile subscriptions increased from 8.5 gigabytes per month to 9.3 gigabytes per month. At the same time, average data traffic in mobile broadband subscriptions increased from approximately 34.2 gigabytes per month to 34.5 gigabytes per month. From 2021, the increase in data traffic (per subscription) from regular mobile subscriptions has for the first time been greater than the increase in data traffic from dedicated mobile broadband subscriptions. However, the average data consumption over ordinary mobile subscriptions is still far lower than the average data consumption over mobile broadband.

125. These development trends support the claim that mobile broadband and data traffic linked to ordinary subscriptions cover different end-user needs. There are differences in product features and use which means that the products cannot be considered substitutes in the period covered by the market analysis. There also appears to be an increasing degree of substitution from mobile broadband to ordinary mobile subscriptions such that the offer of data traffic in ordinary mobile subscriptions will most probably have disciplinary effects on mobile broadband in the coming years.

Disciplinary effects from fixed broadband

126. In total, there were close to 2.5 million fixed broadband subscriptions at the end of the first half of 2023, including 2.3 million residential subscriptions. Around 90 per cent of Norwegian households had fixed broadband at the same time[28]. In comparison, there were around 264,000

[28] The calculation includes only residential subscriptions

subscriptions for mobile broadband. This is equivalent to about 10 per cent of the total number of broadband subscriptions (fixed and mobile).

127. The option of mobility represents a significant distinction between mobile and fixed broadband. Some end users who have mobile broadband have probably acquired this with a view to using the opportunity for mobility, while some users probably only use the solution in a fixed location, for example in holiday homes. Fibre is now being developed on an increasing scale also in areas for holiday homes. Thus, fixed broadband will increasingly be an alternative also for holiday homes. Therefore, the possibility of unlimited data consumption and higher speeds with fixed broadband must increasingly be expected to have a disciplining effect on the provision of dedicated mobile broadband. Fixed wireless broadband is also marketed as a product for holiday homes and can thus also have a disciplining effect.

128. Therefore, Nkom believes that fixed broadband in some cases could have a disciplining effect on mobile broadband and that this effect will be increasing.

Summarized about disciplinary effects on mobile broadband

129. Nkom believes that both traditional bundled mobile services and fixed broadband have disciplinary effects on mobile broadband and that these effects are increasing. Due to the fact that mobile broadband is a small product area with declining volumes, Nkom sees no need to carry out a full market definition and a separate market analysis for this product. However, Nkom has made some assessments of the market development and competition situation below.

2.4.12.2 Development in market shares for mobile broadband

130. The figure below shows the trend in the market shares for mobile broadband measured by the number of subscriptions.

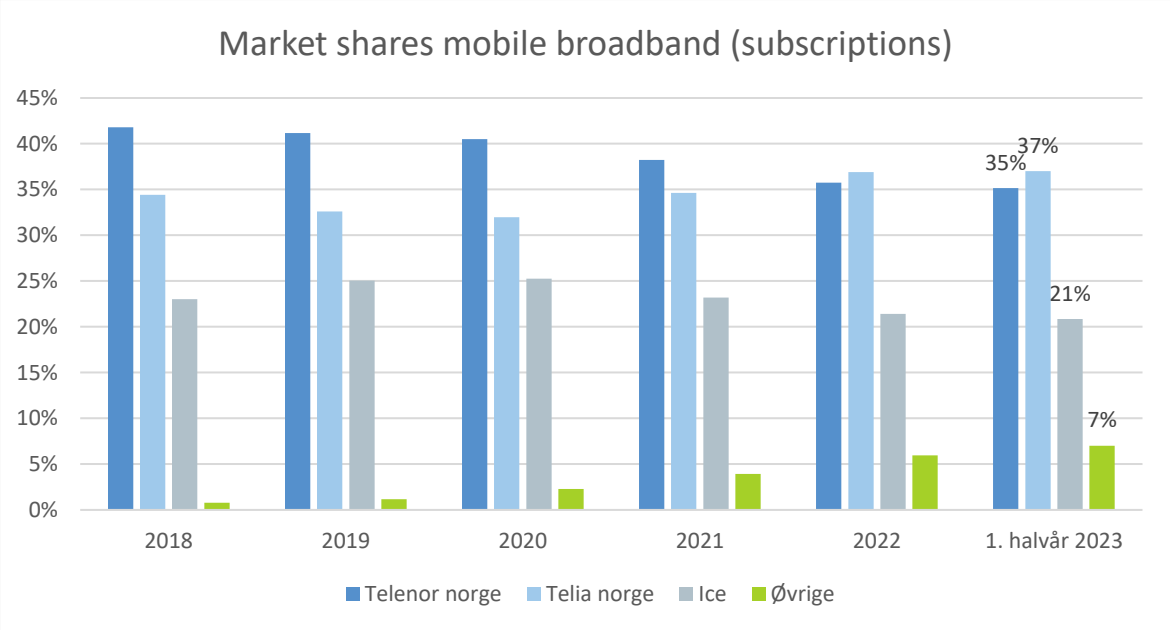


Figure 4 Development in market shares measured by the number of mobile broadband subscriptions for the period from 2018 to the first half of 2023.

131. Telenor was the largest provider of mobile broadband with 37 per cent of the total number of subscriptions at the end of 2023. Telenor had just over 35 per cent of the number of subscriptions, while Ice had about 21 per cent. Telenor and Ice's share of the number of subscriptions has been

reduced over the past three years, while Telia has had an increase in its share in the same period. Other providers have increased their share in the same period but have only managed to enter the market to a modest extent.

132. The revenue for dedicated subscriptions for mobile broadband is declining and amounted to just over NOK 1 billion in 2022, about NOK 113 million less than in 2021. These sales totalled approximately NOK 450 million in the first half of 2023.

133. Sales from dedicated subscriptions for mobile broadband are divided among the operators as shown in the figure below. Telenor's share amounted to around 33 per cent, while Telia had a share of almost 36 per cent in the first half of 2023. Telenor's share has been reduced by 5 per cent since 2018. Ice's share stood at around 25 per cent in 2022.

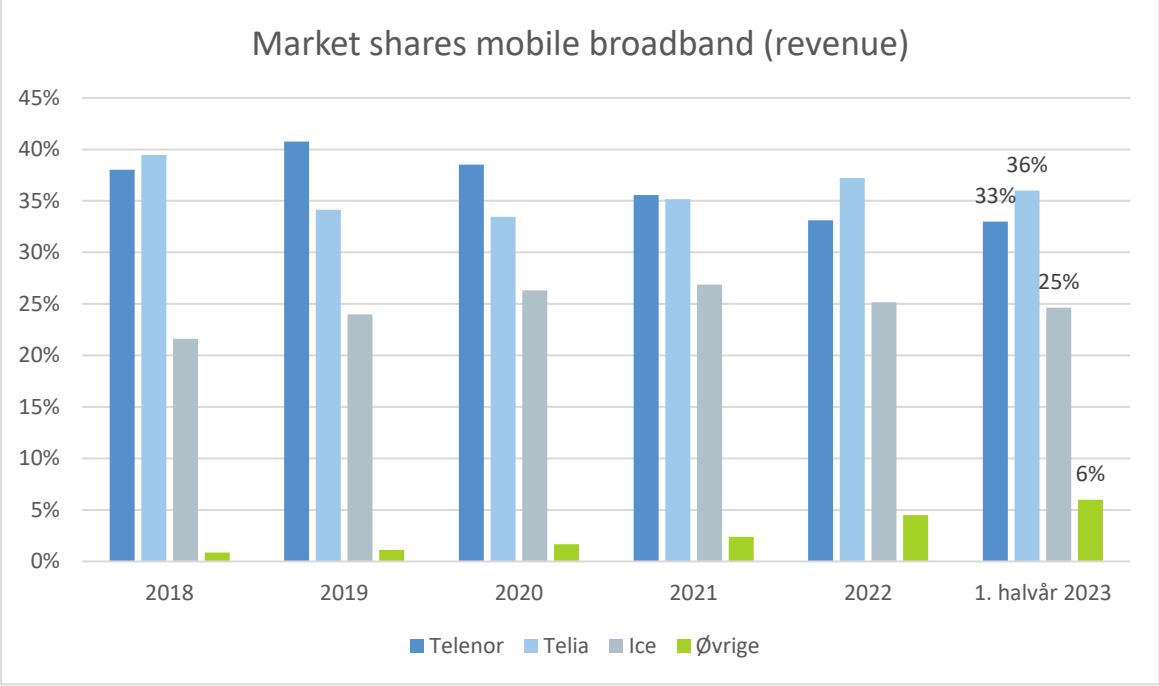


Figure 5 Development in market shares measured in revenue for mobile broadband for the period 2017 to first half 2023.

134. The market shares for mobile broadband are evenly spread among the three network owners, both based on subscriptions and revenue.

2.4.12.3 Conclusion

135. Nkom believes that dedicated subscriptions for mobile broadband are not a part of the retail market for bundled mobile services, ref chapter 2.4.6 above, as this product does not constitute a substitute for end-users who have traditional bundled mobile products.

136. The product mobile broadband is, disciplined by data traffic over ordinary mobile subscriptions and in some cases by fixed broadband.

137. In light of the fact that the number of subscriptions and revenue for mobile broadband is very limited compared to traditional bundled mobile services and the market is declining, Nkom sees no reason to proceed with a full market definition and analysis of this product area. Disciplinary effects from ordinary mobile subscriptions and fixed broadband mean that the risk of end user harm in this market is very low.

138. A simplified analysis of the market development and competitive situation also shows that the market shares are relatively evenly distributed between three network owners. Such findings support the conclusion that there is no need for a full market analysis.

139. On this basis, Nkom believes that there is no need to continue mobile broadband as a separate relevant retail market.

2.5 Definition of the derived wholesale market

2.5.1 Access to mobile networks

140. Access to mobile networks is a precondition for operators wishing to offer mobile services to end-users. While mobile network operators (MNO) themselves control all the infrastructure necessary to offer mobile network services to the end-users, other operators will depend on being able to buy access at the wholesale level, to be able to offer such services.

141. There are various means of accessing mobile networks at the wholesale level. The type of access that an access buyer wishes to use will depend on the extent to which the access buyer controls its own infrastructure. Four different types of access can generally be identified:

- National roaming This type of access is relevant for operators with their own frequency resources that have rolled out coverage in individual areas but need to be able to buy access to mobile networks in areas where they do not themselves have radio coverage.
- MVNO access: An MVNO invests in its own core network infrastructure (e.g. Home Location Register, Switch, SMS Controller, MMS Controller, Gateway GPRS Support Node, IP Multimedia System, Evolved Packet System) and has all the technical systems necessary for interconnection with other network operators. Unlike providers that require national roaming, an MVNO does not have its own frequency resources or its own radio network. As an MVNO, the provider will have its own IMSI code[29] (International Mobile Subscriber Identity Code), network code (MNC) and provide individual subscriptions (SIM) and services to the end users. An MVNO can also be a provider in the wholesale market by having its own service providers.
- Service provider access Access form for operators who do not have their own infrastructure at their disposal. A service provider access agreement gives providers without their own network a non-exclusive right to offer, market and deliver services to end-users via pre-paid cards or subscriptions. The end-users only have a contractual relationship with the service provider. The service provider's calls are routed according to the network operator's or the MVNO's interconnection agreements and roaming agreements with other parties. The service provider's service production is performed by the host operator and the need for investments in infrastructure for such establishment is therefore limited.
- Co-location involves access to the placement of equipment in passive infrastructure such as cabins and masts.

142. All of the network operators in the Norwegian market also offer access to their own service provider activities, called "self-supply".

143. The different types of access involve different technical solutions that cover diverse needs, partly depending on which infrastructure the buyer controls. This means that changing the type of

[29] A unique number used in a mobile network to give each customer relationship a unique identity and to specify the card's home network and nationality. Some MVNOs use parts of the host operator's IMSI series, which among other things enables the use of the host operator's agreements on international roaming.

access for an access buyer may require significant own investments and use of resources to move upwards towards the MVNO and possibly a network owner with a national roaming agreement, or alternatively a loss on investments already made when transitioning from, for example, an MVNO to a service provider. The different types of access are thus not perfect substitutes for each other from the demand side. The operators' choice of access agreement is based on assessments of, inter alia, financial assumptions and establishment strategies of the individual access buyer.

144. However, new operators who want to provide mobile services at the retail level can invest step by step and thus move between types of access, or in other words, climb the so-called investment ladder. Tele2, Phonero and Telavox/eRate are such examples. This also indicates a certain degree of substitution on the demand side.

145. Overall, the production of the services offered at the retail level still requires the same input factors. The differences lie in how the access buyers produce these themselves. The services offered to end-users by access buyers are also the same (voice, text messaging and data), irrespective of the type of access.

146. On the supply side, the production of access and origination in mobile networks will use the same input factors. Providers of one of the types of access will have networks (base stations, masts, switches, frequencies, etc.) and sales systems that make it possible to offer the other types of access as well. There are no production-related, financial, or regulatory factors indicating that existing grid owners with nationwide networks are prevented from offering all types of access. Supply-side substitution thus suggests that the types of access are included in the same product market.

147. This assessment corresponds to the Norwegian Competition Authority's assessment in the Notice of a merger between Telia Company AB and Phonero AS (2017) and the Norwegian Competition Authority's decision on the merger between TeliaSonera AB and Tele2 Norway AS/Network Norway (2015).

148. Based on the aforementioned, Nkom considers the relevant product market at the wholesale level to include national roaming, access for MVNOs and access for service providers, including the network operators' own service provider level. The wholesale market includes access via the same technological platforms as the definition at the retail level comprises, i.e. GSM, LTE networks and 5G. When it comes to data transfer speeds, the market definition does not set any limits but includes the speeds that can be achieved using the aforementioned technologies within the time horizon of the analysis.

149. Nkom also believes that co-location is a type of access that is particularly important for achieving the goal of sustainable competition in the market for access and origination in mobile networks. The possibility to place equipment in existing locations means that more operators have access to locations that are good in terms of coverage and that the costs of establishing and operating passive infrastructure can be shared among several operators. At the same time, co-location is an important contribution to reducing the industry's environmental footprint.

150. Nkom's first market analysis was based on the Guidelines from 2003. In its Explanatory Note, the Commission provided guidelines that regulatory authorities may use measures to address the competition problems in a relevant market that targets areas of a more adjacent nature, without the need to define a separate market to impose the obligations. Co-location was cited as an example.

> *"The issue of the appropriateness of defining narrower markets should be kept separate from the issue of the identification and application of remedies. In dealing with a lack of effective competition in an identified market, it may be necessary to impose several obligations to achieve an overall solution. For instance, it may often be the case that adjacent or related remedies are applied to technical areas as part of the overall obligation that addresses SMP on the analysed market. If specific remedies are thought to be necessary in a specific narrow*

technical area, it is not necessary or appropriate to identify each technical area as a relevant market in order to place obligations in that area. An example would be where an obligation to provide unbundled access to the local loop is complemented by related obligations concerning access to co-location facilities."

151. A similar approach is also supported by Article 72 of the Code and Section 7-1 of the draft new Electronic Communications Act, which proposes that access to system infrastructure may be imposed even if the infrastructure is not part of the market to which the access obligation applies.

"The Authority may order a provider with significant market power to meet any reasonable request to enter into or amend an agreement on access to and the use of infrastructure for the establishment of electronic communications networks. Orders for access to infrastructure may include, among other things, access to and use of buildings and entrances to buildings, wiring in buildings, antennas, towers and supporting structures, poles, masts, pipes, inspection wells and switchgear cabinets. The obligation to comply with requests for access according to this provision may also extend to infrastructure that is not part of the market to which the access obligation relates."

152. BEREC's 2019 report "Access to physical infrastructure in the context of market analysis"[30] also discusses the basis for including access to physical infrastructure in markets designated for pre-regulation. The report covers the broadband markets, but Nkom considers that the assessments related to access to physical infrastructure can also be related to mobile networks.

"NRAs may impose obligations of this kind, irrespective of whether the assets that are affected by the obligation are part of the relevant market defined in the market analysis, provided that the obligation is necessary and proportionate to meet the objectives set out in the EECC. The EECC therefore recognises access to physical infrastructure as a possible 'standalone' remedy (and not only as an ancillary remedy to other remedies imposed)."

153. The general access provision in the draft of the new Electronic Communications Act Section 7-2 is a continuation of the current Electronic Communications Act Section 4-1, first paragraph. The wording of the Act now explicitly states that the obligation to provide access may also include associated facilities or services, including co-location as stated in subsection 7 of the second paragraph. This is a continuation of the current Section 4-4, fourth paragraph of the Electronic Communications Act. It is clear from the comment concerning subsection 7 of the second paragraph (co-location) that access granted based on significant market power must be related to the market in which the provider has significant market power.

154. Based on the key importance co-location has for the goal of sustainable competition in the market for access and origination in mobile networks, and the regulatory basis mentioned above, Nkom believes that co-location should be included as a type of access within the relevant wholesale market in the same way as in previous market analyses.

155. As in previous analyses, Nkom includes internal sales or internal use in the wholesale market to give a correct picture of the market and relative strengths. The reason for including self-supply into the wholesale market share is supply-side substitutability. MNOs could easily switch resources from self-supply to supplying third parties in the wholesale market, if the market conditions changed in such a way that this decision made business sense.

[30] | BEREC (europa.eu)

2.5.2 Services at the wholesale level

156. For buyers of wholesale products to be able to offer attractive services in the relevant retail markets, the access product must include voice, text messaging and mobile data services.

157. Nkom concluded above that international roaming is included in the relevant retail markets for bundled mobile services. At the wholesale level, foreign network operators may require international roaming. In addition, operators with a service provider access agreement will need access to be able to sell international roaming in the retail market. International roaming constituted a separate market at the wholesale level in the original Recommendation from the Commission and ESA. However, the experience gained by the national regulatory authorities and BEREC in conjunction with market analyses in this market showed that it was not possible to address the competition problems in this market on an effective basis at a national level. In 2007, the Commission therefore initiated a joint regulation for international roaming. This regulation was continued and expanded in new regulations most recently in 2022.[31] The rules cover both direct international roaming agreements between network owners and the resale of international roaming to buyers of access. On this basis, Nkom believes that international roaming is not part of the relevant product market at the wholesale level.

158. Based on substitution assessments, Nkom has found that M2M communication and IoT services via mobile networks are not part of the relevant retail markets for bundled mobile services. Therefore, the possibility to provide M2M/IoT is not included in the derivative wholesale market.

159. In addition, all services offered to end users in connection with the bundled mobile product (voice, SMS, and data) are included, regardless of the technological platform.

160. Issues relating to whether future services are within the relevant market must be determined based on an assessment of substitutability and other factors described in Chapter 2.1. Nkom will, if necessary, consider such issues in a specific assessment of the service in question.

2.5.3 Definition of the geographical market

161. As stipulated in Chapter 2.3 of the Guidelines, geographical markets within electronic communication have traditionally been defined based on the diffusion of the relevant network, and the local jurisdiction for the legal regulation of the market. The markets have thus been viewed as national.

162. A more detailed geographical analysis with a view to defining local markets will be relevant if, for example, there are geographical differences in different providers' networks, coverage, and end-user services, including prices and products. However, in Norway, there are no major geographical differences in the providers' coverage that would indicate that there is a need for a detailed analysis with a view to defining local markets. The fact that both wholesale prices and retail prices for mobile telephony are the same throughout the country and that mobile customers naturally move around, also indicates that the relevant market should not be divided into several local or regional sub-markets. As with previous analyses of the relevant market, Nkom believes that a national approach to market definition and analysis is well-founded.

163. The right to use allocated frequencies varies in terms of whether they also include Svalbard in addition to the mainland.[32] As stated in Chapter 2.1.2, however, Chapter 3 of the Norwegian Electronic Communications Act concerning significant market power, Chapter 4 on access and Section 9-3 on a consultation procedure, do not apply to Svalbard. Svalbard is therefore not part of the geographical market.

[31] For more information, see http://eng.nkom.no/market/telecom-services/regulations/international-roaming

[32] In some cases, there are separate licences for Svalbard.

164. Nkom thus maintains that the geographical market for access and origination on mobile networks is mainland Norway.

2.5.4 Conclusion regarding market definition

165. The relevant wholesale market is technology-neutral and includes wholesale access for being able to offer origination of voice, text messaging and data services for the following external access types:

- Access by national roaming
- MVNO access
- Service provider access

166. The market includes access to offer ordinary bundled mobile services. Mobile broadband access is not included.

167. Access delivered to MNOs' internal service provider level ("self-supply") was included in the same market as access purchased by external providers.

168. Co-location is included as a separate form of access within the relevant wholesale market.

169. The geographical market is defined as mainland Norway.

3 Overview of market operators

3.1 Supply-side operators in the wholesale market

170. Telenor and Telia have an almost nationwide GSM network (2G) and LTE network (4G) in Norway.[33] Both Telenor and Telia have given notice that the GMS network will be closed during 2025, thus allowing the companies to prioritize the latest technology, i.e. 5G. The roll-out of 5G networks is ongoing. Both companies operate as network operators, service providers and content providers and must thus be viewed as vertically integrated companies. In the relevant wholesale market, both operators offer access to national roaming, MVNO access, service provider access and co-location.

171. Telenor owns much of the electronic communications infrastructure in Norway, both fixed access networks and transport networks for transmission capacity, etc. Telenor holds owner interests in a number of mobile companies in Europe and Asia. In the Norwegian retail market, the company has the brand name Talkmore, in addition to its own brand name.

172. Telia Norge AS is Telia Company AB's Norwegian activity. Telia Company AB also has mobile operations in several countries in the Nordic region and the Baltic states. The company covers the majority of the areas within the electronic communications sector. In the Norwegian retail market, the company operates with the brand names OneCall, MyCall and Phonero, in addition to its own brand name. Telia also has ownership interests in Fjordkraft mobil AS.

173. In addition, two actors operate as so-called virtual facilitators (Mobile Virtual Network Enabler - MVNE). These are Telavox (formerly eRate) and Svea. These operators are themselves access buyers on the demand side, but also providers within the wholesale market.

174. eRate was established in 2005 and initially used service provider access from Telenor, but in August 2018 entered into an agreement on MVNO access with Telenor. In the fourth quarter of 2022,

[33] The companies' UMTS network (3G) was switched off in 2021.

the process of migrating customers to the MVNO platform started, and several of Telavox's customers have now launched services on this platform. In addition to financial services, Svea offers access to Telenor and Telia's mobile networks in the wholesale market. The wholesale offer is based on service provider access agreements.

3.2 Demand-side operators in the wholesale market

175. On the demand side, some operators purchase access to Telenor or Telia's network based on an agreement for national roaming, MVNO access or service provider access.

176. Ice was established in 2003 and has offered mobile broadband in the retail market, based on its own network with CDMA technology in the 450-MHz band. The number of base stations using these frequencies is limited and they are designed to produce mobile broadband in areas that are characterised by scattered dwellings and holiday properties. In 2015, Ice replaced its CDMA network with LTE and transferred its mobile broadband customers to this network. The company has more than 75 per cent geographical coverage in this network. As of today, there are no mobile handsets to support this frequency band, which means that the network can only be used for dedicated mobile broadband.

177. At the frequency auction on 2 December 2013, the company was granted frequency resources in the 800, 900 and 1800 MHz bands. Based on access to national roaming with Telia, Ice launched traditional mobile products on 15 June 2015. All traffic to and from mobile phones went via Telia's network up until June 2016. Until then, Ice only had mobile broadband customers on its own network. However, from this date, the company commenced the process of moving parts of the mobile customer data traffic over to its own network. Since then, Ice has also gradually moved its customers' voice and SMS traffic to its own network.

178. In February 2022, the Norwegian Competition Authority approved Lyse AS (Lyse)'s acquisition of Ice.[34] At the end of 2023, Ice had expanded its mobile network to cover about 96 per cent of the population. The company aims to build 5G across the country and become independent of national roaming. Until then, the company is dependent on purchasing access in the relevant wholesale markets. As of the present date, Ice is not a provider in the wholesale market.

179. Today, three providers purchase MVNO access. In addition to Telavox as mentioned above, Lycamobile and Com4 acquire MVNO access. In December 2009, Lyca Mobile entered into an MVNO agreement with Telia and launched commercial services in the Norwegian retail market in April 2010. Lycamobile entered into a MVNO agreement with Telenor in November 2023. Com4 AS (Com4) entered into an agreement with Telia in December 2012. The company's core business is machine-to-machine communication (M2M) with the exchange of text messaging. Since the relevant retail markets are defined as not including M2M communication, Com4 will not be an operator on the demand side to the extent that their wholesale purchases are an input factor for offering M2M communication.

180. In the previous market analysis, there were thirteen service providers in the market. There have since been mergers and acquisitions and new providers have become established. Telavox's establishment of an MVNO platform also means that the company is in the process of transferring customers from a service provider platform to an MVNO platform. Thus, Telavox customers have access to MVNO functionality but have not invested in an MVNO platform themselves. The total number of independent service providers was nine[35] in January 2024. In addition, Happybytes and Nortel are on Televox's MVNO platform. The number of independent access buyers has been reduced

[34] Lyse AS - ICE Group Scandinavia Holdings AS / Phonepartner Norway Holding AS / ICE Retail Holding AS - The Norwegian Competition Authority

[35] Chilimobil AS, Fjordkraft, Intility, Nortel/Unifon, Plussmobil, Primafon AS, Saga Mobil AS, SMB Mobil, Xplora Mobil

during the period, partly as a result of acquisitions and mergers. However, it is positive for the opportunities for innovation and differentiation that more operators provide services on MVNO platforms.

3.3 Summary of market operators

181. The table below summarises the development in the number of operators at various levels in the Norwegian market.

	2006	2010	2015	2020	December 2023
Network owners	Telenor Telia	Telenor Telia Mobile Norway	Telenor Telia Ice	Telenor Telia Ice	Telenor Telia Lyse/Ice
Providers with national roaming agreements	Teletopia	Network Norway	Ice	Ice	Ice
Providers with MVNO agreements	Tele2 TDC Ventelo	Tele2 TDC Ventelo	Com4 Lycamobile Phonero TDC	Com4 Lycamobile eRate	Com4 Lycamobile Telavox[36]
Independent service providers	Less than 20	Less than 20	15	13	9

Table 2 Development in the number of providers

182. As in the previous analysis, it is still only Telenor and Telia that offer products in the wholesale market exclusively based on their own infrastructure. Ice has thus far not entered into agreements for access in the wholesale market.

183. The following table lists access buyers across the two mobile networks.

[36]Happybytes is an access buyer on Telavox's MVNO platform. Nortel also has some customers who remain on the MVNO platform after merging with Unifon

	Telenor	Telia
National roaming		Ice
MVNO	Telavox: 2 operators[37] Lycamobile	Com4
Service providers	Unifon[38] Intility Telavox: 4 operators[39] Svea: 1 operator[40]	Chilimobil Fjordkraft

Table 3 Distribution of access buyers in Telenor and Telia's mobile network as of January 2024.

4 Development in the retail market, prices, and usage patterns

184. The purpose of the regulation is to provide good, affordable, and future-oriented electronic communication services for users throughout the country. The goal will be achieved through the establishment of sustainable competition. If there is already effective competition in the retail market in the absence of regulation, there is no need for sector-specific regulation of related wholesale markets. This is stated in Section 6 of the Recommendation:

> *"The ultimate objective of regulatory intervention is to produce benefits for end-users in terms of price, quality and choice by achieving sustainable competition at the retail level. The starting point for the identification of relevant markets in this Recommendation should be the definition of retail markets from a forward-looking perspective over a given time horizon, guided by competition law. Indeed, where retail markets are effectively competitive in the absence of wholesale regulation, national regulatory authorities should conclude that regulation is no longer needed on related wholesale markets."*

185. According to Stortingsmelding no. 28 (2020-2021) (white paper) "The Digital Agenda for Norway"[41], Norwegian citizens and businesses pay more for mobile services than citizens and businesses in our neighbouring countries. The Government believes that this is because Norway has a particularly high market concentration in the mobile market, which two major operators still dominate. Thus, the Government has set a goal of facilitating effective competition to reduce the price difference with other Nordic countries for mobile and broadband services.

4.1 Price developments

186. Revenue per customer can provide an estimate of the price development. Nkom's figures show that the providers have had an increase in revenue per customer in the past three years. Average revenue per customer per month (ARPU) increased from NOK 272 per month in 2019 to NOK 288 per month in 2022. This implies an annual average increase of just under 2 per cent. In the first half of

[37] Happybytes, Nortel (Nortel was acquired by Unifon in 2023, however, customers remain on the Telavox platform)

[38] Unifon and Nortel unite under the Unifon brand

[39] Plussmobil, Primafon, Saga Mobil, Xplora mobil.

[40] SMB Mobil

[41] https://www.regjeringen.no/no/dokumenter/meld.-st.-28-20202021/id2842784/

2023, average revenue per customer increased further to NOK 294 per month. However, the increase must be viewed in light of general data usage having increased during the period. New additional services, such as security services, can also help explain the increase in revenue per customer.

187. The figure below shows the development in revenue per customer from 2017 to the first half of 2023 for the three network owners and other providers.

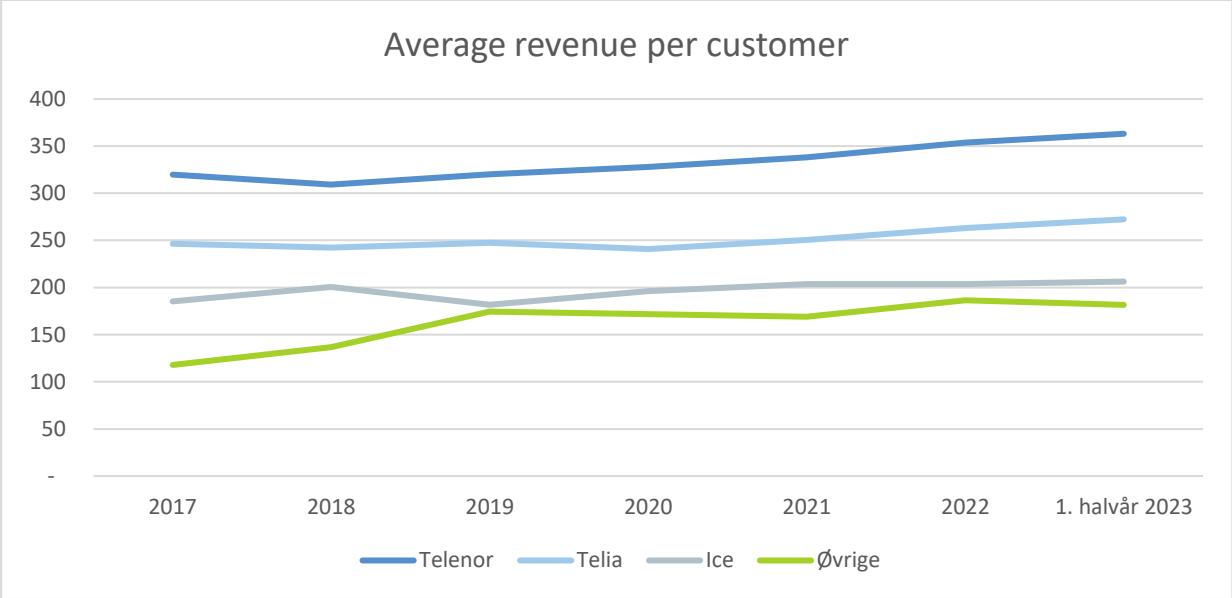


Figure 6 Average revenue in the retail market per customer per month in the period from 2017 to the first half of 2023

188. During the period, Telenor had by far the highest turnover per customer, followed by Telia. Ice has had the lowest turnover per customer of the network owners. Telenor explains the high revenue per customer with a focus on the sale of new services to existing customers, especially within insurance and security, as well as increased speed when transitioning to 5G[42].

189. The average turnover per customer of other providers is lower than the turnover per customer of the network owners, which indicates that it is the providers without their own mobile network that have been the price leaders during the period.

190. Additional services that are included in the subscription price or offered for a separate price may affect the average revenue per customer for the different providers. Telenor and Telia offer a wider range of additional services than Ice and providers without their own mobile network. The additional services offered are largely included in the subscription price, and the customers are less able to choose whether they want these additional services or not. Therefore, it is challenging to estimate the value or customers' willingness to pay for these services. In Nkom's market survey of the residential market from 2021, 18 per cent responded that good security products and only 9 per cent that additional services (such as cloud services, insurance, music services, etc.) were among the key factors when choosing a mobile operator. In comparison, 70, 66 and 30 per cent respectively responded that price, coverage, and customer service were among the most important factors. Of Telenor's customers, a somewhat higher proportion responded that good security products and additional services are important when choosing a mobile operator. However, a clear majority of

[42] Norwegian top services to boost Telenor's growth in the Nordic region - Inside Telecom

Telenor's customers did not respond that these services are among the key factors when choosing a mobile operator. In Nkom's opinion, this indicates that customers' willingness to pay for this type of service is not particularly high. The major differences in revenue per customer between providers can thus be explained to a lesser extent by the fact that Telenor and other network owners offer more additional services to their customers.

191. Another parameter that can indicate the price level between the various providers is revenue per GB of data traffic. Here, the total revenue per provider is divided by the total number of GB of data traffic used by the customers of each provider.

192. The figure below shows the development in revenue per GB data traffic from 2019 to the first half of 2023 for the three network owners and other providers.

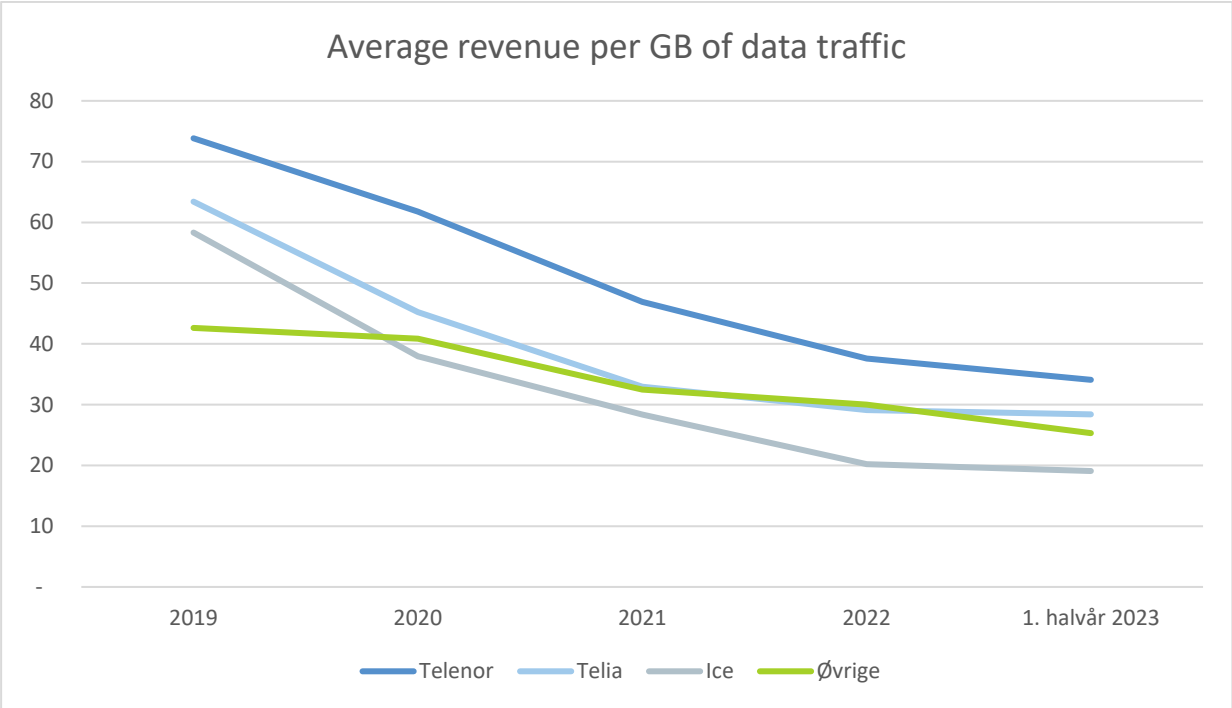


Figure 7 Average revenue in the retail market per GB data traffic in the period from 2019 to the first half of 2023

193. The figure shows that there has been a decline in revenue per GB of data traffic in the period, which indicates that the unit price for data traffic has fallen. Average revenue per GB of data has been lowest for Ice and highest for Telenor. In recent years, Telia and other providers have been at about the same level. However, the “Other providers” category consists of a wide range of providers that target different segments of the market, including providers that market themselves to customers who demand cheap voice traffic in Norway or abroad. The subscriptions offered by these providers normally contain no or little data, and the customers' data usage is often limited. Revenue per GB of data is thus very high for these providers and an inaccurate measurement parameter of the price level. These providers significantly increase the average revenue per GB of data for other providers. Based on this, Nkom has also calculated the average revenue per GB of data for only the two largest independent providers of traditional mobile subscriptions in the residential market. Their overall average revenue per GB of data has been significantly lower during the period than the average

revenue per GB of data for Ice. This indicates that providers without their own mobile network have been price leaders during the period if actual data usage is considered in the comparison.

194. The price comparison services of www.tek.no and www.mobiltelefoni.no compare prices for a large number of mobile subscriptions from various mobile providers in Norway. Consumers can choose their own usage patterns, and the comparison services are approved by Nkom. It is mobile providers without their own mobile network, followed by Ice, that currently offer the lowest retail prices for mobile subscriptions with little, medium, or free data included in the subscription. In Nkom's experience, this has been the case over time.

195. The BEREC International Roaming Benchmark Data and Monitoring Report compares the average revenue per end-user per month for all EEA member states. The report states that the results must be interpreted with caution because there is some uncertainty concerning several parameters that are liable to influence the figures, for example, subsidising of handsets, calculation of the number of active SIMs, etc.

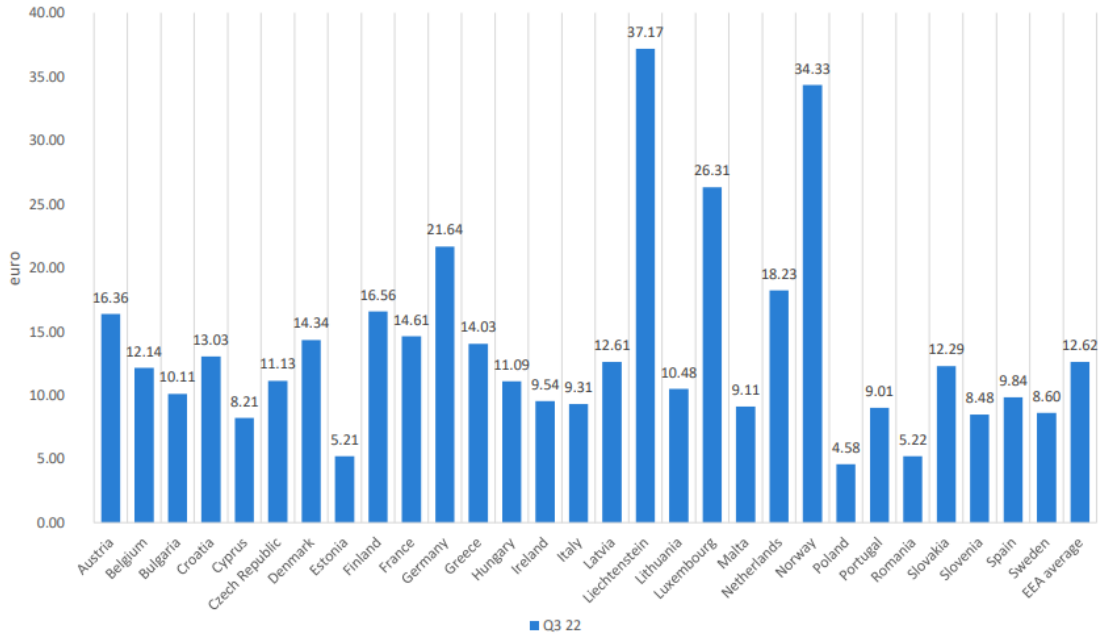


Figure 8 Average revenue per end-user per month. Source: The BEREC International Roaming Benchmark Data and Monitoring Report from March 27, 2023.

196. The figure above is taken from the report and shows the average revenues per end-user per month in the EEA member states in the third quarter of 2022[43]. The figures are based on data from the largest providers in each country (providers with over 100,000 customers). BEREC estimates that the report covers around 95 per cent of mobile customers in the EEA. Since the largest providers tend to have higher prices than smaller challengers, there is a risk that the figures provide a somewhat overvalued picture of what is the actual average ARPU if all providers were included. However, it can be assumed that this effect will apply to all countries. Although there is some uncertainty associated with the figures and therefore, the results must be interpreted with caution, in Nkom's view, the figure

[43] https://www.berec.europa.eu/system/files/2023-03/BoR%20%2823%29%2061%2029th%20BEREC%20Report%20on%20IR%20BMK%20Data%20and%20TACR%20October%202021%20September%202022.pdf. Figure 1.

indicates that the revenue per customer in Norway is high compared with other EEA member states. The same report also states that data usage is lower in Norway than in many of the other countries in this period[44].

197. The report Assessment of Norwegian Mobile Revenues in a Nordic context 2023[45], prepared by Tefficient for the Ministry of Local Government and Regional Development, shows that the average revenue per mobile phone subscription (ARPU) is higher in Norway than in the other Nordic countries[46]. In the comparison, the revenues are converted into Norwegian kroner and adjusted for purchasing power. The figure below shows the reported ARPU for the 14 MNOs in Norway, Sweden, Denmark, and Finland in the period from Q1 2019 to Q1 2023.

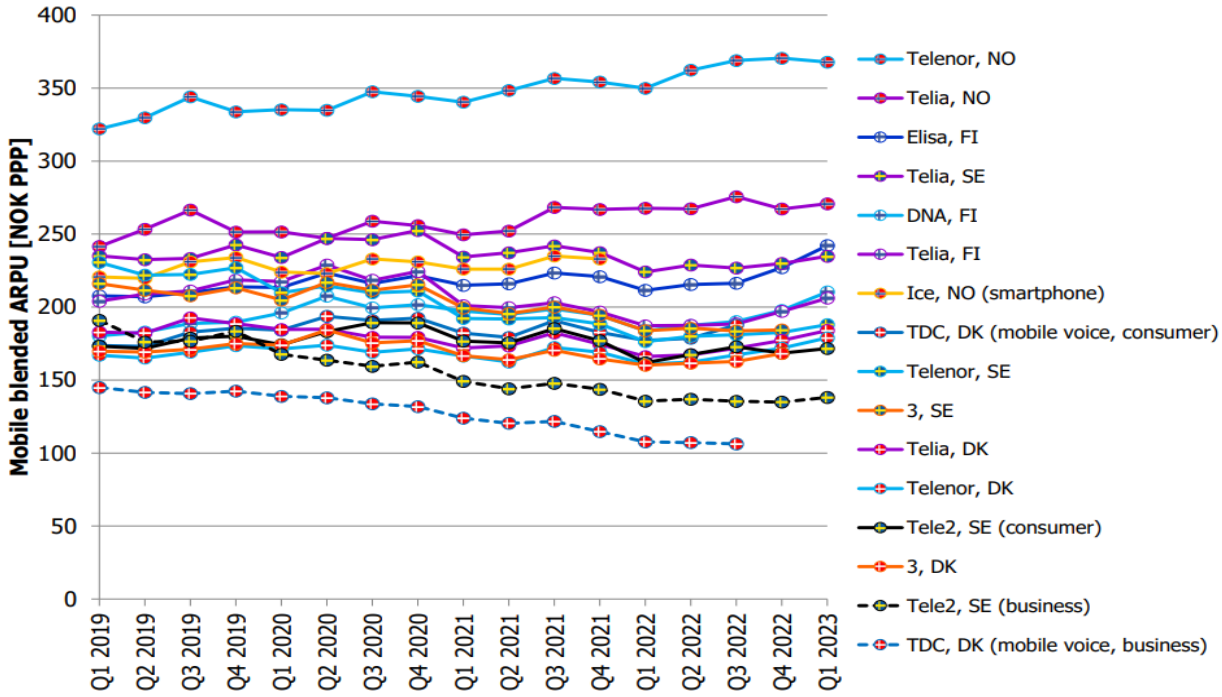


Figure 9 Purchasing power-adjusted ARPU in NOK for the 14 MNOs in Norway, Sweden, Denmark, and Finland. Source: Assessment of Norwegian Mobile Revenues in a Nordic context 2023 – Tefficient

198. The figure shows that Telenor Norway is in a unique position, with a significantly higher ARPU than the other MNOs. Of the other MNOs, Telia Norway has the highest ARPU, followed by Elisa in Finland and Telia Sweden. In 2021, Ice's ARPU, from mobile customers with smartphones, was significantly lower than the ARPU of Telenor Norway and Telia Norway, but higher than the ARPU of the Swedish (excluding Telia Sweden), Danish and Finnish MNOs. Ice has not reported ARPU for 2022 and 2023.

199. The report also shows that average data usage per mobile phone subscription is significantly lower in Norway than in the other Nordic countries. Tefficient has calculated the average revenue per

[44] During the same period, data consumption in Norway was lower than in Austria, Croatia, Denmark, Estonia, Finland, France, Italy, Latvia, Lithuania, Poland, and Sweden.

[45] Assessment of Norwegian Mobile Revenues in a Nordic context – 2023 – September update

[46] The definitions of what is included in reported ARPU may vary somewhat between providers, but as a rule, M2M is excluded. Both postpaid and prepaid subscriptions are included in the figure.

GB of mobile data, based on ARPU and data usage. The figure below shows the average revenue per GB of mobile data for Norway and other Nordic countries in the period from 2020 to 2022.

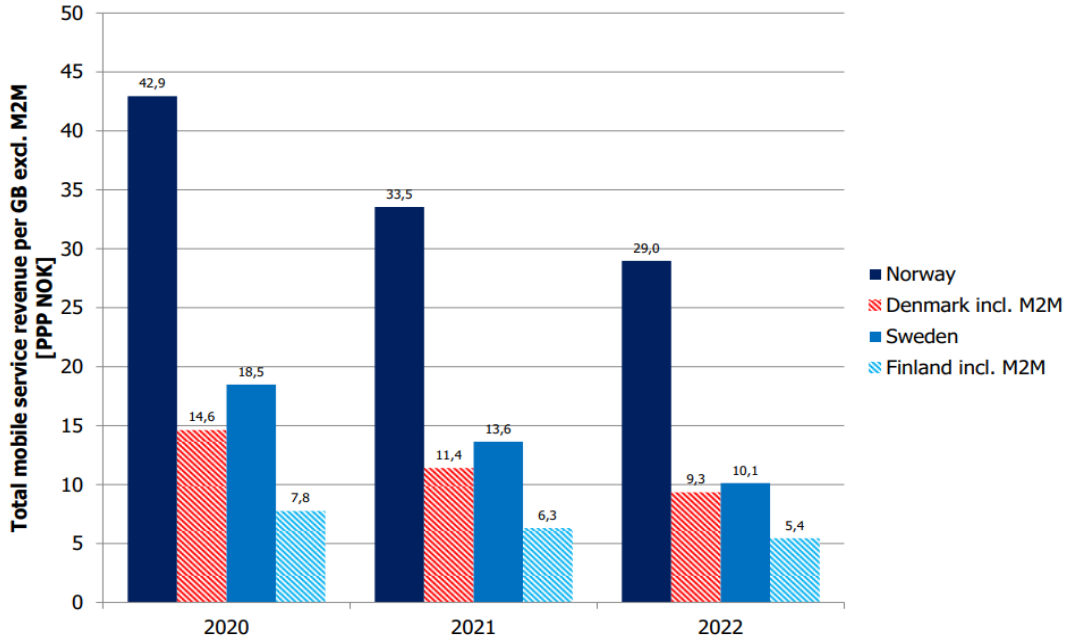


Figure 10 Average revenue per GB of mobile data. Source: Assessment of Norwegian Mobile Revenues in a Nordic context 2023 – Tefficient

200. The figure shows that Norwegian mobile customers pay significantly more per GB of mobile data than mobile customers in the other Nordic countries. However, the difference in the average revenue per GB of mobile data between Norway and the other countries has narrowed during the period. Furthermore, the report also shows that prices for large data packages in Norway have had a positive development and, in some cases, are now more comparable to prices in Sweden and Finland.

4.2 Usage patterns

201. In Norway, there is a great deal of variation in the quantity of data that end-users have included in their mobile subscription. The figure below shows how the number of subscriptions is distributed across assorted sizes of data packages at the end of 2020, 2021, 2022 and the first half of 2023. At the end of the first half of 2023, the largest group of end users had between one and five GB included in their mobile subscription. This group accounts for more than 23 per cent of total subscriptions. At the same time, more than 22 per cent had 100 gigabytes (GB) or more, including in their mobile subscription, while almost 14 per cent had no mobile data included. The trend is towards subscriptions with more data included.

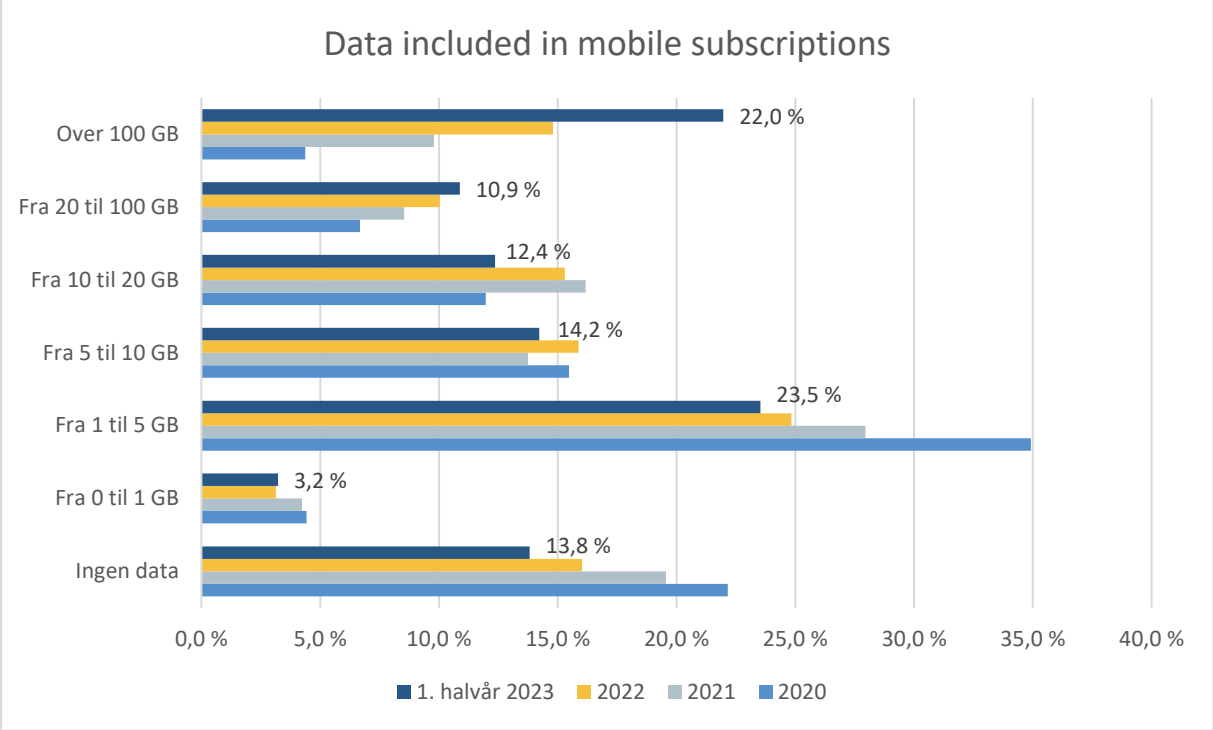


Figure 11 Number of GB of data included in mobile subscriptions at the end of 2020, 2021, 2022 and the first half of 2023.

202. By comparing the data usage in Norway with our neighbouring countries, it is evident that Norwegian end-users have the lowest consumption of mobile data in the Nordic and Baltic countries, cf. the figure below.[47]

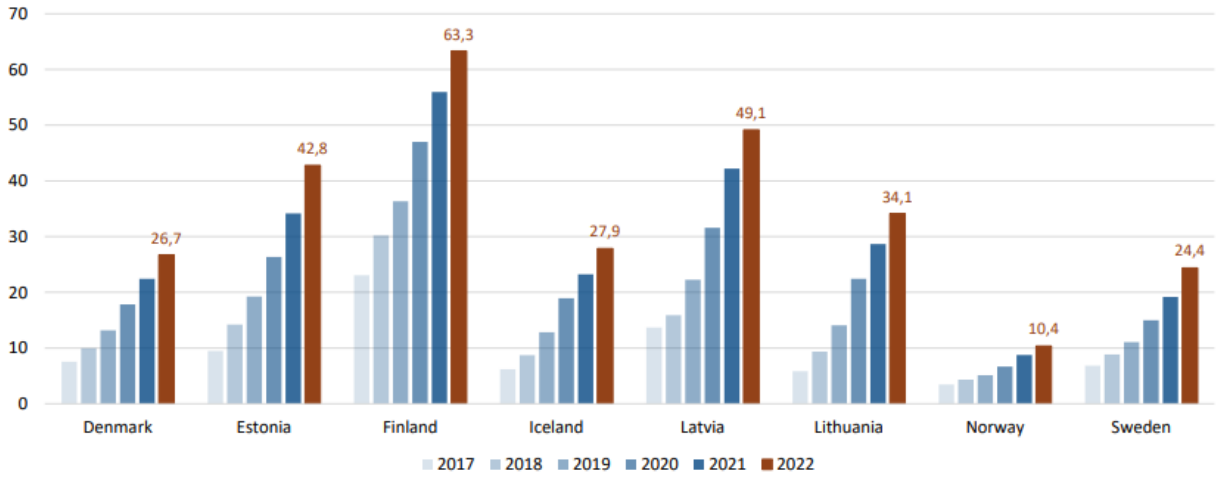


Figure 12 Number of GB of data transferred over mobile networks per capita per month[48].

[47] Taken from the Nordic Baltic Comparison: Telecommunications Markets in the Nordic and Baltic Countries 2022, 15 September 2023

[48] Includes both downloads and uploads of traffic, while international roaming is not included.

203. The figure shows that in 2022, as in previous years, Norway had the lowest amounts of data transferred over the mobile network per capita compared to the other Nordic and Baltic countries. The increase from 2021 to 2022 was also lower in Norway than in the other countries. Finland has by far the highest volume of data transferred per capita, followed by the Baltic countries. These countries also had the highest growth in the amount of data transmitted over mobile networks per capita from 2021 to 2022. One explanation for the significant differences between the various countries may be the prevalence of fixed broadband.

204. The figure below shows the number of fixed broadband subscriptions per household in the Nordic and Baltic countries.

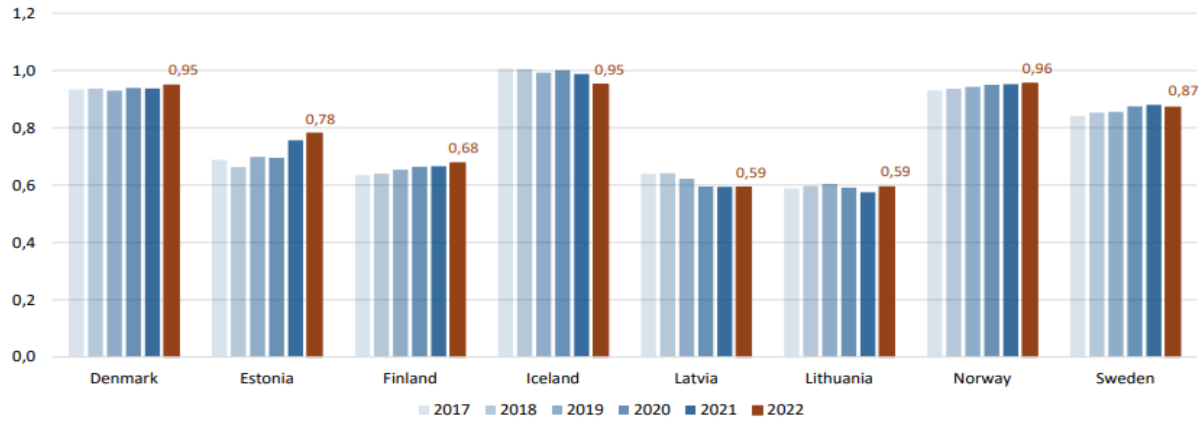


Figure 13 Fixed broadband subscription per household.[49]

205. The figureshows that Finland and the Baltic countries have the lowest number of fixed broadband subscriptions per household. It is also in these countries that mobile customers use by far the most data over the mobile network. In Nkom's view, the difference in the prevalence of fixed broadband may to some extent explain why the amount of data transmitted over the mobile network is significantly lower in Norway compared with Finland and the Baltic countries. However, in Norway, Sweden, Denmark and Iceland, the prevalence of fixed broadband is at about the same level. Therefore, the different prevalence of fixed broadband can only to some extent explain why Norwegian mobile customers use far less mobile data than mobile customers in these countries.

206. Another possible explanation for the limited use of mobile data among Norwegian mobile customers may be the use of wireless networks (Wi-Fi). Figures obtained by Nkom show that 92 per cent of mobile customers in the residential market often use wireless networks[50]. Especially at home and to some extent in the workplace, it is common to use wireless networks. The widespread use of wireless networks is probably due to a perception that it is expensive to use mobile data and/or a preference for the use of wireless networks.

207. A third possible explanation for some of the discrepancies in the use of mobile data between Norway and the other countries shown in Figure 12 is the treatment of traffic over FWB (fixed wireless broadband). In Norway, FWB was launched as a replacement product for DSL, and the product differs from the products within market 15, especially due to the lack of mobility and fixed antenna

[49] The figure includes subscriptions to both residential and business customers.

[50] Survey conducted by Kantar for Nkom in the summer of 2022.

requirements. Chapter 2.4.7 states that FWB is not included in the relevant product market at the retail level. The figures for Norway in Figure 12 do not include data traffic over FWB.

208. The design of the FWB product or equivalent products varies in other countries, including whether there is a clear distinction between FWB and traditional mobile products, as well as the possibility of mobility and/or the requirement of a fixed antenna. The prevalence of this type of product varies between the countries. Figure 12 shows that mobile data traffic in Norway has over time been lower than in the other countries, even before FWB or equivalent products were launched. Based on the clear trend shown in the figure, and the fact that FWB or equivalent products are relatively new to the market and have varying prevalence, only parts of the deviation in recent years can possibly be explained by the fact that some countries have included this type of traffic in the basis for the figure.

209. In May 2018, Chilimobil was the first Norwegian provider to launch a mobile subscription with virtually free use of mobile data included in the subscription. Since then, several Norwegian mobile providers have launched similar subscriptions, including Telenor, Telia and Ice. However, the speed of this type of subscription is usually reduced to 3 Mbit/s when 100 gigabytes have been used in a month. The prevalence of subscriptions with free use of mobile data is increasing, but still relatively limited in Norway. Figure 11 above shows that at the end of the first half of 2023, just under 22 per cent of mobile subscriptions had 100 GB or more data included in their subscription. These are mainly subscriptions with free use of mobile data.

210. The reason why Norwegian end-users use less data and pay more than end-users in the neighbouring countries is probably complex. The absence of sufficient competition is a natural reason. Even though there are many providers of mobile subscriptions in the retail market, several of the brands in the market are owned by Telenor and Telia, see Chapter 3.1. The established network owners control a significant part of the market, about 77 per cent of the subscriptions are in the retail market.

211. Norwegian network owners have also made major investments in mobile networks in Norway. As described in Chapter 5.1, it is expensive to construct mobile networks in Norway, with its difficult topography and scattered population. Despite this, the Norwegian mobile networks are among the best in the world. However, Chapter 5.2.4 shows that the Norwegian network owners have particularly good profitability, which means that the level of investment alone cannot justify why Norwegian mobile customers pay more for products and services than in other countries. High mobile prices, widespread use of small data packages and low usage can indicate limited competition in both the retail market and the wholesale market.

4.3 Summary of developments in the retail market

212. Reasonable prices, quality and choice for end users are an objective of market regulation. Norwegian end users have access to very high-quality mobile networks and have many options when it comes to the number of providers in the retail market, ref. Chapter 3. The fact that several operators have established themselves on an MVNO platform over the past year is very positive in terms of opportunities for innovation and product differentiation.

213. At the same time, the average revenue per customer in the Norwegian market is increasing, and for Telenor and Telia revenues are far higher than in the other Nordic countries. This, combined with the fact that data usage per customer is lower, indicates a higher price level in Norway than in comparable countries. Revenue per customer and revenue per GB of data traffic indicate that it is the access buyers in the market who are price leaders, and thus these contribute to price competition in

the retail market. However, these operators depend on access to national mobile networks and thus depend on sustainable competition in the wholesale market in the absence of regulation.

214. Nkom believes that the market trend in the retail market, including the price trend, does not provide evidence that there is sufficient competition in this part of the market independent of wholesale regulation. Therefore, Nkom will proceed with an assessment of whether the three criteria for sector-specific ex ante regulation are met.

5 The three-criteria test

215. The market for access and origination on mobile networks is not included in ESA's current recommendation for relevant markets ("The Recommendation"). For a market that departs from the Recommendation to be susceptible to sector-specific ex ante regulation, three cumulative criteria (the three-criteria test) must be met, cf. Article 2 of the Recommendation The three cumulative criteria are:

1. High and non-transitory structural or regulatory entry barriers exist in the relevant market.
2. The market structure is not tending towards effective competition within the relevant period.
3. General competition law alone is not sufficient to remedy the identified competition problems.

216. The starting point in assessing whether the three criteria are met will be based on a "Modified Greenfield Approach". This entails that the criteria must be assessed under the precondition that the market is not subject to ex ante regulation. A key issue will thus be the extent to which the current market conditions can be attributed to current obligations. Regulation in adjacent markets must be considered.

217. The following is an assessment of the three criteria and whether the relevant market justifies sector-specific ex ante regulation.

5.1 The first criterion: High and non-transitory entry barriers

5.1.1 General comments on the first criterion

218. Entry barriers limit competition by reducing the opportunities for new operators to enter the market. These kinds of entry barriers may have different characteristics and arise for varied reasons. As part of the three-criteria test, there must be an assessment of whether there are high and non-transitory entry barriers and whether these are of a structural or regulatory nature.

219. To assess entry barriers, it will be necessary to state which type of establishment is relevant. In Chapter 4, Nkom has assessed developments in end-user prices and usage patterns and believes that the results indicate that there is insufficient competition to ensure end-users reasonable prices and choices over time, regardless of wholesale regulation. Therefore, Nkom assumes that the establishment that is considered under the first criterion must include establishment in the wholesale market and be suitable to achieve the considerations behind the sector-specific regulation. This implies establishment as a mobile network owner (MNO). In connection with this, reference is made to Stortingsmelding 28 (2020-2021) (white paper) "Digital Agenda for Norway"[51], in which one of the principal objectives for electronic communications policy is to establish a minimum of three competing mobile networks.

[51] Meld. St. 28 (2020–2021) (white paper) - regjeringen.no

220. The assessment of entry barriers is a generic assessment that is not specifically aimed at Ice as the third network developer. At the same time, Nkom believes that several factors still make it challenging to complete the development of the third network and in the worst case may be obstacles to the establishment of Ice as a fully competitive mobile network. Therefore, Nkom has also considered the situation for Ice when assessing entry barriers.

221. Establishment in the wholesale market may also include other types of establishment than as a network owner, see Chapter 5.2.7 for a further assessment. However, Nkom believes that other forms of establishment would not be suitable for disciplining the established operators in the wholesale market sufficiently within the time horizon of the analysis. Therefore, the assessment of entry barriers is primarily aimed at establishment as a network owner.

222. In the following, Nkom will first discuss structural entry barriers and then regulatory barriers to the establishment of infrastructure for mobile networks.

5.1.2 Structural entry barriers

223. In section 10 of the Preamble to the Recommendation, structural entry barriers are described as follows:

> *"Structural barriers to entry derive from different cost or demand conditions that determine asymmetric conditions between incumbents and new entrants, impeding or preventing market entry of the latter. High structural barriers may also be found, for instance, when the market is characterised by absolute cost advantages or substantial economies of scale and/or network effects, capacity constraints and/or high sunk costs."*

224. Based on the definition and criteria in Section 58 of the Guidelines, Nkom considers the following structural entry barriers:

- Control over infrastructure that is not easily duplicated, including sunk costs,
- economies of scale and economies of scope,
- and access to financial resources.

5.1.2.1 Control of infrastructure that is not easily duplicated

225. If an operator controls infrastructure that is not easily duplicated, and this infrastructure represents an important input factor in the relevant market, this could represent a substantial entry barrier for potential competitors.

226. It is necessary to either own or otherwise control physical infrastructure in the form of mobile networks to be able to offer adequate, nationwide access and origination within the relevant market. Control over such physical infrastructure will entail considerable investments, and the costs are largely irrecoverable so they can only be[52] reversed to a limited extent. Sunk costs give the established operators a competitive advantage that also acts as a barrier to entry for new providers.

227. The amount of sunk costs will increase in step with the scope of the network expansion because expansion often starts in cities and densely populated areas, while more sparsely populated areas are developed in later phases. With its distinctive topography and scattered dwellings, rolling out mobile networks in Norway requires substantial investments.

228. In some cases, spectrum licences will set requirements for the expansion and thereby represent a lower limit on the extent of the network. Mobile customers' expectations of quality and

[52] Sunk costs are often presented as the antithesis of avoidable costs, including variable costs. Variable costs can be attributed to the actual use of the network, such as the costs of producing and transporting cellular communication and will cease when the use of the network is discontinued.

coverage are still expected to have a major influence on how a new operator must dimension its mobile network. To be competitive, new providers of cellular communication must be able to offer a nationwide service from the time of launch and will therefore need a national roaming agreement in addition to their own coverage.

229. Establishment of base stations can typically be divided into the following three categories: Own base station, co-location at other operators, and placement at a third party, for example on the roof of an existing building. Access to already established locations will be of significant importance in reducing time consumption and the costs of expanding their own network. The need for co-location will naturally increase as the network is rolled out. A greater need for co-location will mean that already established operators may influence any new operator's rate of establishment. Since the previous analysis, both Telenor and Telia have established their own tower companies that offer co-location on commercial terms. The commercial prices offered by Telenor are higher than the regulated prices that Telenor under current regulation must offer to Telia and Ice.

230. Owners of buildings where installation is requested will also be important to the rate of expansion because these can to a large degree decide whether access is granted and the terms that apply. Through its work on the Guide to Public Operators on the deployment of infrastructure for mobile networks[53], Nkom has learned that it can often be challenging to gain access to the placement of equipment, and there is great variation in the prices required. If an operator has already established infrastructure at one location, it will in some cases not be possible for others to obtain permission from the landowner or municipality to set up parallel infrastructure, and access to existing infrastructure is thus the only possible solution.

231. On considering Telia's acquisition of Tele2's Norwegian activities, the Norwegian Competition Authority assessed that the establishment of base stations constitutes a significant entry barrier in the wholesale market.[54]

232. Costs related to the establishment of a brand and marketing costs can, to a certain extent, also be considered irreversible costs. Building up a sufficient customer base for any new mobile network can be expected to entail significant marketing costs.

233. Telenor had already established the NMT mobile network in the 1980s. Much of the infrastructure in this network could be reused when establishing the GSM network and for subsequent network development. The company therefore had a first-mover advantage compared with Telia, which became established without existing infrastructure. However, both Telia and Telenor have achieved nationwide coverage for mobile networks for mature technologies and therefore have an advantage over new network operators.

234. Ice originally started with a network for mobile broadband based on CDMA technology in the 450 MHz band, see Chapter 3.2. The network was later replaced with 4G and 5G technology. The infrastructure on this network can be utilised through the company’s development of the mobile network using other frequency bands. The company also received a boost to the development by taking over Mobile Norway/Tele2's infrastructure in 2015, which at that time had 75 per cent population coverage. This must be considered an extraordinary event that other providers cannot expect to have the option of doing.

235. Ice stated in 2019 that building 2,000 base stations to increase population coverage from 83 to 95 per cent (an increase from 2,000 to 4,000 base stations) would cost the company NOK 1.5 billion[55].

[53] Deployment of mobile network infrastructure in public areas - Nkom

[54] https://konkurransetilsynet.no/wp-content/uploads/2018/08/2014-0289-355-vedtak-v2015-1-offentlig-versjon.pdf, see section 506.

[55] Will spend NOK 1.5 billion on a new network - Inside Telecom

Ice's new owners, Lyse, have set a goal to increase the coverage of a national network and stated that this requires around 3,900 new sites and upgrading of 3,200 existing sites[56].

236. Ever-increasing demands for speed and capacity in mobile networks as a result of increased use of data-intensive applications and services, as well as rapid technology development, also require continuous upgrading and expansion of the mobile networks. The high capacity of 5G networks will be achieved by building more base stations, using MIMO antennas and frequency resources in medium and high-frequency bands. This creates a need for major investments. In 2022, total investments in mobile networks amounted to NOK 4.8 billion, an increase from NOK[57] 3.6 billion in 2021. The high and increasing investment level makes establishment as a network owner in the market incredibly challenging.

237. Figures from the electronic communications statistics show that both Telenor and Telia have invested significant amounts in mobile networks in the period from 2014 to 2022. In 2015 and 2016, Telia invested much more than the company had done in previous years. However, in the period from 2017 to 2019, Telia's investment level decreased. Telenor's investment level was consistently high in the period from 2014 to 2017 and then declined in 2018 and 2019. The majority of Telia's and Telenor's investments from 2014 to 2019 were related to upgrading the network to 4G/LTE. The companies' decline in investments in the last years of this period is probably because the bulk of 4G upgrades had already been completed. In the years 2020 to 2022, Telenor and Telia's investments have been at a significantly higher level than in previous years. Most of the investments have been related to upgrading the networks to 5G. Overall, Telenor invested more in its mobile network than Telia in the period 2014 to 2022. Telenor's figures also include investments in so-called backhaul and this may explain some of the differences between the companies.

238. Ice's investments in mobile networks have been steady in the period from 2015 to 2021. However, the company has invested far less than Telenor and Telia during this period. In 2022, Ice's investments in mobile networks were significantly higher than in previous years. Ice's investments are expected to be high in the years to come as a result of the company's development plans. The table below shows the three companies' investments in mobile networks in the period from 2014 to 2022.

Table 4 Telenor, Telia and Ice's investments in mobile networks in the period 2014 to 2022

240. From its inception in 2015 until the first half of 2023, Ice has achieved a share of subscriptions of close to 14 per cent and 9 per cent of revenue. Tele2 had about 18 per cent of all subscriptions (15

[56] Ice announces massive 5G rollout: – 3,900 new base stations to be rolled out - Inside Telecom

[57] Reports and analyses - Nkom

per cent of revenue) when the company was sold to Telia in 2014. This may indicate that it has been more challenging to establish a competitive third mobile network in the period from 2015 to 2022 than it was 10-15 years ago, partly as a result of ever-increasing requirements for speed/capacity in the mobile networks and rapid technology shifts with associated demanding investments. The investment level in the Norwegian mobile market is high, also compared with other European countries, and investments are expected to be high in the years ahead, partly as a result of the further 5G development and because of increased requirements for security and robustness in all electronic communications infrastructure. A high level of investment may be a limiting factor for the growth conditions of a third mobile network.[58]

241. The aforementioned indicates that control of infrastructure is a significant entry barrier for new providers. The end-users have very high expectations for coverage and quality and new providers must therefore be able to offer equivalent network quality to Telenor and Telia from the launch date. Rapid technology shifts also contribute to making establishment very resource-intensive and challenging. New operators will have to make step-by-step investments and expect gradual access to existing infrastructure to become established as network owners.

5.1.2.2 Economies of scale and scope

242. Economies of scale exist when an increase in production leads to falling unit costs. This is characteristic of production with relatively high fixed costs and relatively low variable costs. Mobile network operations are characterised by significant economies of scale. This means that mobile network owners must achieve a certain number of customers and a certain turnover to ensure the necessary profitability and return on invested capital in order to be competitive over time.

243. Economies of scale tend to strengthen the market power of established operators and can thus function as an entry barrier for new network operators. Established network operators are expected to dimension the networks for optimal utilization. Over time, new network operators will build the customer base and during the start-up phase will not achieve the same level of economies of scale as the established operators. In this way, economies of scale contribute to creating an asymmetrical relationship between operators in the start-up phase with a smaller customer base and established providers with a larger customer base. This weakens the competitiveness of a new operator.

244. The economies of scale for a network operator are primarily triggered on the access network. The access network consists of costly elements such as base stations, masts, and radio equipment.

245. Previous studies have indicated that a market share of at least 20 per cent (in some cases up to 30 per cent) is necessary to establish a competitive mobile operator. Analysys Mason[59] points out that this is supported by empirical data indicating that several competitive number three operators (in Austria, the Netherlands, Ireland, and Finland) have more than a 20 per cent market share.

246. Gradual expansion of the network in combination with national roaming will reduce the importance of economies of scale. An operator that purchases access to another network through a national roaming agreement will normally gradually transfer traffic to its own network and thus gradually be able to exploit economies of scale in its own network. However, the structure of the access agreement may influence the access buyer's opportunities for utilising economies of scale. Conditions for volume commitments with host operators can reduce volumes on the access buyer's own network and planned reductions in unit costs may be delayed. Price elements that depend on the number of customers and are independent of traffic volume (normally this will be SIM charges or flat-rate elements) will not, in the same way, trigger avoidable costs and there is thus no reduction in the

[59] Analysys Mason: "Sustainable competition in the Norwegian mobile market"

unit cost. In this way, the established host network can indirectly influence the access buyer's unit costs.

247. Economies of scale and scope[60] can also be achieved in conjunction with sales and customer-oriented activities and will presumably have the greatest significance for operators that have operations in several countries and/or within a wide range of services where costs related to the said activities can be distributed across several units. Following Lyse's acquisition of Ice, all three network owners have broad product portfolios that enable co-production advantages that a new operator cannot achieve in the same way. However, Nkom does not expect that these types of economies of scale and/or scope have less scope and importance than benefits linked to networks and network costs.

248. The importance of economies of scale associated with networks can be illustrated by the volume of traffic to Telenor and Telia, in contrast to Ice. Telenor and Telia have far more traffic in their networks than Ice and are thus better equipped to exploit economies of scale. As Ice depends on national roaming, a proportion of the traffic from end users of Ice also goes through Telia's network. Ice had close to [redacted] per cent on-net data traffic at the end of 2023. The proportion of traffic in own networks is lower than the population coverage indicates (approx. 96 per cent population coverage). Thus, national roaming can to some extent also prevent new operators from fully exploiting the economies of scale by having all traffic in their own network.

249. In summary, Nkom believes that there are significant economies of scale associated with the production cost of traffic in mobile networks, and that new operators in the relevant market will thus have significant economies of scale in the start-up phase.

5.1.2.3 Access to financial resources

250. Access to financial resources will be decisive for an operator's ability to enter a market requiring both major initial investments and financing of access to frequency resources.

251. There is a comparatively high risk associated with financing a completely new mobile network. Like other commercial companies, an operator that builds a nationwide mobile network must normally also compete for venture capital. For example, this can take place through increased payments from existing or new owners, including through listing on the stock exchange or a share issue. Before Lyse acquired Ice, the company faced major challenges in attracting sufficient investors and capital. Ice's initial plan was a stock exchange listing in 2018 to raise NOK 3 billion through share subscriptions. However, turbulence in the global financial markets caused the board to postpone the listing. However, the company was able to raise NOK 1.5 billion through a private placement at the end of January 2019 and a further NOK 700 million in March 2019[61]. The company was listed on the stock exchange in spring 2019[62]. In November 2021, Ice attempted to raise NOK 2.5 billion in new equity to, among other things, fund the settlement of a dispute with US lender Goldentree[63]. However, this plan failed. The sale of Ice to Lyse solved the financial challenges, while previous shareholders argued that it entailed major losses for them[64].

252. A national roaming agreement can to some degree reduce the need for initial investments and may, from a more short-term perspective, reduce the importance of access to capital. However, in a

[60] Economies of scope are a reduction in the average unit cost when more than one service is produced using shared production factors, such as a joint infrastructure or administration.

[61] https://newsweb.oslobors.no/message/471237

[62] Telenor will now be listed on the Oslo Stock Exchange: Ice stock falls – E24

[63] Ice will raise up to NOK 2.5 billion – E24

[64] Rasmussen's views about Ice: – A terrible day for shareholders | Finansavisen

market without regulation (modified greenfield approach), access to national roaming will be a less predictable solution.

253. Nkom believes that good access to capital will be necessary to be able to become established as a genuine challenger in the market. Investing in a full-fledged mobile network carries a relatively high degree of risk, and rapid technology development and increasing capacity requirements increase the need for investment. This confirms that access to financial resources is a significant barrier to entry for potential new market participants.

5.1.2.4 Conclusion regarding structural entry barriers

254. The development and operation of mobile networks in Norway require significant investments and costs that can largely be considered fixed and not dependent on traffic. Ever-increasing demands for speed and capacity in mobile networks, as well as rapid technology development, also require continuous upgrading and expansion of the mobile networks. Taking into consideration the low population density in Norway and the need to develop a network with good coverage, the unit costs could become extremely high if the mobile network does not achieve the customer base for which it is dimensioned. Some costs may also be irreversible. Nkom therefore believes that irreversible and high fixed costs, restrictions on access to financial resources and economies of scale and scope mean that there are significant barriers to entry for new operators.

5.1.3 Regulatory entry barriers

255. Regulatory entry barriers exist when market access and/or the market positions of the operators are restricted by regulatory conditions, such as authorisations, permits or other forms of legal restrictions[65]. In its recommendation, the Commission assumes that regulatory entry barriers that are likely to lapse within the time horizon of the analysis will not normally constitute entry barriers, cf. Recital 11 to the Recommendation.

256. For establishment as a network owner in Norway, only registration with Nkom is required in addition to frequency resources. The requirements for registration are simple and can hardly be described as an entry barrier.

5.1.3.1 Access to frequency resources

257. Access to frequency resources is a necessity for the production of mobile services. Frequency licences are considered to be a finite resource, and lack of access to frequencies can be a regulatory entry barrier.

258. Frequency licences will often be encumbered with conditions regarding frequency fees, duration, coverage, and development requirements. Coverage requirements can be decisive to the development rate and require the licence holder to have the financial and actual capacity to undertake the required development.

259. The frequency bands have different characteristics in terms of range and penetrating power. The capacity and utility value of the frequency bands are also influenced by the access to equipment that can use the frequency band. It is therefore relevant to investigate both whether frequencies are available and what frequencies these may be.

260. In the document “Spectrum Roadmap for Cellular Communication”[66], Nkom provides information about the management and allocation of frequency resources for cellular communication and 5G. The document aims to provide operators in the industry with an insight into factors that are of

[65] Recital 11 to the Recommendation.

[66] https://www.nkom.no/frekvenser-og-elektronisk-utstyr/frekvensstrategi-og-internasjonalt-arbeid

importance for frequency management such that operators are well-informed about impending frequency allocations.

261. Due to coverage considerations, frequencies with long range and penetrating power will often be very attractive for service production on mobile networks. Frequencies below 1 GHz are of such a nature, and these frequency bands below 1 GHz are often referred to as coverage bands. In addition, the 1800 MHz, 2.1 GHz, 2.6 GHz, and 3.6 GHz bands have been established for cellular communication in Europe. These are especially well-suited for providing good capacity because the bandwidth is greater than for the frequency bands below 1 GHz and these are often referred to as capacity bands. There are also frequency bands in parts of the 700 MHz and 1500 MHz bands that are exclusively intended for increasing capacity in one direction[67] (from mobile network to mobile phone). With regard to 5G, the frequency bands 700 MHz, 3400-3800 MHz and 26 GHz have been identified by the EU as so-called pioneer bands for the early introduction of 5G. The following table lists planned assignments for relevant mobile bands in Norway.

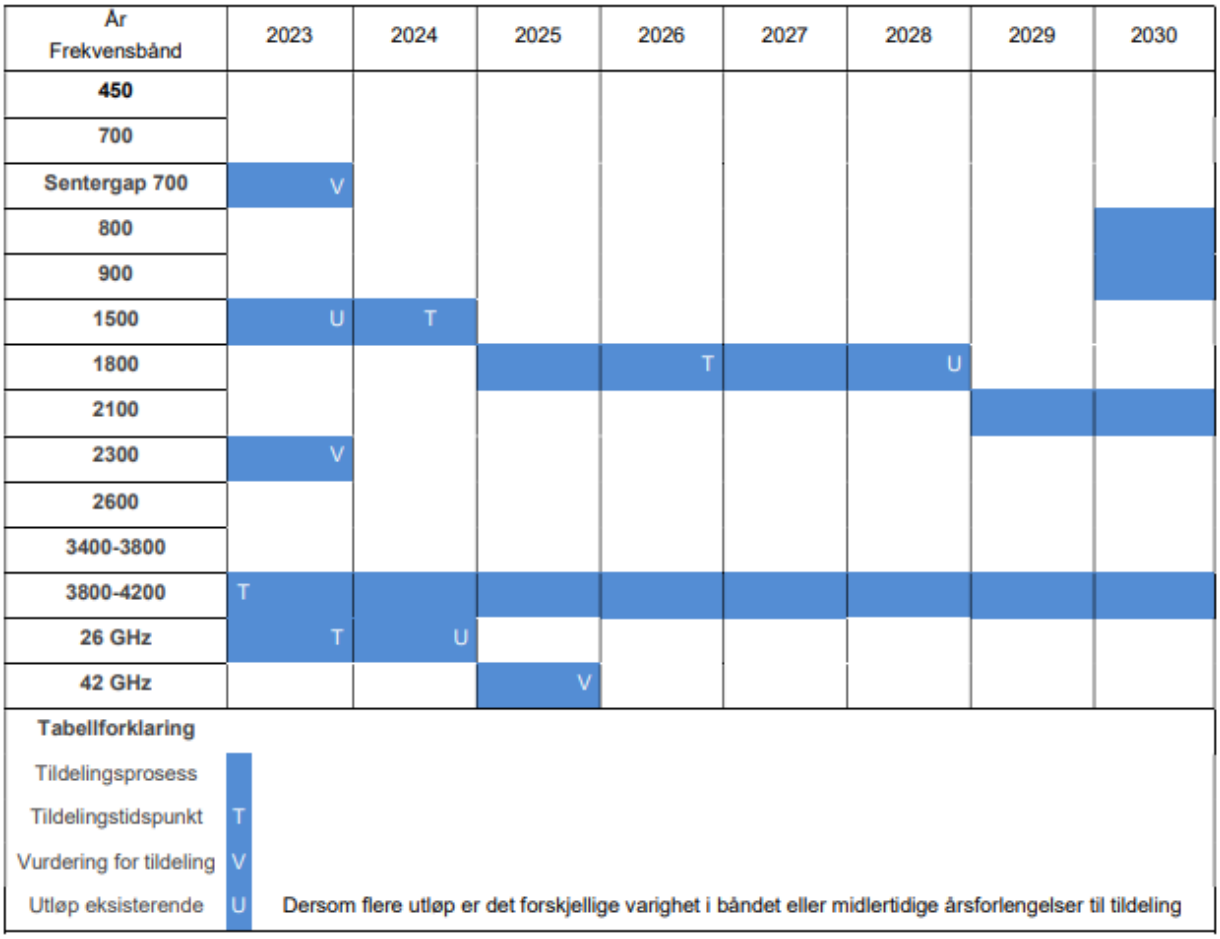


Figure 14 Estimated allocation plan for mobile bands in Norway

262. A combination of coverage bands and capacity bands is necessary for being able to provide a nationwide service that satisfies user requirements. The frequency bands below 1 GHz currently allocated for cellular communication are allocated until 2034 and 2040. Many of the frequency bands that are well suited for capacity are also allocated with long durations. However, the 1500 MHz band

[67] SDL – Supplemental Downlink.

will be announced and awarded in 2024. The band can be used as a supplement to existing frequency holdings. In addition, the 26 GHz band will be announced and awarded in 2024[68]. This is a band with very high-capacity capabilities.

263. Using instruments such as frequency caps and coverage obligations, the authorities have facilitated the efficient distribution and utilisation of resources. By using these methods, the authorities seek to enable at least three operators to be able to establish and offer cellular communication based on the infrastructure they control themselves. Thus, all three network owners in Norway currently possess both coverage bands and capacity bands to a sufficient extent within the time horizon of this analysis. Nkom has also facilitated access to frequencies in capacity bands as local supplements to the national networks. For operators other than those that already hold frequency resources, it will be challenging to obtain access to adequate frequency resources in both coverage bands and capacity bands to be able to supply nationwide services that satisfy user requirements within the next 7-8 years. However, allocated frequencies can be traded, so that, in principle, it may be possible to gain access to frequencies from operators who already possess frequency resources. Historically, there has been little turnover in the secondary market, and Nkom has no reason to believe that this will change. Telia's complaint in connection with Nkom's approval of the transfer of frequencies from Ice to Lyse illustrates the importance of good access to frequency resources for mobile network owners and that they thus hardly have incentives to sell allocated resources in the secondary market.

264. In the auction of frequency resources in the 2.6 GHz and 3.6 GHz bands held in September 2021, the four operators who participated in the auction assumed a total payment obligation of more than NOK 3.3 billion. This corresponds to an auction price per MHz of between NOK 4.8 – 6.1 million.[69] No annual frequency charges were imposed for these frequency bands. However, there is a significant cost associated with annual frequency fees for frequency resources acquired by operators prior to this auction.

5.1.3.2 Conclusion concerning regulatory entry barriers

265. Access to frequencies will often constitute a barrier to entry because the radio spectrum is a limited resource. Thus, all three network owners in Norway currently have coverage bands and capacity bands to a sufficient extent within the time horizon of this analysis. For an operator that does not currently possess frequencies, it will not be possible to acquire sufficient frequencies in both coverage and capacity bands through ordinary auctions within the next 7-8 years to be able to establish a national mobile network. Access to frequency resources thus generally constitutes an entry barrier for new operators wishing to establish themselves, but not for any of the three network owners in the market today.

5.1.4 Conclusion on the first criterion

266. To become established as a competitive mobile network within the relevant market, operators need to control their own network infrastructure. A nationwide radio network is time-consuming to establish, involves considerable investment and entails irreversible costs. Norwegian end users have very high expectations for good coverage and high network quality, and the requirements for speed and capacity in mobile networks are constantly increasing. At the same time, rapid technological development requires continuous upgrading and expansion of the mobile networks. The established network owners make significant investments in their mobile networks every year. However, the established operators' customer bases mean that they can make use of economies of scale to a far

[68] The award dates for these two auctions have been postponed in relation to the figures in the figure.

[69] Auction of the 2.6 GHz and 3.6 GHz bands - Nkom

greater extent. These factors contribute indirectly to increasing the entry barriers for a new operator and making entry into the Norwegian market extremely difficult.

267. Nkom has facilitated that at least three operators have been allocated sufficient frequencies for the national mobile network. However, for new operators who do not currently possess frequencies, frequencies are not available in coverage and capacity bands to establish a national network within the time horizon of this analysis.

268. Based on the above, Nkom concludes that it is particularly factors such as control of network infrastructure, economies of scale and scope and access to financial resources that constitute high and non-transitory entry barriers in the relevant market. The first criterion is therefore satisfied. Access to frequency resources is only a barrier for operators who are not in the market today.

5.2 Second criterion: The market structure does not tend towards sustainable competition

5.2.1 Introduction

269. It states in Recital 14 of the preamble to the Recommendation that other structural conditions may lead the market to move towards sustainable competition, even though the market is affected by high, non-transitory entry barriers. Thus, the second criterion is whether the relevant market is characterized by structural conditions which means that it does not move towards sustainable competition.

270. The assessment under the second criterion is forward-looking to a limited degree. It follows from section 13 of the Recommendation that the assessment of sustainable competition must imply that the market will achieve sustainable competition within the regulatory period or after the period, provided that there is clear observable evidence of positive dynamics in the market during the time horizon of the analysis.[70] Section 14 of the Recommendation also states that in markets where more networks can be expected, the assessment under criterion 2 will primarily be linked to likely future developments towards infrastructure-based competition[71]. In the proposed new Electronic Communications Act, the term sustainable competition is used in the discussion of criterion 2, and Nkom therefore uses this term in the further assessment of the criterion.

271. Whether the market can be seen to be moving towards sustainable competition without ex ante regulation within this analysis' time horizon will have to be determined based on a broad assessment of the market conditions. The factors assessed under the second criterion largely overlap with factors included in the assessment of significant market power. ESA's Recommendation is not exhaustive with regard to the elements to be assessed and it is therefore up to the national regulator to assess which elements best illustrate the second criterion, taking due account of the conditions in the national market.

272. The relevant market is a wholesale market (upstream market). Since competition at the retail level will to reflect to a certain degree the competition at the wholesale level/network level, elements

[70] The Commission's recommendation, section 13 [...] "*An analysis of effective competition implies that the market will become effectively competitive absent ex ante regulation within the period of review, or will do so after that period, provided that clear evidence of positive dynamics in the market is observable already within the period of review:*" [...]

[71] Section 13 of the Commission's Recommendation: [...] "*In markets where an increased number of networks can be expected on a forward-looking basis, the application of this criterion entails primarily examining the state and likely future development of infrastructure-based competition.*"

of the analysis under the second criterion will be related to the competition situation in the retail markets (downstream markets) for mobile services.

273. In the following chapters, Nkom will assess whether the relevant market is trending towards sustainable competition. The assessment includes:

- Development in market shares
- Market concentration
- Profitability
- Importance of a third network
- Commercial Access Agreements
- Potential competition

5.2.2 Development in market shares

274. A natural starting point for the assessment of whether the market is tending towards sustainable competition will be an analysis of market shares and their development.

275. At the end of the first half of 2023, there were more than 6.1 million mobile telephony subscriptions. The figure below shows that the number of subscriptions has remained stable. The same applies to total revenue for bundled mobile services, which in 2022 amounted to approximately NOK 20.7 billion.

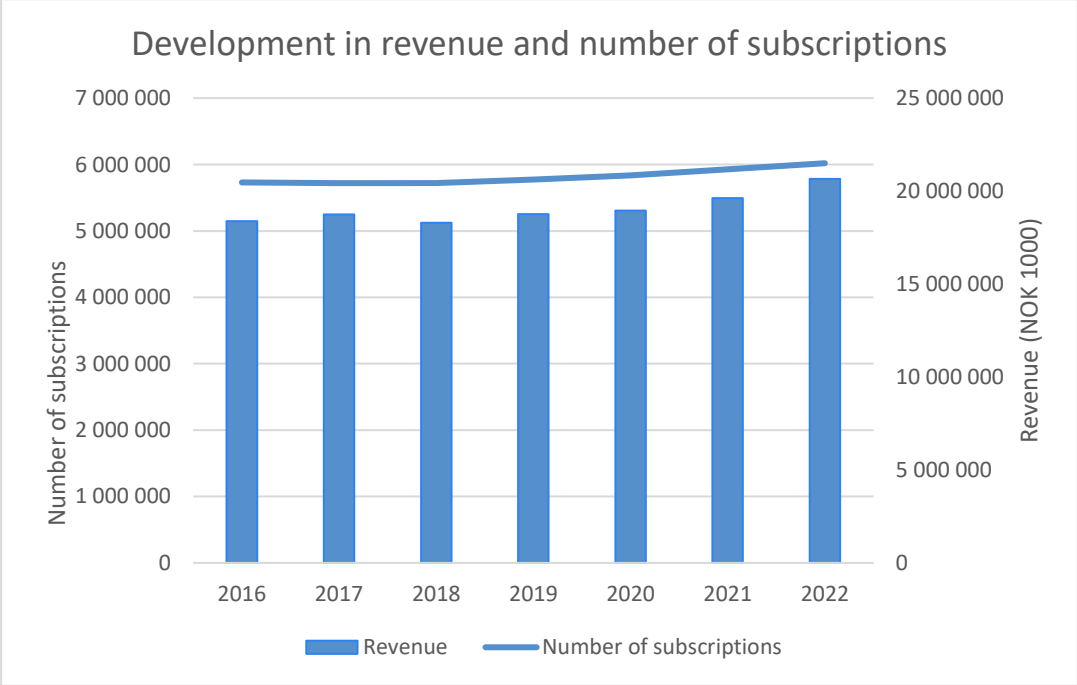


Figure 15 Development in revenue and number of subscriptions for ordinary mobile subscriptions.

276. Since the mid-1990s, the Norwegian mobile market has been characterized by the presence of Telenor and Telia. The two established operators have, in total and over a lengthy period, controlled a significant part of the retail market. However, over the past eight years, their total market share has fallen slightly, where the share of subscriptions has fallen more than the share of revenue in the retail market.

277. In the following, Nkom assesses the development in market shares at the retail and wholesale level, particularly regarding the development since the previous decision of 14 May 2020 where the market analysis was based on statistics for 2019.

5.2.2.1 The development in market shares at the retail level for bundled mobile services

278. The figure below shows the development in market shares based on subscriptions in the retail market for bundled mobile services in the period 2013 up to the first half of 2023.

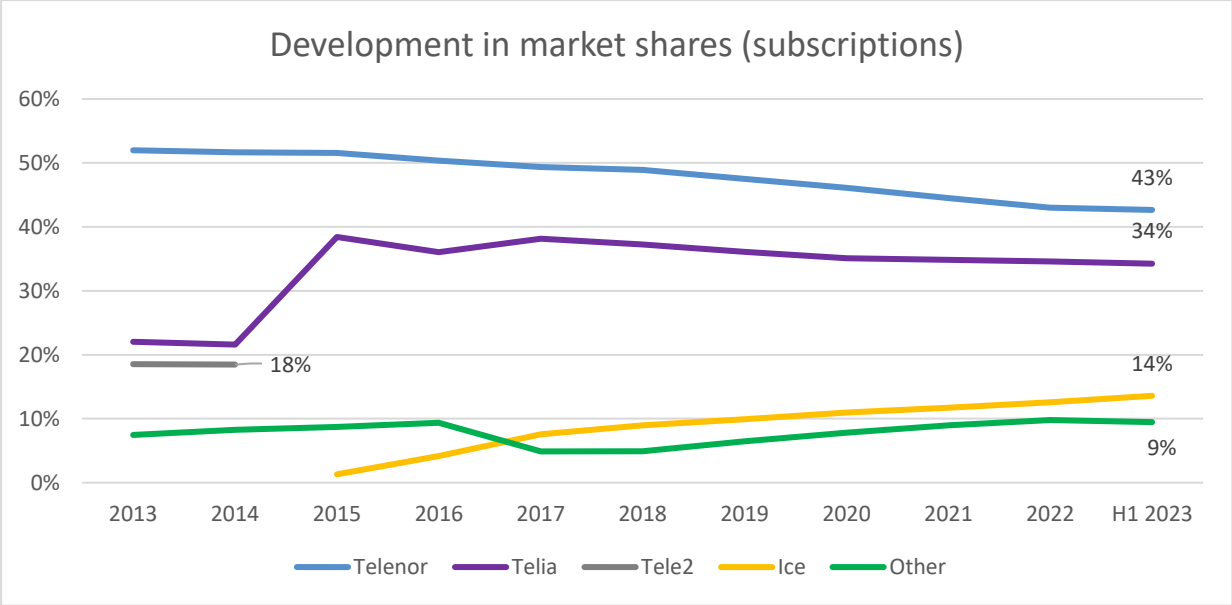


Figure 16 Market shares based on the number of subscriptions in the period 2013 up to the first half of 2023. Residential and business combined.

279. The figure shows that Telenor has had a stable position in the retail market for bundled mobile services, measured by the number of subscriptions, even though the market share has been falling slightly in recent years. The company's market share based on the number of subscriptions was around 43 per cent at the end of the first half of 2023 (residential and business combined). Thus, Telenor's market share has fallen by 4.9 per cent over the last three and a half years since the last market analysis.

280. At the end of the first half of 2023, Telia had a market share based on the number of subscriptions of 34.3 per cent, which is 1.8 per cent lower than the previous market analysis.

281. The two largest providers in the market had a combined market share of 77 per cent at the end of the first half of 2023. Their total market share has decreased by about 7 per cent since the last analysis, in which the market share was 84 per cent.

282. At the same time, Ice has had growth during the same period. The company has grown from having around 10 per cent of subscriptions at the end of 2019 to 13.6 per cent at the end of the first half of 2023.

283. Other operators' total customer base has also grown in the same period, from 6 per cent at the end of 2019 to 9 per cent at the end of the first half of 2023. The largest providers in the "other"

category are Fjordkraft[72], Chilimobil and Xplora mobil with 2.0, 1.4 and 1.3 per cent respectively at the end of the first half of 2023. Following Unifon's acquisition of Nortel in the fall of 2023, the company will also be among the largest access buyers with around 2 per cent market share based on figures for the first half of 2023.

284. The Table below shows the development in market shares based on the number of subscriptions at the end of the first half of 2023 and in the four previous analyses of market 15.

	1st half 2005	2009	2015	2019	First half of 2023
Telenor	56%	53%	52%	48%	43%
Telia	27%	27%	37%	36%	34%
Tele2	5%	16%			
Ice			1%	10%	14%
Other	12%	5%	10%	6%	9%

Table 5 Market shares at retail level based on the number of subscriptions in the first half of 2005, full-year figures for 2009, 2015, 2019 and the first half of 2023. Residential and business combined.

285. In the figure below, the market shares based on subscriptions in the period 2015 to 2022 are projected linearly up to 2026. A projection may indicate the direction of developments, but at the same time, a projection in the slightly longer term will be fraught with significant uncertainty. The projection is based on the assumption that the trend that has emerged in the mobile market in the period 2015 to 2022 reflects a trend that will continue for some time to come. This period is used as a basis for the projection when the third network established the mobile initiative in 2015. The market has been regulated continuously since 2006, which means that the projections also assume a regulated market.

[72] Fjordkraft is owned 39 per cent by Telia.

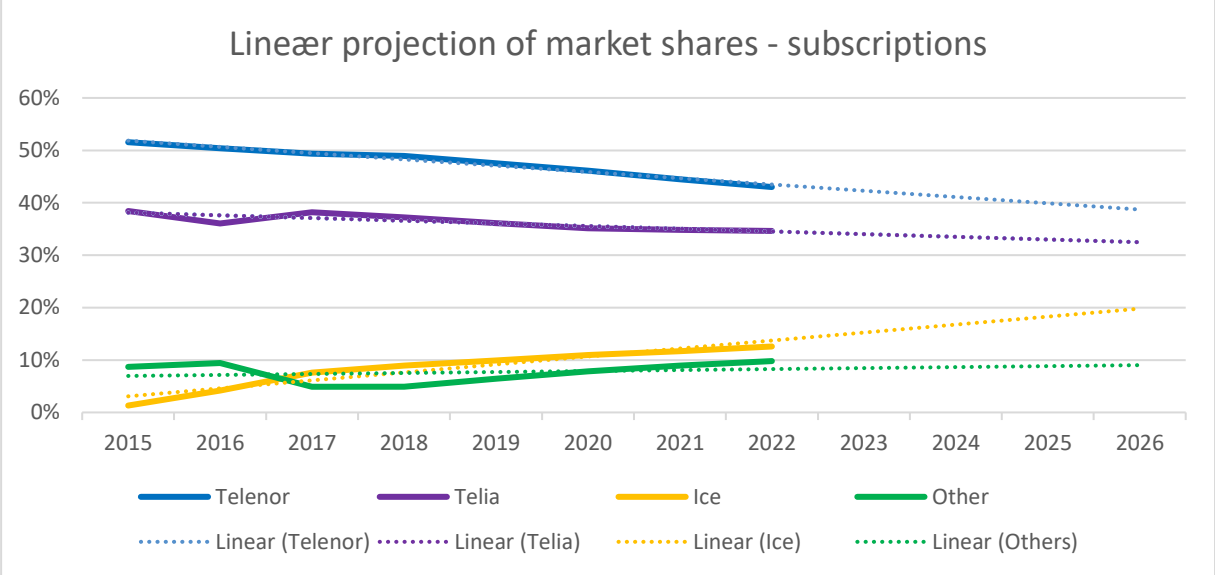
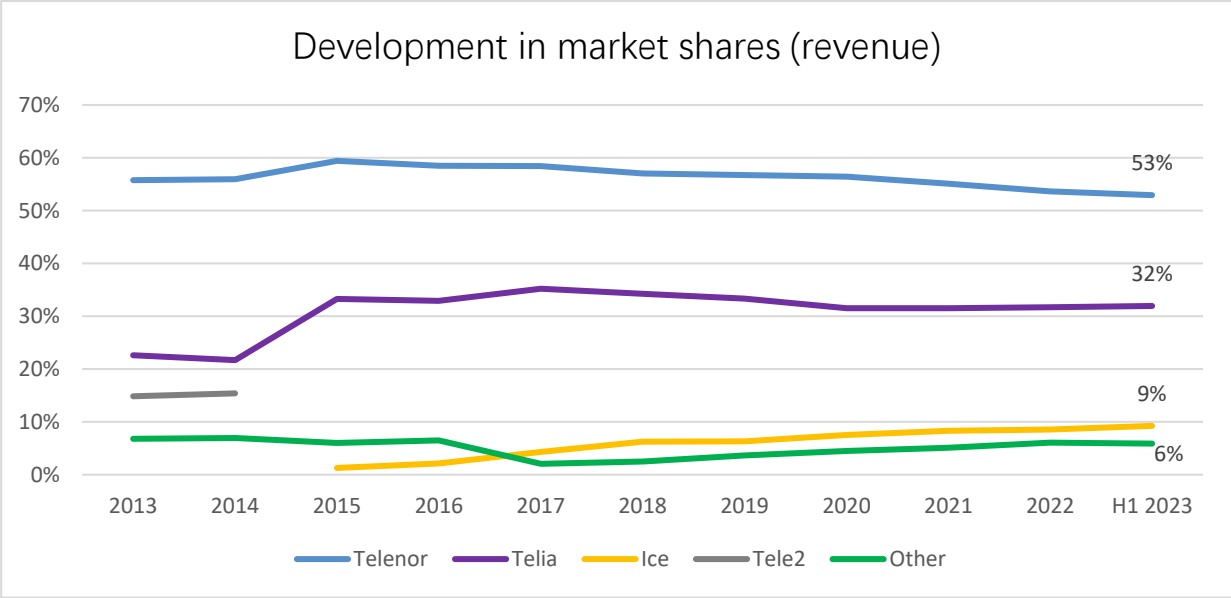


Figure 17 Linear projection of market shares based on the number of subscriptions in the period 2015 to 2022.

286. If the slightly declining trends in network owners' share of subscriptions persist, Telenor's share of subscriptions will fall below 40 per cent in 2026. However, as mentioned, this is a trend that is based on the market still being regulated.

287. The figure below shows the development in market shares based on sales in the retail market for bundled mobile services from 2013 until the end of the first half of 2023 (residential and business combined). The sales figures include all services sold in connection with a subscription, including fixed and variable revenue for voice calls, SMS, and data.[73] Revenue from termination and resale is not included.



[73] The figures include international roaming as this is part of the product market.

Figure 18 The development in market shares based on revenue in the retail market for bundled mobile services from 2013 to the first half of 2023. Residential and business combined.

288. Telenor's market share based on sales was 53 per cent in the first half of 2023. Telenor's market share based on revenue has decreased by 4 per cent since the previous analysis (statistics for revenue based on the full year 2019). Telenor's share of revenue has thus fallen less than the share of subscriptions (5 per cent).

289. Telia's market share measured in revenue has decreased by 1.4 per cent since the last market analysis (2019). In the first half of 2023, Telia's market share measured in sales was 32 per cent.

290. The two established network owners together accounted for 85 per cent of sales in the retail market for bundled mobile services in the first half of 2023. This is a decline of 5 per cent from the previous analysis.

291. Ice has increased its share in terms of revenue by three per cent since the last analysis, to 9 per cent at the end of the first half of 2023. Ice has increased its share when measured in sales compared with market share based on the number of subscriptions.

292. Other operators accounted for 6 per cent of sales in the retail market for bundled mobile services. The table below shows the development in market shares based on sales in the retail market for bundled mobile services at the end of the first half of 2023 and for the four previous analyses of market 15.

	First half of 2005	2009	2015	2019	First half of 2023
Telenor	56%	55%	59%	57%	53%
Telia	27%	27%	33%	33%	32%
Tele2	5%	16%			
Ice			1%	6%	9%
Other	12%	5%	7%	4%	6%

Table 6 Market shares at retail level based on revenue in the first half of 2005, full-year figures for 2009, 2015, 2019 and the first half of 2023. Residential and business combined.

293. The figure below shows the market shares based on revenue in the period 2015 to 2022 projected linearly up to 2026 according to the same principles as above.

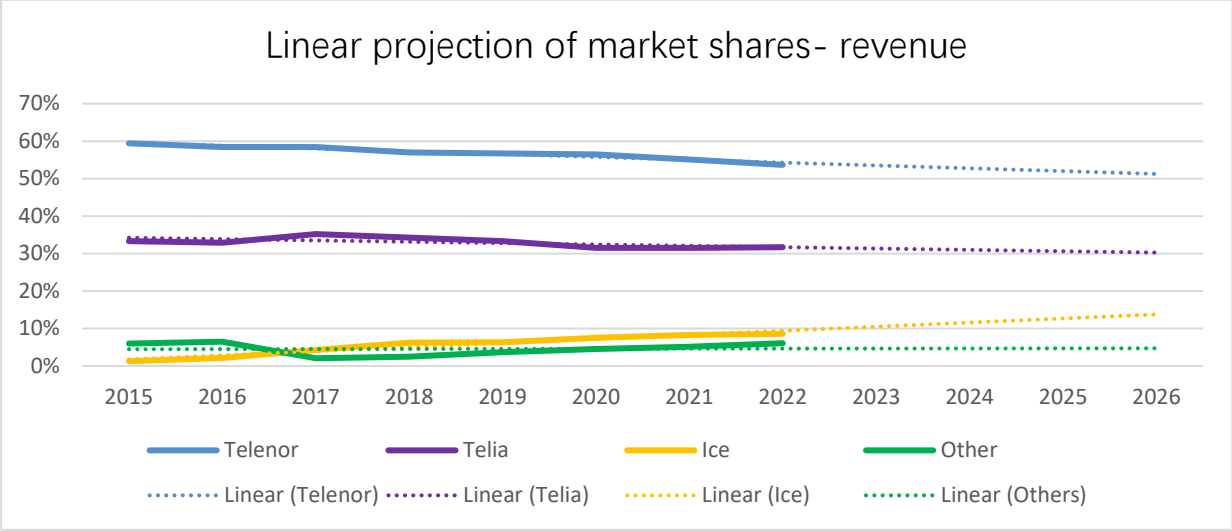


Figure 19 Linear projection of market shares based on revenue in the period 2015 to 2022.

294. The projections show that Telenor will still have more than 50 per cent of its revenue in 2026. The growth curve in revenue for Ice is flatter than for subscriptions.

295. The projections show that the category "other" will be able to increase its shares based on both subscriptions and revenue. By looking at historical developments, it is very unlikely that this category will achieve a market share of the total revenue of more than 10 per cent. Nor do developments in access buyers' overall market share in Norway differ significantly from other Western European countries. Although many operators with different starting points have established themselves as MVNOs and service providers in the Norwegian market, it has proved challenging to develop business models and market strategies that have provided the basis for long-term growth and sustainable profitability.[74] The providers in this category have proven to be potential acquisition candidates.

296. Ice had robust growth in the years since its start-up in 2015, but the growth has levelled off somewhat more since 2018. As a result of the business merger with Lyse, Ice will potentially have an advantage in the future by attracting Lyse's electricity and broadband customers also to the mobile initiative. The same applies to the Altibox partners' customers on fixed broadband. However, Nkom believes that continued growth depends on the company still being able to offer nationwide networks. As coverage and quality are among the most important criteria for Norwegian end users, continued access to national roaming will be crucial for developments to follow the projection rate as predicted above. This will be particularly important in the future if Ice is to have the opportunity to compete harder in the business segment.

297. The retail market includes both the residential and business markets. The residential market is the largest market with around 72 per cent of all subscriptions and around 68 per cent of the revenue in the total retail market. The share of business subscriptions is relatively high in Norway compared with other European countries and is increasing[75].

298. The table below shows the market shares for bundled mobile services for the residential and business market respectively, measured according to the number of subscriptions at the end of the first half of 2023.

[74] Analysys Mason: "Sustainable competition in the Norwegian mobile market", 29 June 2023.

[75] Analysys Mason: "Sustainable competition in the Norwegian mobile market", 29 June 2023.

		Telenor	Telia	Ice	Other
Residential	Subscriptions	38.9%	33.5%	17.5%	10.1%
	Revenue	50.3%	32.7%	11.8%	5.2%
Business	Subscriptions	52.3%	36.3%	3.5%	7.9%
	Revenue	58.4%	30.3%	3.9%	7.4%

Table 7 Market shares for bundled mobile services measured in the number of subscriptions and revenue at the end of the first half of 2023, divided between residential and business.

299. The table shows that Telenor has a very high share of the business market both in terms of subscriptions and sales. This market is characterized by less mobility and higher earnings per subscription than the residential market. Telenor is more than double the size of Telia in the business market when measured in terms of revenue. The Norwegian Storting's white paper "The Digital Agenda for Norway" has set a clear goal of increased competition in the business market for mobile services, particularly in the SME segment.

300. Compared with the previous analysis, Telenor's share of the number of subscriptions in the business market has been reduced by 7.3 per cent, from 59.6 per cent in 2019 to 52.3 per cent at the end of the first half of 2023. In the residential market, Telenor's share of the number of subscriptions has been reduced by 4.5 per cent from 43.4 per cent in 2019 to 38.9 per cent at the end of the first half of 2023. Telenor's share of retail market turnover has been stable since the previous analysis but has been reduced by 8.9 per cent in the business market, to 58.4 per cent at the end of the first half of 2023.

301. Ice has little presence in the business market. Their share of subscriptions has only increased by 0.9 per cent since the last analysis, and the share of revenue has only increased by about one percentage point in the same period.

5.2.2.2 Development of market shares at the wholesale level

302. In order to assess market shares at the network level, Nkom's starting point is the operators that have their own mobile networks: Telenor, Telia and Ice.

303. Nkom believes that a relevant parameter in the assessment of the operators' relative strengths at the wholesale level would be the network owners' shares measured in terms of sales. Since the market definition includes internal sales because of supply-side substitutability, such a parameter also requires turnover figures at the wholesale level for internal use. Telenor does not report internal sales figures, therefore, Nkom uses shares measured as the number of subscriptions, which reflects the entire bundled product with voice, text messaging and data. However, the assessment of market shares at the retail level has shown that Telenor has higher revenue per customer than Telia and Ice, and since most of the wholesale activity is internal sales, the same will most probably apply at the wholesale level. This entails that using subscriptions as a parameter for market shares at the wholesale level gives a conservative picture of the relative strengths of these operators.

304. Market shares at the wholesale level based on the number of subscriptions are calculated for the period 2019 to the first half of 2023, and both own retail operations and buyers of access are included. [76] Internal traffic is included as part of the market and is therefore included in the calculation.

[76] Cf, including the Ministry of Transport and Communication's decision in the appeal of Nkom's decision on the designation of undertakings with significant market power and imposition of special obligations in the market for access and call origination on public mobile telephone networks, dated 9 March 2018, Chapter 6.2.1.5.

The number of subscriptions and data traffic from MVNOs and service providers are included in the market shares of the network owners.[77]

305. Out of the three network owners, only Telenor and Telia have external wholesale sales. Ice has no access buyers in its network, which means that its market shares at the network level only include its own retail operations.

306. The table below shows the distribution of the number of mobile telephony subscriptions on the networks.

Subscriptions	2019	2020	2021	2022	First half of 2023
Telenor	51.3%	51.6%	51.1%	50.4%	47.7%
Telia	38.8%	37.5%	37.2%	37.1%	38.7%
Ice	9.9%	11.0%	11.7%	12.6%	13.6%

Table 8 Market shares at the wholesale level based on mobile phone subscriptions for the period 2019 up to the first half of 2023.

307. At the end of the first half of 2023, the share of mobile phone subscriptions on Telenor's network was 47.7 per cent. Of this, 5.1 per cent can be attributed to eight access buyers with Telenor. Several of these are on Telenor's network through the access agreement Telavox has with Telenor. Telenor's "self-supply" corresponds to the company's market share measured as the number of subscriptions at the retail level, which is 42.6 per cent.

308. Telia acquired 39 per cent of Fjordkraft mobil in December 2022[78], and the mobile customers were transferred to Telia's network during the second quarter of 2023. Gudbrandsdals Energi has discontinued its mobile investment and its mobile customers have been transferred to Fjordkraft mobil. During January 2023, Ice took over all mobile customers from Vipps mobil. Norges Energi Mobil has sold its mobile customers to Pluss Mobil, and the customers were transferred in April 2023. Release has also sold its mobile customers, its residential customers to Ice and its business customers to SMB Mobil, and its customers were transferred in April 2023.

309. Of Telia's 38.7 per cent share at the end of the first half of 2023, 4.4 per cent can be attributed to three access buyers, Chilimobil, Fjordkraft and Lycamobile. As a result of Fjordkraft's change of host network, Telia increased its wholesale market share by 1.62 per cent.

310. Ice's share of subscribers was 13.6 per cent at the end of the first half of 2023. Ice's share increased by 1 per cent following the acquisition of Vipps and its residential customers in Release. However, Ice purchases national roaming from Telia for traffic flows linked to its own customers that are not produced over Ice's network. This applies to voice calls, SMS, and data. This will not be possible to take into consideration when calculating market shares based on subscriptions.

311. When calculating market shares at the network level based on data traffic over mobile phone subscriptions for 2018, it is possible to take into account that some of Ice's data traffic was national

[77] For Telenor, the figures for the first half of 2023 include subscriptions and data traffic at Happybytes, Nortel, Plussmobil, Primafon, Saga mobile, SMB mobile, Unifon and Xplora mobile. For Telia, Chilimobil, Fjordkraft and Lycamobile are included.

[78] Telia takes over the largest mobile operator without its own network from Telenor - Inside Telecom

roaming. This traffic is referred to the host network, Telia's net.[79] The table below shows the distribution of market shares from 2019 to the first half of 2023 after national roaming is considered.

Data traffic	2019	2020	2021	2022	First half of 2023
Telenor	53.3%	50.1%	48.5%	49.4%	48.8%
Telia	40.8%	40.6%	41.2%	38.3%	38.2%
Ice	5.9%	9.3%	10.3%	12.3%	13.0%

Table 9 Market shares at the wholesale level for data traffic via mobile phone subscriptions for the period 2019 to the first half of 2023.

312. Telenor's share of data traffic on the network fell from 2019 and was 48.8 per cent in the first half of 2023. Of this, 3 per cent can be attributed to access buyers. Telia's share of data traffic in the network at the end of the first half of 2023 amounts to 38.2 per cent. Of this, 5.5 per cent can be attributed to four access buyers, including Ice, who buy national roaming from Telia. Ice has increased its traffic share by 7.1 per cent from 2019.

313. Nkom has calculated market shares for external sales. Since Ice does not have access buyers in its network, only Telenor and Telia are included in the calculation. Telavox and Svea resell wholesale access and are not included in the calculation either, as this would entail double counting. The table below shows that at the end of the first half of 2023, Telenor had 57 per cent of its revenue from external wholesale sales.

External sales	2019	2020	2021	2022	1H 2023
Telenor	36%	42%	60%	62 %	57%
Telia	64%	58%	40%	38%	43%

Tabell 10 Share of revenues from external wholesale sales from network owners in the period 2019 to the first half of 2023, based on reporting to the electronic communications statistics.

314. Since total external sales account for less than ten per cent of the total market, switching host networks has a strong impact on market shares when calculating market shares in this way. However, for the first half of 2023, Telenor had a higher share of external sales than Telia.

5.2.2.3 Overall assessment of the development in market shares

315. Over time, Telenor has had high and relatively stable market shares in the retail market for bundled mobile services. Since 2015, when Ice launched in the retail market, Telenor's market share based on the number of subscriptions has fallen by approximately nine per cent, while Telenor's share of revenue in the same period has decreased by only six per cent and is still above 50 per cent. Telia's market share has also had a slightly declining trend since 2015. At the end of the first half of 2023, the two operators together had 77 per cent of the subscriptions and 85 per cent of the total sales revenues in the total retail market (residential and business).

[79] According to ICE, the average share of traffic in its own network was 67 per cent in Q4 2018, 80 per cent in Q4 2019, 89 per cent in Q4 2020, 90 per cent in 2021 and 90 per cent at the end of 2022.

316. Ice had robust growth in the years since its start-up in 2015, but the growth has levelled off somewhat more since 2018. In the six years since establishing itself as a provider of mobile telephony, the company has reached a market share of 13.6 per cent of subscriptions at the end of the first half of 2023 and 9 per cent of retail market revenue in the first half of 2023.

317. Other access buyers have had a slight decline in the period since 2015. The market share of this group at the end of the first half of 2023 was 9.5 per cent based on the number of subscriptions, implying an increase of 3 per cent since the previous analysis. The total revenue for the same group stood at a total of 6 per cent for the first half of 2023.

318. At the network level, there are still only two providers of wholesale access to external buyers. Telenor's market share based on the number of subscriptions at the end of the first half of 2023 was 47.7 per cent, while Telia's market share amounted to 38.7 per cent. Telia also has wholesale sales to Ice, but to a more limited extent than before as Ice has increased the traffic share in its own network. The total data traffic is distributed between Telenor, Telia and Ice with 48, 39 and 13 per cent, respectively. Ice has grown in the retail market, and the share of total data traffic going into the third network is roughly equivalent to Ice's market share in the retail market based on the number of subscriptions.

319. Overall, Nkom believes that the market is characterised by stable market shares. The slightly declining trend in market shares based on subscriptions for the two established providers is reflected to a lesser extent in a fall in the share of revenue. According to Section 56 of the Guidelines, slightly falling market shares could be a sign that the market is moving in the direction of more competition but does not exclude a conclusion of significant market power. Furthermore, the Guidelines state that rapid growth in market share for a new provider may also indicate that the market is moving in the direction of increased competition and that entry barriers may be overcome over time. However, Nkom does not consider the growth of Ice in recent years to be on a scale and pace assumed here. Nor do other providers show growth on this scale.

320. At the wholesale level, only Telenor and Telia have entered into access agreements for wholesale customers within the relevant market. Nkom does not expect Ice to gain a significant share of existing wholesale customers within the time horizon of this analysis. Viewed in the context of the development in market shares in recent years, Nkom assumes that market shares at the network level (including internal sales) are not likely to change significantly during the analysis' time horizon.

321. In summary, Nkom believes that the development in market shares does not provide sufficient evidence that the market structure is tending towards sustainable competition within the time horizon of the analysis. Developments in market shares nevertheless indicate that a more detailed assessment of other structural factors in the market is necessary to conclude whether the market structure is tending towards sustainable competition in the absence of sector-specific regulation.

5.2.3 Market concentration

322. In the assessment of the structural market conditions, several types of concentration indices are used. The purpose of the concentration indexes is to give a picture of the intensity of the competition in the market. High market concentration will often be an expression of limited competition. The definition of high market concentration will vary between different markets.

323. Market concentration can be calculated according to different methods, of which the most common are the summary rate index, also called the concentration ratio (CR), and the Herfindahl-Hirschman index (HHI).

324. CR is typically used to indicate the scope of the part of the market which is controlled by the largest providers in the sector. CR1 represents the market share of the largest operator in the market and CR2 represents the market shares of the two largest operators. Generally, CR2 is assessed on the

basis that the higher the value, the lower the competition pressure in the market is generally assumed to be.

325. On calculating CR2, however, no account is taken of the total number of providers in the market and the relative sizes of the two providers included in the index. In principle, it appears natural to assume that the competition can be stronger in markets with several equally large operators. Therefore, concentration is also stated with the help of the HHI index.

326. HHI is calculated by squaring the market share of each company competing in a market. Squaring the market share gives more weight to companies with large market shares than companies with small market shares. A market with an HHI of higher than 0.2 is considered to be a very concentrated market.[80] Since there are very many providers with small market shares, the index will approach 0. If comparing HHI in two markets with equal numbers of operators, and the market shares in one market are unevenly distributed between the operators, while the operators in the other market are of equal size, HHI will be highest in the first-mentioned market. This market will thereby be most concentrated. A decline in the HHI index will generally indicate increased competition intensity and reduced market power for the largest operators.

327. When using market shares when calculating CR and HHI, it is necessary to consider which measurement parameters are most relevant for the purpose. The characteristics of the relevant market will be decisive in determining how market shares are measured.[81] Market shares can be measured by revenue, number of customers (subscriptions) or volume.

328. Nkom believes that the operators' market shares in terms of sales constitute a relevant parameter in the assessment of market concentration, where the size of the operator is of importance.

329. The table below shows CR2 and HHI in the retail market for bundled mobile services, residential and business combined, calculated based on turnover. CR2 includes Telenor and Telia's shares of sales in the retail market, while HHI includes all three mobile network owners in the market.

	2015	2019	2022
CR2	92%	90%	85%
HHI	0.46	0.44	0.40

Table 11 The concentration indices CR2 and HHI in the retail market based on turnover.

330. The table shows that the concentration in the market in 2022 was high, with two operators accounting for 85 per cent of sales in the market. HHI is 0.40, i.e. far in excess of the limit of 0.2 referred to above. At the same time, there is a trend for both CR2 and HHI in the direction of increased competitive intensity in the market.

331. In the report "Assessment of Norwegian mobile revenues in a Nordic context – 2023"[82] , commissioned by the Ministry of Local Government and Regional Development (KDD), Tefficient has compared market[83] concentrations in Norway, Sweden, Denmark, and Finland. The report shows that the Norwegian mobile market is uniquely concentrated compared to the other mobile markets. The Norwegian market is slowly moving towards a lower concentration, while the concentration in the other countries is stable.

[80] Sections 19-20 of the Commission's Guidelines on the Assessment of Horizontal Mergers, EUT C 35 of 5 February 2004 and NOU 2012:7, page 107.

[81] Section 76 of the Guidelines.

[82] Reduced price for large data packages, but Norwegian mobile customers still pay the most in the Nordic region - regjeringen.no

[83] The market concentration is calculated based on the companies' market shares measured in turnover in the retail market.

332. However, the relevant market is a wholesale market. It will therefore be relevant to evaluate market concentration based on market shares in the wholesale market. In this context, market concentration will be a measurement of the number of operators on the supply and/or demand sides in the relevant market and their relative sizes. Ice is covered by the calculation as the company offers access for its own end-user operations. Since Ice produces a larger share of data on its own network, based on data traffic, market concentration can be a relevant measurement parameter when assessing the intensity of competition in the relevant market.

333. Data traffic from MVNOs and service providers is included in the market shares of network owners. Several of these are on Telenor's network through the access agreement Telavox has with Telenor.

	2015	2019	2022	First half of 2023
CR2	100%	94.1%	87.7%	87%
HHI	0.52	0.45	0.41	0.40

Table 12 The concentration indices CR2 and HHI in the wholesale market based on data traffic.

334. In 2015 and 2016, all data traffic went via mobile phone subscriptions in Telenor and Telia's networks, which makes CR2 equal to 100%. In 2017, Ice started to transmit data traffic on its own network. This reduces the value of CR2.

335. HHI is also reduced as a result of Ice having grown and transferring increased traffic to its own network. However, the value of HHI in the first half of 2023 of 0.40 indicates that there is a high level of concentration in the market.

336. In Sweden, where the regulatory authority concluded in 2005 that there was effective competition in the relevant market, HHI was about 0.35[84]. In Denmark, the regulatory authority concluded in 2009 that there was effective competition in the relevant market. HHI had been steady at 0.35[85] until 2006 and then fell to 0.33 in 2007. In Iceland, the regulatory authority concluded in 2012 that there was effective competition in the relevant market. HHI had fallen steadily since 2008 and was 0.35[86] in 2010.

337. If the market share of the three network owners had been evenly distributed, HHI would have been 0.33. In order for the market to approach this, the third operator must have all data traffic in their own network, and at the same time attract new customers/grow organically. However, Nkom assumes that during the time horizon of the analysis Ice will not achieve a market share that will make HHI close to 0.33. By calculating CR2 and HHI based on the projections shown in Chapter 5.2.2.1, the value for CR2 could be 78 per cent and HHI 0.35 in 2026. Based on the projections, this shows a trend towards increased competitive intensity in the market.

338. In summary, Nkom has registered that the concentration indices measured by CR2 and HHI have fallen since Ice transferred traffic to its own network, a factor that indicates the intensity of competition has increased. However, the relevant market is still characterised by high concentration when measured using both indicators. Overall, Nkom finds that the development of market concentration in the relevant market does not provide evidence to consider that the market is tending towards sustainable competition within the time horizon of the analysis in the absence of sector-specific regulation.

[84] HHI was roughly equal, irrespective of whether this was based on revenues, subscriptions, or originated minutes for the three network owners.

[85] Based on the number of subscriptions at the wholesale level, with four network owners.

[86] Based on the number of subscriptions at the wholesale level, with three network owners.

5.2.4 Profitability

339. The operators' profitability over time can shed light on the degree of competition in the market.

340. The figure below provides an overview of the development in EBITDA margin (operating profit before depreciation) in the period 2015 to 2022 for the operators' total Norwegian operations.

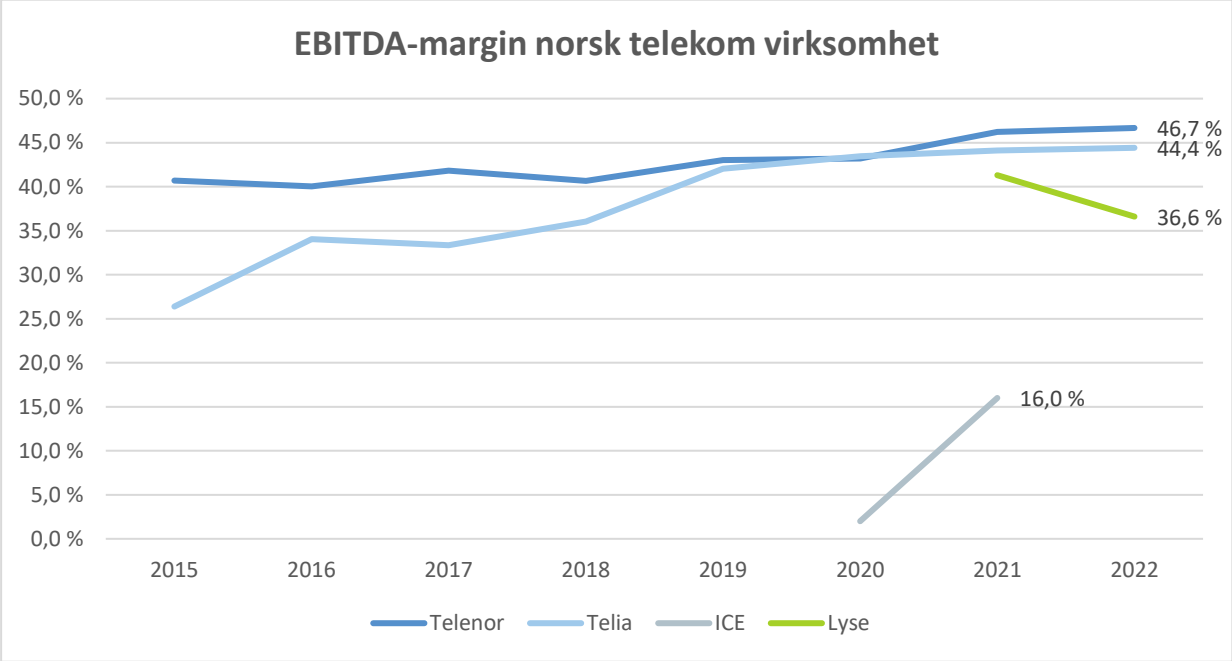


Figure 20 Development in EBITDA margin for the operators' Norwegian operations

341. The EBITDA margin for Telenor's overall Norwegian operations, including both mobile and fixed network activities, was relatively high and increased over time to 46.7 per cent for 2022. Since 2015, Telia has significantly increased its EBITDA margin. However, in recent years, the margin has been stable at around 44 per cent. The increase in 2016 and 2017 was partly due to the acquisitions of Tele2 and then Phonero. Get TDC was formally merged with Telia in the first quarter of 2019.

342. Telenor and Telia's EBITDA margins in Norway are higher than their operations in Sweden, Denmark, and Finland. Telenor Sweden reported an EBITDA margin (before other items) for 2022 of 34.4 per cent[87], while Telenor's operations in Denmark reported 25 per cent at the same time, and the operations in Finland reported 36.5 per cent. Telia had an EBITDA margin of 38.2 per cent in Sweden, 18.9 per cent in Denmark and 28.4 per cent in Finland for 2022.

343. It is natural to expect profitability to fall in a market that is moving in the direction of increased competition. However, the EBITDA margin for the operators' total operations in Norway has moved in the opposite direction.

344. The ICE Group reported a negative EBITDA for its Norwegian operation in 2016, 2017, 2018 and 2019 but achieved a positive margin in 2020. From 2022, Ice is included in Lyse's profit figures. Lyse has operations within energy, telecommunications, and networks. The Group reported an EBITDA

[87] Sales of non-core fixed assets Open Universe and SDU fibres resulted in an EBITDA margin of 94 per cent in Q1 2022 and 48.9 per cent for 2022 as a whole. EBITDA before other income and other expenses is therefore used.

margin of 48.6 per cent for 2021 and 50.7 per cent for 2022[88] for the business as a whole. Lyse also reports figures for its telecommunications operations separately. In addition to Ice, this consists of the wholly owned digital TV and internet providers Altibox AS and Altibox Danmark AS, as well as several wholly and partly owned fibre companies in Norway. The telecommunications business achieved an EBITDA of NOK 2,728 million and an EBITDA margin of 36.6 per cent in 2022. This was down from 41 per cent in 2021. The reduction in operating profit is described in the company's annual report as being due to the acquisition of Ice, which is still in a phase of strong investment in growth and therefore not yet delivering positive results.

345. Nkom has also obtained an EBITDA margin from the operators' mobile operations for the period from 2015 to 2018.

348. In summary, Nkom points out that both Telenor and Telia have very solid profitability for their operations in Norway, and profitability has been increasing over time. The EBITDA margin for the mobile operations has normally been higher than the EBITDA margin for the total Norwegian operations. The two established providers also have significantly better profitability for their mobile operations than Ice has had so far. However, Ice has had a positive development over the past three years and has gained a completely different financial position than before with Lyse as owner.

349. The development in profitability is thus characterised by stable, high margins for the two established network owners, while Ice shows a positive development. Thus, the companies' profitability does not provide clear indications of whether their market structure is tending towards sustainable competition.

5.2.5 Existing commercial wholesale agreements

350. In the analysis of whether the market is tending towards sustainable competition, it must be assessed whether commercial wholesale services exist in the market with conditions that facilitate sustainable competition in the retail market, ref. Recital 15 of the Recommendation. If network owners other than the regulated provider have entered into commercial agreements on wholesale access, this may say something about the degree of competition in the market.

[88] Årsrapport 2022.pdf (lysekonsern.no)

[89] The EBITDA margin for the 2022 mobile operations will not be available until the product accounts are delivered on 1 July 2023.

351. As in the previous analysis, it is still only Telenor and Telia that offer products in the relevant wholesale market exclusively based on their own infrastructure. Ice does not currently have external access buyers in its network.

352. Telia currently has a national roaming agreement with Ice, an MVNO agreement with Com4 , and a service provider agreement with Chilimobil and Fjordkraft.

353. Thus, there are several commercial wholesale agreements in the market. However, Nkom believes that several of the agreements entered into must be considered in light of the fact that Telenor is and has been subject to market regulation with an obligation to enter into access agreements on regulated terms.

354. With Telia's acquisition of Tele2 in 2014, Ice gained access to national roaming, service provider access and access to co-location at Telia as a remedial measure for the Norwegian Competition Authority to approve the purchase. Thus, the wholesale access was not the result of commercial negotiations in the first place.

355. Ice's access agreement with Telia was renegotiated in May 2018 and September 2020. As described in section 5.2.6.4, the renegotiated terms reached by Ice in the negotiations are closely linked to the regulated access requirements at the relevant times. [redacted]

356. From December 2009 until November 2023, Telia had av MVNO agreement with Lycamobile . In November 2023 Lycamobile entered into av MVNO agreement with Telenor. Lycamobile markets itself mainly to customers who demand low prices for international calls and is thus not aimed at the mass market within mobile telephony. Telia alsohas an MVNO agreement with Com4 that was entered into in December 2012. Com4 is a provider of M2M services and thus does not offer products that contribute to competition within the retail markets covered by this analysis.

357. In February 2017, Telia entered into a service provider agreement with Chilimobil. Prior to this, Chilimobil acquired access from Telenor. [redacted]

358. Telia also has a service provider agreement with Bitpro, which offers fibre broadband, wireless broadband, and mobile broadband to business customers. Thus, Bitpro is not a provider of bundled mobile services.

359. In December 2022, it was further announced that Fjordkraft had entered into an access agreement with Telia. At the same time, Telia and Fjordkraft have entered into an agreement to jointly own the mobile operations in Fjordkraft in a new company (Fjordkraft Mobil AS) in which Fjordkraft

owns 61 per cent and Telia owns 39 per cent of the company[90]. Fjordkraft Mobil is thus no longer a completely independent access buyer.

360. In Nkom's opinion, it is very positive for competition in the wholesale and retail market that Telia offers wholesale access in the form of national roaming, MVNO access and service provider access on commercial terms. Several of the agreements have different pricing structures than Telenor's standard agreements (and signed agreements) and appear to have more flexible options for commercial negotiations within the agreement period. However, some of the access agreements are with operators who compete to little or no extent for the mass market within the retail markets covered by this analysis. Furthermore, several of the agreements entered into with operators providing products within the regulated market are affected by the regulation of Telenor. Therefore, it is not a given that these agreements would have been entered into under the relevant terms without the regulation of Telenor.

361. Telavox and Svea are also commercial providers in the wholesale market. They operate as so-called MVNE (Mobile Virtual Network Enabler) and offer access for wholesale customers based on their own access agreements. Thus, both Telavox and Svea buy regulated access from Telenor and depend on the terms and conditions there to be able to offer wholesale access themselves. In its consultation response to Nkom, Telavox describes Telenor's wholesale service as very unpredictable, as Telenor implements sudden changes to the access conditions in the short term with direct consequences for Telavox's framework conditions and profitability of investments. This makes it difficult for operators without their own network to compete effectively in the wholesale market.

362. Telenor is obliged to offer regulated co-location upon reasonable request from operators within the regulated market. For operators who are not providers within the regulated market, Telenor offers co-location on commercial terms. Unlike regulated terms, these are not published on Telenor's website and thus are not very transparent. However, Telenor has shown in its consultation response to Nkom that the commercial prices for co-location are significantly higher than the regulated prices. Telenor's standard agreement for regulated co-location (clause 4.3) states that if Telenor is no longer obliged to offer access to colocation in accordance with the Market 15 decision, the notice period is 36 months, and the parties must negotiate a new framework agreement[91] after the repeal of the regulation. This means that in the absence of regulation, mobile network owners must expect different and less favourable conditions for co-location.

363. In summary, Nkom believes that existing commercial wholesale services do not indicate that the market is tending towards sustainable competition. There are several indications that the services would not exist or be less favourable in a market without regulation.

5.2.6 The importance of the third network

5.2.6.1 Background

364. Establishing a third mobile network that can contribute to promoting the objective of the Norwegian Electronic Communications Act by facilitating sustainable competition has long been a key objective of Norwegian mobile regulation. The fact that sector-specific regulation will facilitate three mobile networks is stated in Stortingsmelding no. 28 (2020-2021) (white paper) “The Digital Agenda for Norway”:

> *"In order to support the development towards sustainable competition in the mobile market, the sector-specific competition regulation must facilitate the establishment of a third*

[90] Fjordkraft chooses Telia | Telia Norway

[91] 2021-05-01-Rammeavtale-Telelosji.pdf (telenorinfra.no)

competitive mobile network. Three competing mobile networks will strengthen competition in the mobile market, contribute to more competitive pricing and greater service innovation."

And with the following objective:

"The government aims for there to be at least three adequate mobile networks that can compete in both the business and residential markets."

365. As stated in Chapter 5.1, there are high entry barriers to becoming established as a network owner in Norway. Building a nationwide mobile network is both time-consuming and resource-intensive. Network Norway was established in 2005, and the expansion of the company's mobile network started in 2007. Over the course of seven years, the company built 1,850 base stations, and at the end of 2013, the mobile network covered around 75 per cent of the population (then under the name Mobile Norway). The development plans were revised along the way due to delays in obtaining sites/locations for the base stations, and this concerned both co-location, leases, and delays for building permits. At the end of 2013, the owners of the network (Tele2 Norge and Network Norway) had a customer base in the retail market that represented around 18 per cent of the total number of subscribers. About 50 per cent of the traffic for these customers went via Mobile Norway's network, while the remaining traffic was based on an agreement for national roaming. Mobile Norway did not have external wholesale customers. A lack of frequency resources meant that the company had to cease operations in 2014.

366. There is no exact threshold for what constitutes a full-fledged or competitive operator in the relevant market. On commission from Nkom, Analysys Mason has conducted a study on what must characterize a competitive mobile network in Norway[92]. Nkom endorses the assessments in the report summarised below.

367. Both Telenor and Telia emphasize coverage in their marketing, which indicates that they see coverage as an important competitive factor. Analysys Mason has also found that there is a clear correlation between the three mobile operators' coverage, market share and profitability. This suggests that coverage is of significant importance for the mobile operators' competitiveness and their ability to acquire new and retain existing customers. This indicates that good coverage is important for a third mobile network to become competitive. Ice also states in its consultation response that it is impossible to offer services for mobile telephony with only 95 per cent population coverage, especially given that the surface coverage is significantly lower than that of the competitors.

368. Furthermore, previous studies have indicated that a market share of at least 20 per cent of the subscriptions is necessary for a third mobile network to be competitive in the long term. Analysys Mason points out that this is supported by empirical evidence indicating that several competitive number three operators (Austria, the Netherlands, Ireland, and Finland) have over a 20 per cent market share. At the same time, there are examples of operators with a lower market share achieving profitable operations. Telenor Sweden, which is the number three operator in Sweden, had 19.8 per cent of all subscriptions at the end of 2022[93], and an EBITDA margin in 2022 of 34 per cent[94]. In Denmark, Hi3G, which is the number three operator in Denmark, had a market share of 18.0 per cent at the end of the first half of 2023[95], and an EBITDA margin of 29 per cent in 2022. In addition, Telia Denmark is the fourth largest operator with a 14.6 per cent market share and an EBITDA margin of 20 per cent in 2022. Therefore, a market share of 20 per cent cannot be regarded as an absolute threshold, but an indication.

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[92] Analysys Mason: "Sustainable competition in the Norwegian mobile market", 29 June 2023.

[93] Swedish Telecom Market 2022 (pts.se)

[94] analysis-of-norwegian-mobile-revenue-data-usage-and-pricing-by-tefficient-for-kdd-26-sep-2023.pdf (regjeringen.no)

[95] Mobil Baggrundsark 1H23.xlsx (live.com)

369. Ice has achieved a market share of about 14 per cent in terms of the number of subscriptions in the first half of 2023 (about 9 per cent by revenue). Tele2 had just under a 20 per cent market share measured by number of subscriptions (just over 15 per cent by revenue) when the company was sold to Telia in 2014. This may indicate that it has been more challenging to establish a competitive third mobile network in the period from 2015 to 2022 than it was 10-15 years ago, partly as a result of ever-increasing requirements for speed/capacity in the mobile networks and rapid technology shifts with associated demanding investments. The investment level in the Norwegian mobile market will also be high in the years ahead, partly as a result of the further 5G development and because of increased requirements for security and robustness in all electronic communications infrastructure. This may indicate that from a forward-looking perspective, it will be no less challenging for Ice to establish a mobile network that is "symmetrical" with the two established mobile operators.

5.2.6.2 Status of the development of the third mobile network

370. Ice acquired significant frequency resources in 2013 and then started developing its mobile network in Norway. At the previous market analysis (end of 2019), the company had established around 2,100 base stations. Based on this development, the company covered around 90 per cent of the population. The share of data traffic in its own networks accounted for 80 per cent at the end of the fourth quarter of 2019[96], while 30 per cent of voice traffic (VoLTE) was through its own network at the same time.

371. Ice is planning further expansions to increase population coverage to at least 95 per cent during the regulation period 2020-2023. At the same time, the company expected to increase the number of base stations to 4,600 by Q2 2022. At that time, the company had concentrated on development in the most densely populated areas where they had taken over sites/locations from Tele2 through the agreement with Telia. Further development would apply to more sparsely populated areas of the country, where the traffic base was lower and the development costs higher. The goal was to roll out 300-500 base stations per year. By the end of 2021, Ice had built 3,205 base stations. The rollout of base stations did not go as quickly as planned. Challenges related to the financial situation took a lot of focus during the period and were probably a key reason why the development did not go as quickly as planned.

372. In February 2022, the Norwegian Competition Authority approved Lyse's acquisition of Ice and the company thus gained new strong financial muscle. During 2022, approximately one hundred new base stations were built, bringing the network to a total of 3,303 base stations by the end of the year. The network covered about 96 per cent of Norway's population, and the share of data traffic in its own network accounted for about 90 per cent.

373. As of the end of December 2023, Ice has a total [redacted] in operation. Population coverage amounts to 96 per cent, and land coverage amounts to [redacted] per cent. Ice produces [redacted] per cent of data traffic in its own network.

5.2.6.3 Further development

374. The development project that has now been initiated is referred to as Kjerag. This is a comprehensive development that involves both building coverage and increasing the capacity of the current network. Ice plans to build just under 4,000 base stations between 2023 and 2025, while upwards of 3,000 existing base stations will be upgraded with multiple frequency bands[97]. The company has set as a goal for the project to have national 5G coverage and thus become independent of Telia.

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[96] Taken from Ice Group's financial reports

[97] Building the mobile network of all time - ice

375. Ice holds frequency resources for mobile development. The frequency resources are presently distributed as shown in the figure below.

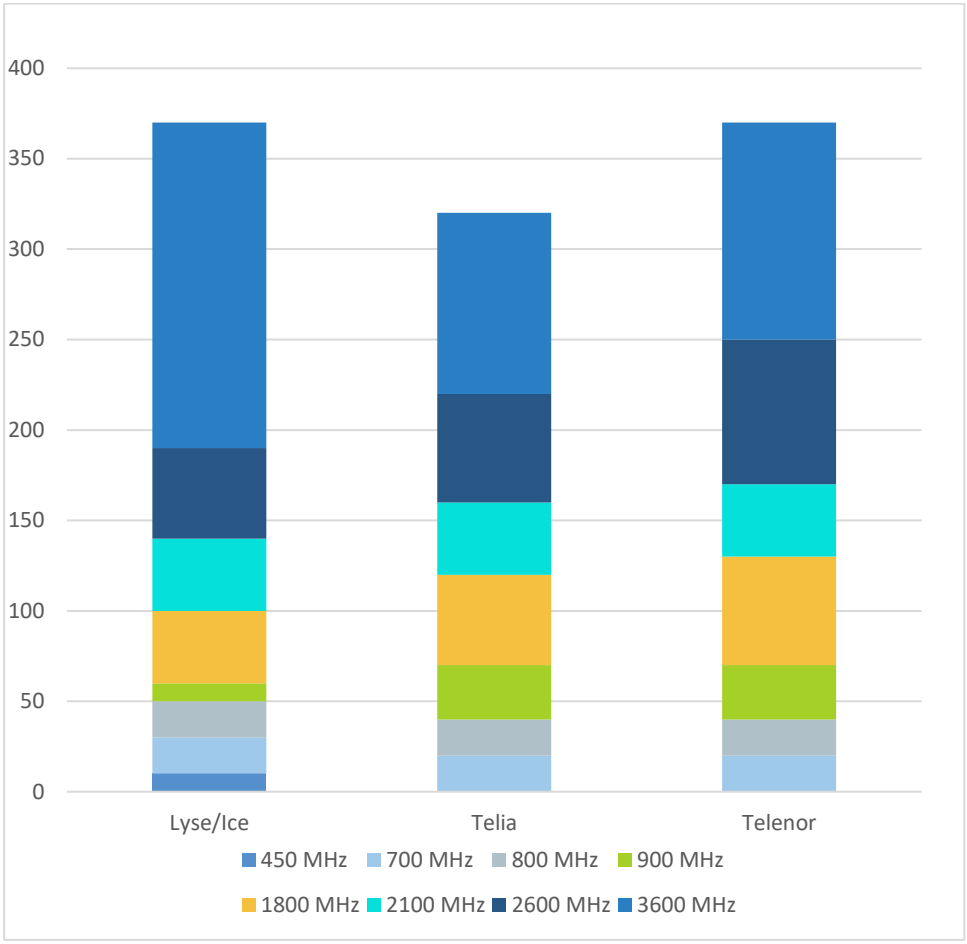

Figure 21 Distribution of frequency resources used for public cellular communication, as of November 2022[98]

376. The Figure shows that Ice has frequencies in 450 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2.1 GHz, 2.6 GHz, and the 3.6 GHz band. Telenor and Telia also have frequencies in these bands, except for the 450 MHz band. According to Ice, most of the base stations will be built with 700, 800, 1800 and 2100 MHz to ensure both good coverage and capacity. In addition, Ice will use the 3.6 GHz band to ensure that the network is equipped for strong consumption growth.

377. Ice was the holder of a number of frequency licences when the company was acquired by Lyse. The transfer at the time of sale also included the transfer of the frequency licences. Nkom then had to decide whether Ice could transfer the licences to Lyse according to Section 6-5 of the Electronic Communications Act. Nkom concluded that the transfer of Ice's licences in the frequency bands 450 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, and 2.1 GHz to Lyse will not shift the desired balance in the distribution of resources. Nkom specifically considered whether it would be harmful to competition if Lyse were allowed to use 180 MHz in the 3.6 GHz band but concluded that this was not the case. On 29 March 2022, Nkom decided to approve the transfer of Ice's licences to Lyse. Telia appealed the case, and the complaint is pending with the Ministry of Digitalisation and Public Administration.

[98] New edition of the Mobile Frequency Compass towards 2030 - Nkom

378. Lyse and the broadband companies in the Altibox partnership have established a joint tower company that will contribute to the rapid expansion of the mobile network. According to Lyse, the purpose is to exploit the experience gained by broadband companies in building digital infrastructure, while at the same time enabling the owners to add value by allowing the company to also lease to other operators. In the completion of the further development, Ice has entered into contracts with several contractors.[99] Ice has allocated considerable sums to the implementation of the contracts, which include work on upgrading the mobile network and new base stations where needed, both in the terrain and on rooftops. The tower company has announced that it plans to set up six hundred new mobile towers[100].

379. In February 2024, Lyse AS entered into a loan agreement of one billion Norwegian kroner with Nordic Investment Bank for financing the roll-out project, which includes both upgrading and establishing 5G base stations.[101]

380. Nkom therefore considers that much is in place for Norway to having a third national mobile network within the time horizon of this analysis. At the same time, there are a number of uncertainties that could affect the pace of development.

381. The development plans entail that Ice will build over 1,200 base stations per year in the years 2023, 2024 and 2025. This means twenty-four base stations per week, in addition to the upgrades to be made to existing base stations. In the previous four years, Ice has built approximately 770 (2020), 318 (2021), 100 (2022) and [redacted] base stations, respectively. The pace of development planned is higher than Ice has ever had.

382. Simultaneously with Ice's development, Telenor and Telia are also in the process of rolling out 5G extensively. Thus, it may be challenging to secure sufficient personnel resources for the progress that Ice is planning. At the same time, there have been major challenges and delays in various supply chains since the pandemic, and this is also affecting the electronic communications industry. Shortages of components and delays in transport may thus also affect the progress.

383. Quick access to sites/locations for base stations is also a critical factor for the development. Base stations can be placed on separate masts when leasing on roofs or by co-locating with other network owners. Under the current regulation, Telenor is subject to obligations to ensure rapid placement at cost-oriented prices. Telenor will normally process applications for co-location within six weeks. However, in many cases, the process takes longer, partly because extensions often require approval by third parties. However, access buyers with the right to purchase regulated co-location are prioritized whenever possible. Other providers of co-location do not have the same obligations for effective treatment. Access to rent areas for the deployment of base stations, both on public and private land, has also proved to be time-consuming and resource-intensive[102].

384. Telenor and Telia have also had ambitious plans for upgrading their networks to 5G but have stated that previous development plans have been too ambitious, and that the development is more time-consuming than initially estimated[103].

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[99] Four companies are building the 5G network for Ice for NOK 1.5 billion - Inside Telecom and Site Service to build mobile network for Ice for half a billion Norwegian kroner - Inside Telecom

[100] The tower company has set up its first tower - Insidetelecom.no

[101] NIB and Lyse AS Sign Loan Agreement to Support 5G Network Expansion in Norway - Nordic Investment Bank

[102] Reference is made to Nkom's guide for the deployment of infrastructure for mobile networks: Deployment of mobile network infrastructure in public areas - Nkom

[103] Telenor confirms 5G delay: "The plan to finish in 2024 was too ambitious - Insidetelecom.no

385. Ice's goal of approximately 7,000 upgraded base stations involves more base stations than Telia has today. In comparison, Telenor currently has more than 8,000 base stations[104]. At the same time, the 5G development at Telenor and Telia also requires densification of base stations to provide the high capacity and coverage needed to fully utilize the opportunities in 5G, so that both Telenor and Telia will increase the number of base stations in the coming years.

386. In summary, Nkom believes that there is great uncertainty as to whether the pace of development Ice assumes is feasible. The pace of development is far higher than any network development in Norway previously, and the market is characterised by a lack of resources. Therefore, the analysis must take into account that the development may take longer than the plans presented by the company. Efficient access to co-location and placement on buildings will be particularly important for the development.

5.2.6.4 The importance of a national roaming agreement

387. The national roaming agreement signed with Telia in 2015 enabled Ice to offer a complete and full-fledged service in the retail markets right from the start of the development.

388. Norwegian end users have very high requirements for network coverage and quality. It is evident from Nkom's market research that coverage is the second most important factor after price for the choice of mobile operator in both the residential and business markets. In both markets, there are also clear preferences for Telenor's coverage. Although Ice has a population coverage of around 96 per cent, area coverage is significantly lower. Without national roaming, Ice's area coverage will be significantly reduced, the company is likely to lose customers and customers' perception of Ice's coverage will weaken. Thus, national roaming is important for further growth opportunities, which in turn is a prerequisite for being able to utilize economies of scale. Given the need for significant investments in the next few years for the third mobile network to be competitive with the two established mobile networks in terms of coverage, capacity and robustness, volume is a key prerequisite for these investments to be made profitably. These conditions mean that Ice cannot release itself from the national roaming agreement until the network has virtually the same degree of coverage as the established network owners. Therefore, Nkom expects that Ice will depend on access to national roaming throughout the development period.

389. Furthermore, the conditions for access are of significance for the company's services and competitiveness in the retail and wholesale market, including price levels and price structures. The access agreement with Telia has been renegotiated both in 2018 and 2020. In both renegotiations, the price structure of the agreement has been adjusted, and the adjustments have been affected by the current price control for Telenor. [redacted]

390. It was clear from Ice's 2021 annual report that the renegotiated agreement had a significant impact on the company's costs for national roaming this year:

> "*A new national roaming agreement (NRA) came into effect on 1 January 2021. The new agreement drove costs down substantially and was an important factor for the improved EBITDA margin for 2021."*

391. Further from the same report:

[104] World-class coverage map and mobile network from Telenor

"*National roaming costs as a share of smartphone service revenues was 9% in the fourth quarter of 2021, a significant reduction from 23% in the same quarter last year, reflecting the lower cost level of the new NRA agreement that came into effect on 1 January 2021.*"

392. With a linear pricing structure, the importance of the external cost of goods/access price will decrease as the share of traffic in the network owner's own network increases. At the end of 2023, Ice had about [redacted] per cent for voice. The significance of the access conditions will be further reduced later in the development period.

5.2.6.5 Significance of Ice's mobile network in the retail market

393. Since launching in 2015, Ice has had competitive prices in the residential market, especially for smaller data packages. This has resulted in the company having had robust growth in the residential market. In the years since its launch, the company achieved a market share of over 17 per cent of the subscriptions in the residential market at the end of the first half year of 2023. However, Ice's share of revenue is lower (12 per cent), and this is due to many of the customers having small data packages.

394. On the other hand, Ice has a much lower share of subscriptions and revenue in the business market (only 4 per cent in both categories). There has been little development in the company's market share in the business market since the previous analysis. See Chapter 2.4.9 for further information on competitive conditions in the business market.

395. Nkom believes Ice makes an important contribution to diversity and price competition in the retail market.

396. However, previous studies and empirical evidence have indicated that an efficient mobile operator must have a minimum 20 per cent market share of all subscriptions to utilize economies of scale, ensure profitability and thus constitute an effective competitor over time. It will be challenging for a third mobile operator to achieve a total market share of at least 20 per cent of all subscriptions if the primary target group is limited to the most price-conscious mobile customers in the residential market. It will be necessary for Ice to have attractive products aimed at different customer segments in both the residential and business markets. Norway has a higher proportion of business subscriptions than most other European countries. This may be because it is more common in Norway than in many other countries not to have your own private mobile phone subscription if you have a subscription that is paid for by your employer. The high proportion of business subscriptions may limit Ice's ability to use price as a means of achieving increased market share, as business customers are often less price-sensitive than residential customers.[105]

397. However, the competitive pressure Ice exerts now and will exert in the coming years will depend on the company having an access agreement with existing mobile networks and the terms the company can achieve for such access.

5.2.6.6 Significance of Ice's mobile network in the wholesale market

398. The wholesale market consists both of traffic to own service provider and external resales. See the market definition in Chapter 2.5. Ice does not currently have external wholesale customers and thus does not contribute to disciplining the services in the wholesale market, cf. Chapter 3. A well-functioning wholesale market is essential for sustainable competition, and Nkom believes that there is a need for at least three independent operators with their own mobile networks to achieve this.

399. Conditions in the wholesale agreements, including pricing structure, have previously been a limiting factor for Ice to offer attractive terms to external wholesale customers. However, the price structure of the wholesale agreement has been renegotiated twice, and the factors previously

[105] Analysys Mason: "Sustainable competition in the Norwegian mobile market", 29 June 2023.

highlighted as obstacles to attractive wholesale services have largely been removed. In addition, the company's share of traffic in its own network is high, so access conditions to a lesser extent pose a barrier to being able to offer attractive terms to wholesale customers.

400. Ice states in its response to Nkom that the company is in the process of building an organization internally that will deal with wholesale customers and that the company has both technical and actual capabilities to offer a full-fledged wholesale product. The conditions are thus favourable for Ice to offer access to external wholesale customers. However, in the future, the development project will be important for how attractive Ice is perceived in the wholesale market. As mentioned, coverage is particularly important for Norwegian end users, especially among business customers. Thus, coverage is also important for wholesale customers. Nkom's market research has shown that coverage preferences take a long time to change in the Norwegian market. Ice will depend on national roaming during the development period so as not to weaken customers' perception of coverage.

401. Furthermore, Ice must be able to offer competitive prices in the wholesale market. As there are significant economies of scale in the operation of mobile networks, volume is a key factor in being able to compete on price in the wholesale market.

5.2.6.7 Conclusion regarding the importance of a third mobile network

402. Ice is presently a competitor in the total retail market, principally the residential market. The business market is a more challenging market in which to establish positions. However, to constitute a competitive operator over time, Ice needs continued growth in its customer base so that the company can utilize economies of scale to a greater extent.

403. Norwegian end users' high expectations and coverage requirements mean that Ice depends on national roaming to be competitive until the network is developed with approximately the same level of coverage as the established network owners. Predictable access conditions are important, even though the importance of access conditions will diminish as the share of traffic in the operator’s own network increases.

404. The progress of the development project is crucial for when Ice can free itself from national roaming. Lyse's acquisition of the company has helped pave the way for further development. However, the development plans are extremely ambitious, and several uncertainties could affect progress, including external factors over which Ice has limited control. A high level of investment may be a limiting factor for the growth conditions for Ice.

405. Nkom concludes that there is not sufficiently clear evidence that the third network would be able to discipline the established operators in the wholesale market regardless of regulation within the time horizon of the analysis.

5.2.7 Potential competition

406. In this context, potential competition relates to whether operators that are not in the current market today can contribute to increased market dynamics within the relevant time horizon and remove the importance of entry barriers. Reference is made to Recital 11 of the Recommendation.

407. High prices and good profitability in a market will make new establishments more attractive. The threat of increased competition from new operators will thereby be able to exert a disciplining effect on established operators' pricing. Nkom assumes that in this context potential competitors are operators that can offer access to the mobile network or discipline the operators in the market in other ways.

408. At the MNO level, only Ice is currently a potential competitor to Telenor and Telia for offering external operators access to mobile networks. The significance of the company's mobile network for the dynamics in this market is considered in Chapter 5.2.6. Nkom concludes that there is not clear enough evidence that the third network would be able to discipline the established operators on the supply side within the time horizon of the analysis.

409. Based on this, the question will be whether other operators than these three can enter the market or otherwise challenge existing competitors. As described in Chapter 5.1.3, frequency management enables at least three operators to receive access to the spectrum on the applicable frequency bands. For operators other than those that already hold frequency resources, it will not be possible to gain access to adequate frequency resources both in coverage bands and capacity bands through ordinary auctions within the next 7-8 years to be able to supply nationwide services that satisfy the users' requirements.

410. Operators that do not have their own frequencies will have to fully base a service on access in the wholesale market on leased infrastructure. To offer an attractive wholesale offer of leased infrastructure, differentiation from the host network in other ways than just access to the network is often required. As mentioned in Chapter 3.1, Telavox is an example of a facilitator of mobile services, a so-called "enabler". In addition to access to mobile networks, the company also facilitates other services for its customers, such as invoicing, web services, management of regulatory changes etc. This allows the company to offer an attractive wholesale service based on leased infrastructure. However, like other buyers of access, companies such as Telavox depend on an access agreement with Telenor or Telia. Even though Telavox combines purchases from multiple service providers and can thereby make "bulk purchases", Nkom has no evidence of Telavox having been able to significantly discipline the wholesale services from the established providers.

411. Potential competition in the retail market may also come from new technology, such as from OTT services. In Chapter 2.4.5, Nkom stated that such services are not adequate substitutes for voice and SMS in traditional mobile subscriptions and that the services require end users to have a mobile subscription or mobile broadband subscription in order to access mobile networks. The fact that the services do not provide access to mobile networks also means that they do not constitute a potential competitor in the relevant wholesale market. Nor does Nkom have any basis for believing that competition from OTT providers will in any other way discipline the established operators in the wholesale market.

412. In summary, Nkom does not expect that new providers will be able to establish a competitive service based on their own infrastructure in the relevant wholesale market. Furthermore, experience indicates that providers that must base their services solely on leased infrastructure can only discipline the established network owners' own wholesale services to a limited extent.

413. Based on this, Nkom believes there is no evidence that potential competition will discipline the established operators in the wholesale or retail market to a sufficient degree within the time horizon of the analysis.

5.2.8 Conclusion on the second criteria

414. Under the second criterion, Nkom has investigated whether the market structure tends towards effective competition without sector-specific ex ante regulation. In the assessment, Nkom analysed market conditions with special emphasis on changes during the period after the previous market analysis and with a view to what indications this gives for future developments in the market.

415. Over time, Telenor has had high and stable market shares in the retail market for bundled mobile services. Telenor's share of revenue at the end of the first half of 2023 was 53 per cent (54 per cent in the same period of 2022), and its share of subscriptions amounted to 43 per cent at the end of the first half of 2023 (44 per cent in the same period of 2022). Telia's market share has varied more

due to acquisitions and occasional drops in the customer base. At the end of the first half of 2023, the two operators together had 77 per cent of the subscriptions and 85 per cent of the total sales revenues in the retail market (residential and business). The Norwegian mobile market is thus still highly concentrated.

416. Ice had robust growth in the years since its start-up in 2015, but the growth has levelled off somewhat more since 2018. In the eight years since establishing itself as a provider of mobile telephony, the company has reached a market share of around 14 per cent of subscriptions at the end of the first half of 2023 and 9 per cent of retail market revenue in the first half of 2023 Ice is therefore still a long way from the established network owners in terms of size. Previous studies and empirical data show that an efficient mobile operator must have a minimum 20 per cent market share to utilize economies of scale and ensure profitability over time. However, access to national roaming means that Ice can currently offer attractive products to end users and is an important competitor in the retail market, mainly in the residential market. Without access to national roaming, the company's area coverage in particular will be significantly lower, with a high risk of loss of customers and a weakened perception of Ice's coverage among end users.

417. It is still only Telenor and Telia that sell access to their own mobile network in the relevant wholesale market. The two operators sell access to operators who together account for 9 per cent of the total subscriptions and 6 per cent of sales in the retail market. The largest operators among them are Fjordkraft, Chilimobil and Xplora mobile with 2.0, 1.4 and 1.3 per cent respectively of the number of subscriptions at the end of the first half of 2023. These are operators that established themselves in the market in 2017, 2011 and 2016, respectively. Following Unifon's merger with Nortel, the new company will also be among the largest access buyers with around 2 per cent market share based on figures for the first half of 2023. The figures show that it takes time for operators to establish themselves in the Norwegian market, and access buyers have not succeeded to any great extent in building up large customer bases in the retail market.

418. Telia's access agreements are based on commercial terms, but in several cases, these are affected by the sector-specific regulation in the market. In the analysis, Nkom has given several examples of this and therefore believes that the services would not exist on the same terms without the regulation.

419. Following Lyse's acquisition of Ice, a comprehensive roll-out plan has been drawn up to complete national coverage by 2025. The company also expects to be able to end national roaming. However, the roll-out plans are very ambitious, and there are a number of uncertainties that could affect progress, including external factors over which Ice has limited control. Norwegian end users' high expectations for coverage mean that Ice's competitiveness is conditional on predictable access to national coverage within the roll-out period. Many conditions are in place for Ice to establish itself as a provider in the wholesale market within the time horizon of the analysis, but further development and transfer of traffic to its own network will be key factors for an attractive wholesale service. Nkom does not have sufficient grounds to indicate that Ice would be able to discipline the established operators on the supply side in the relevant wholesale market within the time horizon of the analysis without regulation.

420. Nkom also cannot see that potential competition from other operators or new technology will be able to discipline the established operators in the wholesale market to a sufficient degree within the time horizon of the analysis.

421. Based on this, Nkom finds that there is insufficient clear evidence of dynamics in the market within the time horizon of the analysis to indicate that the market structure will tend towards effective competition without ex ante regulation. The second criterion is therefore met.

5.3 Third criterion: General competition law alone is not sufficient

5.3.1 General comments on the third criterion

422. The third and final criterion that must be considered is whether general competition law alone is sufficient for remedying market failures in the market for access and origination on mobile networks. The criterion aims at an assessment of the adequacy of competition law to remedy identified competition problems in the market, where sector-specific ex ante regulation is only to be applied where competition law alone is not sufficient[106]. The need for sector-specific ex ante regulation depends largely on how effective the competition legislation is in following up on violations within the relevant market.

423. The Recommendation's Explanatory Note states on page 14 that ex ante regulation will be necessary if general competition law does not have instruments to achieve sustainable competition, or the instruments available under competition law are not sufficiently effective.

424. The assessment of whether available instruments under the competition legislation are sufficiently effective, should, according to the Recommendation and Explanatory Note, be based on an assessment of appropriateness. The decisive factor in such an assessment is whether the general competition law will be able to remedy the structural problems in the market on a sufficiently effective, appropriate, and predictable basis. As indications that competition law is not sufficiently effective to remedy any competition problems, the Explanatory Note points to the following factors[107]:

- there is a need for frequent or rapid regulatory intervention;
- there is a need for comprehensive/detailed regulation;
- non-competitive behaviour brings about irreparable damage in the market; and
- it is particularly important to create regulatory predictability in the market.

425. It is irrelevant to the assessment of whether general competition law is sufficiently effective to address the competition problems that ex ante regulation may be less resource-intensive to implement.

5.3.2 The relationship between sector-specific ex ante regulation and competition law

426. The sector-specific regulation is based on any findings of a provider or providers with significant market power in the relevant market. The assessment of significant market power is based on competition law methodology and the competition law concept of “dominant position”. At the core of the concept of dominant position is that the operator has a market position in the relevant market which entails that the operator can act independently of other operators to a significant degree.

427. Section 11 of the Competition Act prohibits one or more undertakings from abusing their dominant position. The two main categories of abuse of dominant position that are affected by the prohibition are exploitative and exclusionary behaviour, respectively. Nkom believes that in the market for access and origination on mobile networks, it is more relevant to consider the prohibition of exclusionary behaviour in the form of denial of access, or actions that can be equated to denial of access. A dominating operator's refusal to give competitors access to its own mobile network is a type of behaviour that would be affected by Section 11 of the Norwegian Competition Act. Unreasonable prices or unreasonable terms related to access may also be considered to be a denial of access that comes under Section 11 of the Competition Act.

[106] Recital 17 of the Recommendation on page 3.

[107] Explanatory Note to the Recommendation page 14.

428. Under Section 12 of the Competition Act, the Norwegian Competition Authority can impose any measures necessary to terminate the infringement of Section 11. The provisions of the Norwegian Competition Act may therefore also be used to resolve competition problems in the relevant market.

429. Intervention under the competition legislation presupposes that there is an abuse of a dominant position[108], and is conditional on the fact that anti-competitive conduct has taken place in violation of Section 11 of the Competition Act. However, the prohibition against misuse of a dominant position must be assumed to have a preventive effect that can be appropriate to disciplining dominating operators from undertaking unlawful behaviour.

430. Sector-specific ex ante regulation is based on pre-defined markets with the possibility of defining different markets on a national basis. Competition law may also be applied to these markets. On assessing the need for ex ante regulation it will not be sufficient that the competition legislation can remedy one or more specific competition problems in the market. The decisive factor for the assessment is whether the competition legislation can adequately address the competition problems in the relevant market.

431. Effective handling of the actual and potential competition issues in the market assumes that the authorities can intervene quickly and effectively. To intervene against a competition problem within competition law, it is necessary to define the relevant market and to find that one or several undertakings have a dominating position in the market. It must also be determined that the dominating operator has misused its position. An assessment of whether specific conduct involves the misuse of a dominant position might thus be extensive and time-consuming. The conditions for rapid and thereby effective intervention to resolve competition problems in the market for access and origination on mobile networks are therefore far more extensive under the electronic communications legislation than under the competition legislation. Nkom believes that the opportunity for rapid intervention might be of great significance in the period covered by this analysis, to achieve the objective of sustainable competition.

5.3.3 Nkom's assessment of general competition law is sufficiently effective in the market

432. The analysis of the first and second criteria shows that there are structural problems in the market for access and origination on mobile networks. As a general starting point, the competition legislation will be less suitable than sector-specific regulation to achieve competition in markets that are characterised by structural problems which require rapid and frequent intervention.

433. As stated above, denial of access and behaviour with an equivalent effect might be affected by Section 11 of the Norwegian Competition Act. In the assessment of whether general competition law is sufficiently effective, it will be relevant to assess whether extensive, detailed regulation is necessary, whether there is a need for rapid intervention, whether insufficient regulation can lead to irreversible damage, and whether predictability is of great significance.[109]

434. Denial of access in the relevant market will be likely to impair the ability to achieve sustainable infrastructure-based competition in the market. In Nkom's assessment, this indicates that it is important to ensure access buyers reasonable and predictable terms for achieving the objectives behind the regulation.

435. One form of access denial may be that vertically integrated providers put the buyer of access in a margin squeeze.[110] Nkom believes that ex ante regulation, in contrast to competition law, can set up obligations in advance to limit the risk of margin squeeze arising. This creates predictability for both

[108] There is also a right linked to measures that promote competition in Section 14 of the Norwegian Competition Act, however, this is not often applied in practice.

[109] Cf. The Recommendation's Explanatory Note, p. 14-15.

[110] In its Guidance Paper, the Commission expressed that margin squeeze may be a form of access denial.

buyer and seller of access since the obligation is specified in advance. Furthermore, the regulation will make it possible to detect margin squeeze at an early stage and react quickly in order to limit the negative consequences as far as possible. Nkom will also have greater flexibility in designing margin squeeze tests than is the case for general competition law when the competition authorities must normally consider the principle of "equally efficient operator". In Nkom's assessment, the aforementioned indicates that any margin squeeze found in the market for access and origination on mobile networks could be handled more effectively under an ex ante regime than by follow-up ex-post.

436. With regard to co-location, a network operator normally requests co-location from several providers, depending on which locations are needed, in terms of the overall radio planning. In the time horizon of the analysis, the number of placement applications is expected to increase due to Ice planning an extensive development project in the time ahead, see chapter 5.2.6. This confirms that there may be a need to have clear predefined requirements, rather than an ex-post assessment.

437. The assessment of whether general competition law will be sufficient to avert the consequences of denial of access must in Nkom's opinion be considered in light of the damage potential of any such behaviour. Nkom considers that denial of access, or other misuse with a similar effect as denial of access, may harm the possibility of achieving infrastructure-based and sustainable competition in the market. Therefore, denial of access may cause irreversible damage to the market. If a provider in an unregulated market is denied access to infrastructure, it will potentially take a long time for a violation to be found under competition law. With ex ante regulation, clear obligations can be imposed in advance, which are suitable to effectively prevent denial of access. If the obligations are nonetheless infringed, rapid intervention will be possible, so that regulation is effective. In light of the aforementioned, Nkom considers it vital that the market operators are ensured the regulatory predictability that is provided for via ex ante regulation. In Nkom's view, this special need for predictability is not covered by general competition law alone.

438. Section 12, fifth paragraph of the Norwegian Competition Act gives authority to make a provisional decision to terminate the assumed infringement of Section 11 of the Act and can thus alleviate some of the problems with ex-post regulation described above. However, the provision has a narrow scope and is rarely used in community law and Norway. Therefore, Nkom considers the competition authority's ability to make interim decisions in accordance with the provision to be limited and not sufficient to ensure predictability and rapid follow-up as the market situation requires.

439. Based on the market situation in the Norwegian market for access and origination in mobile networks, as of today and within the time horizon of the analysis, Nkom believes that there is still a need for sector-specific ex ante regulation.

5.3.4 Conclusion on the third criterion

440. Based on the above, Nkom concludes that general competition law alone is not sufficiently effective to resolve competition problems in the market. Therefore, Nkom finds that the third criterion is met.

5.4 Conclusion on the three-criteria test

441. Nkom has shown how there are high, non-transitory entry barriers in the market for access and origination on mobile networks, that the market is not tending towards effective competition without regulation, and that general competition law is not sufficient to create sustainable competition in the market. The three criteria for ex ante regulation are therefore met.

6 Analysis of the market – dominance assessment

442. Above, Nkom has defined a relevant wholesale market and concluded that the relevant market is susceptible to ex ante regulation. Below, Nkom will assess whether there is a basis for designating one or several providers with significant market power.

6.1 Legal basis

443. Section 3-3, first paragraph[111] of the Electronic Communications Act stipulates that the authority shall conduct market analyses in accordance with the[112] EFTA Surveillance Authority's guidelines for market analysis and calculation of significant market power in this area. The provision also states that the authority may, based on market analyses, designate providers with significant market power. Therefore, Nkom must carry out analyses of relevant product markets with a view to determining whether the markets are characterised by effective competition. If the markets are not subject to effective competition, Nkom must identify providers that alone or together with other providers hold significant market power.

444. The preparatory works to the Electronic Communications Act also state: [113]

> *"Sustainable competition is defined as a situation where no operator has significant market power and/or can exploit its position to the detriment of competition."*

445. Thus, according to the regulatory framework, there will be a necessary correlation between the absence of effective competition in a relevant market and the existence of significant market power.

446. The term significant market power has been defined in section 3-1, first paragraph[114] of the Electronic Communications Act, which reads as follows:

> *"A provider has significant market power when the provider individually or jointly with others has economic strength in a relevant market affording the provider the power to behave to an appreciable extent independently of competitors, customers and consumers.* Significant market power in one market may result in a provider having significant market power in a closely related market."

447. Significant market power represents the regulatory position corresponding to a dominant position in competition law. The term dominant position is used in competition law theory to refer to operators who have significant market power in the market. A dominant operator's position of power is characterised by its ability to prevent effective competition in that it can act to a considerable extent independently of competing market forces. An operator with such a position will be largely able to influence prices, the range of goods and services or other competitive parameters in the market.

6.2 Method and indicators of significant market power

448. Section 3-1 of the Electronic Communications Act states that a provider "individually or jointly with others" may have significant market power. When a provider has significant market power alone,

[111] Proposal for a new Electronic Communications Act Section 6-3, first paragraph

[112] Cf. also Section 9-3, second paragraph of the Electronic Communications Act and the proposed new Electronic Communications Act Section 14-3

[113] Ot.prp.nr. 58 (2002-2003) (white paper), page 26

[114] Proposal for a new Electronic Communications Act Section 6-3, first paragraph

this is often referred to as individual dominance, while if several providers together can act independently of their customers, competitors, and consumers to an appreciable extent, this is referred to as joint SMP.[115]. In Nkom's decisions of both 23 January 2006 and 5 August 2010, Telecom has been identified as a provider with individual dominance.

449. In the three-criteria test, Nkom has concluded that there is no basis to assess that the relevant market will trend towards sustainable competition in the absence of ex ante regulation. In the assessment, Nkom has inter alia analysed market shares at the retail and wholesale levels. Telenor's share of subscriptions has fallen slightly in recent years (now 43 per cent), while the company's market share in the retail market based on turnover has remained stable above 50 per cent. At the network level (wholesale market), Telenor had around 48 per cent of the number of subscriptions at the end of the first half of 2023. Telia's acquisition of Fjordkraft and the transfer of customers to Telia's network were the main reasons why Telenor's market share at the network level fell in the first half of 2023. Telenor's market share in the relevant market is nevertheless high and stable. Market share is a key indicator of individual dominance.

450. On the assessment of significant market power, Nkom will on this basis apply the Guidelines' criteria for individual dominance and assess whether Telenor still holds significant market power alone.

451. In the analysis of individual dominance, Nkom assessed the following indicators:

- Market shares
- Profitability
- Access to sales channels
- Access to information, switching costs and lock-in mechanisms
- Significance of quality and coverage in the mobile network
- Significance of ownership and control of the network for leased lines and other input factors
- Buyer power and bargaining power on the demand side
- Entry barriers and potential competition

452. Several of the elements for assessment of individual dominance correspond to the elements considered under criteria 1 and 2 in the three-criteria test. In this analysis, the elements that are also considered in the three-criteria test are assessed in order to discover whether any provider has significant market power.

453. The relevant market is a wholesale market, cf. the market definition in Chapter 2. However, the competition at the retail level will reflect the competition at the wholesale level to a significant degree. Most of the wholesale sales in both Telenor and Telia are internal sales to own retail activity. This means that factors relating to the retail market will also affect the competition in the wholesale market. One example of such factors at the retail level is the switching costs for retail users, for example in the form of coverage changes.

454. As shown above, Nkom's analysis has a time perspective of two to three years.

[115] In general competition law, joint dominance or dominant position is used. However, the Guidelines use the term joint SMP (Significant Market Power) within sector-specific regulation. Nkom will therefore use the term joint SMP in this analysis.

6.3 Market shares

6.3.1 Market shares in general

455. It follows from the Guidelines that market shares are the starting point for assessing market power.[116] Nkom's analysis of significant market power is based on the providers' market shares.

456. High and stable market shares over time may indicate significant market power. Section 55 of the Guidelines states that if a provider has a stable market share exceeding 50 per cent, there is a legal presumption of significant market power.

> *"According to established case law, a very large market share held by an undertaking for some time - in excess of 50% - is in itself, save in exceptional circumstances, evidence of the existence of a dominant position. Experience suggests that the higher the market share and the longer the period of time over which it is held, the more likely it is that it constitutes an important preliminary indication of SMP."*

457. Section 56 of the Guidelines provides further guidance on developments and fluctuations in market shares:

> *"[…] the fact that an undertaking with a strong position in the market is gradually losing market share may well indicate that the market is becoming more competitive but does not preclude a finding of SMP. Significant fluctuation of market share over time may be indicative of a lack of market power in the relevant market. The ability of a new entrant to increase its market share quickly may also reflect that the relevant market in question is more competitive and that entry barriers can be overcome within a reasonable time frame."*

458. It also follows from Section 57 of the Guidelines that if market shares are below 50 per cent, an assessment of significant market power must also be based on other relevant criteria in addition to market shares:

> *"If the market share is high but below the 50 % threshold, NRAs should rely on other key structural market features to assess SMP. They should conduct a thorough structural evaluation of the characteristics of the relevant market before drawing any conclusions on the existence of SMP."*

459. When using market shares as an indicator of significant market power, it is necessary to consider which measurement parameters are most relevant for the purpose. Several measurement parameters can be included in the assessment, either individually or in combination with each other. Both volume and turnover are relevant measurement parameters. Nkom believes that market share based on revenue better reflects the market position and strength of the operators than market share based on volume, i.e. subscription or a type of traffic.

6.3.2 Market shares at the retail level for bundled mobile phone services

460. Telenor's market share measured in turnover has been stable for a long time and above 50 per cent, see Figure 18. Figures for the first half of 2023 show an increase to 53 per cent. Since the previous market analysis, which was based on statistics from 2019, Telenor's market share based on sales has decreased by about 4 per cent.

461. Telia's market share in terms of revenue has fallen by just over one per cent since the last market analysis and amounted to 32 per cent in the first half of 2023.

[116] Section 54 of the Guidelines. Commission Staff Working Document, page 23.

462. Ice has increased its share in terms of revenue since the launch of mobile subscriptions in 2015, to 9 per cent in the first half of 2023. However, Ice has a significantly smaller share of revenue than the two established network owners.

463. With regard to the number of subscriptions at the retail level, the difference between the established operators is somewhat smaller than market shares based on revenue. Telenor's share of the number of subscriptions shows a steady, slight reduction and amounted to 42.7 per cent at the end of the first half of 2023 (residential and business combined). The market share was 47.5 per cent in the previous market analysis and has thus been reduced by 4.8 per cent over three and a half years.

464. At the end of the first half of 2023, Telia had a market share based on the number of subscriptions of 34.3 per cent, which is 2 per cent lower than the previous market analysis.

465. Ice has had an increasing market share based on the number of subscriptions since 2015. Ice's gradual increase in market share has roughly corresponded to Telenor's reduction in market share. Ice's market share was reduced to 14 per cent at the end of the first half of 2023. Since its inception, Ice has largely focused on increasing its own market share through organic growth, rather than acquisitions in the market. However, Ice acquired Vipps Mobile's mobile customers in 2022 and Release's residential customers in 2023.

466. A characteristic feature of the distribution of market shares at the retail level is that Telenor has a significantly larger market share based on revenue than measured by the number of subscriptions. This shows that Telenor achieves higher revenue per subscription than the other operators, which the assessment of the price development and user patterns in Chapter 5.2.4 also supports. This indicates that Telenor has a customer group with a greater willingness to pay than Telia and the other operators.

467. Telenor occupies a very high share of the business market. In the first half of 2023, Telenor had 52 per cent of subscriptions and 58 per cent of revenue, see Table 7.[117] This market is characterized by less mobility and higher earnings per subscription than the residential market. Telenor is more than double the size of Telia in the business market when measured in terms of revenue. Ice has little presence in the business market.

468. Rather than competing for end users in the business market, Telia and Ice will be able to increase their market share through acquisitions. However, this is more demanding in the business market than in the residential market because of how customers emphasise the importance of coverage, cf. Chapter 6.6.

6.3.3 Market shares at the wholesale level

469. The table below shows market shares at the wholesale level for 2015, which was used as a basis for the decision in 2016 and 2019 and which formed the basis of the decision in 2020 and for the first half of 2023. Detailed information about the development during the period is provided in Tables 8 and 9. Both own retail activities and access buyers are included. Internal traffic is included as part of the market because of supply-side substitutability and therefore, is included in the calculation. The number of subscriptions and data traffic from MVNOs and service providers are included in the market shares of network owners. Ice has no access buyers in its network, which means its market shares only include own retail activities.

[117] The business market accounts for 28 per cent of subscriptions and 32 per cent of the revenue.

	Subscriptions, mobile telephony			Data traffic, mobile telephony		
	2015	2019	First half of 2023.	2015	2019	First half of 2023.
Telenor	58%	51.3%	47.7%	60%	53.4%	48.8%
Telia	42%	38.8%	38.7%	40%	40.7%	38.2%
Ice		9.9%	13.6%		5.9%	13.0%

Table 14 Market shares at the wholesale level based on subscriptions and data traffic for mobile telephony for 2015, 2019 and the first half of 2023.

470. The table shows that Telenor is the largest provider at the wholesale level, with a market share of more than 48 per cent, calculated based on both the number of subscriptions and data traffic from bundled mobile services. The market share for Telenor measured based on subscriptions fell by 3 per cent during the period. A key reason for the reduction is Telia's acquisition of Fjordkraft and the transfer of access to Telia's network. As described in Chapter 5.2.2.2, market shares based on revenue are best suited to assess the balance of strength between operators. Nkom does not have figures for internal traffic, which constitutes the majority of the wholesale market. However, the assessment of market shares at the retail level has shown that Telenor has a higher revenue per customer than Telia and Ice, and it is reasonable to assume that market shares based on revenue in the retail market will be reflected in the market shares in the wholesale market. This means that the use of subscriptions as a parameter for market shares at the wholesale level gives a conservative picture of the relative strengths of these operators.

471. Telia currently carries about 10 per cent of Ice's data traffic. In the years ahead, Ice is expected to produce more traffic on its own network. Moving forward, Telia is expected to carry a smaller share of Ice’s traffic over time.

472. As mentioned earlier, internal sales are included in the market definition and taken into account in all market share assessments. However, in Chapter 5.2.2.2 market shares for external sales are calculated. Only Telenor and Telia are included since Ice does not have access buyers in its network. The calculations shows that at the end of the first half of 2023, Telenor had 57 per cent of its revenue from external wholesale sales.

6.3.4 Summary concerning market shares

473. Telenor is the largest provider in the retail market for bundled mobile services with 43 per cent of mobile subscriptions in the market and 53 per cent of the revenue. Telenor's market shares have fallen slightly in recent years. However, Telenor's share of revenue tends to be more stable and higher than its market share measured in the number of subscriptions. This indicates that Telenor achieves higher earnings per subscription than the other operators in the market and succeeds in retaining this position. Telenor is particularly strong within the business market and has a significantly larger market share than Telia.

474. At the network level (including both internal and external sales), in the first half of 2023, Telenor had a market share based on subscriptions and data traffic from mobile phone subscriptions of around 48 per cent. Telia has around 38 per cent of subscriptions and data traffic. About 10 per cent of Ice customers' data traffic goes through Telia's network. This traffic share is expected to decrease as Ice increases the development of its own network, and Telia's share of data traffic will thus be reduced somewhat. Nkom believes these figures give a conservative expression of the balance of power in the

wholesale market, as market shares based on turnover must be considered to be even higher in favour of Telenor. Telenor's share of external wholesale sales supports this.

475. Telenor's high and stable market shares over time, both at the retail level and wholesale level, indicate that Telenor still has significant market power. However, the assessment of market shares must be supplemented by other factors in order to make a comprehensive forward-looking assessment of Telenor's market position.

6.4 Profitability

476. High profitability over time may be an indicator of significant market power in that the operators have been able to maintain prices that are higher than they would have been in a market with effective competition. However, high profitability can also be related to other factors, such as rationalisation gains or innovation.

477. The figures for turnover per customer (Chapter 4.1) show that Telenor has a higher turnover than other operators in the market. Over the past three years, the difference between Telenor and other providers has also increased. Telenor's ARPU is also significantly higher than the ARPU for mobile network owners in Sweden, Denmark, and Finland, despite lower data usage.

478. Chapter 5.2.4 of the analysis shows that Telenor has had a stable high EBITDA margin over time. For 2022, the EBITDA margin for the company's Norwegian operations (fixed and mobile) was just under 47 per cent. Neither Telia nor Lyse had such a high margin for Norwegian telecommunications. However, the differences between Telenor and Telia have narrowed considerably in recent years. Telia reported an EBITDA margin of 44.4 per cent for 2022. Profitability figures for Telenor and Telia's mobile operations in isolation show similar trends over time.

479. Lyse reported a 36.6 per cent EBITDA margin in 2022 for its telecom business. This was down from 41 per cent in 2021, due to the acquisition of Ice. Ice reported a positive EBITDA margin in 2020 and has since seen good growth, but the margin is still far from the level of the two established network owners.

480. In summary, Nkom believes that Telenor's high profitability over time supports the assessment that Telenor has a particularly strong position in the Norwegian market. There are no concrete factors that indicate weaker profitability figures for Telenor's mobile operations in the period ahead. However, the EBITDA margin for Telenor and Telia's operations is an indicator that has become more equal between the operators in recent years and thus does not give clear indications of significant market power for Telenor.

6.5 Access to sales channels

481. Access to distribution and sales channels is necessary to win customers and is therefore of decisive importance to the activities of the operators in the market.

482. Relevant sales channels for mobile services can be both physical and network-based and the end-users will often combine the use of different sales channels before the purchase is made. Online sales channels have relatively low costs and can be fully controlled by the provider itself, while the establishment and operation of physical sales outlets will require higher costs and be a greater barrier for challengers. Online sales channels and dissemination through electronics chains are well suited for the residential market, while the established network owners also invest heavily in their own physical stores for residential customers. Personal assistance in setting up a new mobile phone and transferring content can be crucial for many customers in the buying process.

483. Telenor has 86 Telenor stores[118] selling mobile phones, accessories, smartwatches, and tablets. In addition, Telenor sells through a number of retailers, including selected Power and Elkjøp stores. Telia has around forty-three stores and sales through around fourteen retailers, including selected Elkjøp and Power stores[119]. Ice has five own stores in eastern Norway[120], as well as sales through four retailers[121].

484. Business customers often need more tailored services as well as support and operating agreements. Mobit is Norway's largest retail chain for mobile and IT aimed at the business market (formerly Telering). The company has approximately 120 dealers across the country[122]. The company serves 32,000 businesses. The company offers a total package to the business market with mobile subscriptions, business networks and switchboards on behalf of its partners, as well as mobile phones, IT equipment and accessories. Furthermore, the company offers operation and support and setup for digital meeting rooms. Mobit only sells for Telenor and Nortel. When Nortel entered into the agreement, the company stated that it would secure a large part of the company's planned growth[123].

485. Telia has six business centres. These are located in eastern Norway, as well as in Bergen and Trondheim.

486. In total, Telenor is present in physical stores close to 450 locations in Norway (includes own stores, retailers and Mobit).[124]

487. In summary, Nkom believes that Telenor differs from Telia and Ice by having a far larger network of its own physical stores and retailers. Telia also has a significant footprint, but not as extensive as Telenor's. Through an agreement with Mobit, Telenor also has access to the business market that the other network owners do not have. On this basis, Nkom believes that Telenor's access to sales channels is a factor that supports the assessment that Telenor will be able to maintain its strong position in the market also in the future. This indicates that Telenor has significant market power.

6.6 Barriers to switching providers

488. The competitive intensity at the retail and wholesale level is reduced if different forms of restrictions or costs are established or in place in connection with the right to switch providers. Access to information, switching costs and lock-in mechanisms are key elements in the assessment of whether such mobility restrictions exist in the markets and may be of importance to a provider's ability to maintain its market position. In the following, these factors are discussed in relation to the residential and business markets and attention is called to the specific relevance these have for the assessment of the competitive situation in the market going forward, including the assessment of significant market power.

The residential market

489. There are a number of commercial price comparison services in the retail market which end-users can use to compare providers and products.[125] In general, Nkom is of the view that end-users in

[118] Welcome to Telenorbutikken!

[119] Find your nearest store | Telia Customer Service

[120] Welcome to the Ice shops - Ice

[121] Dealers - Ice

[122] About Us | Mobit

[123] Nortel Enters Strategic EmploymentContract with the Mobit Chain | Nortel (ntb.no)

[124] Find your nearest Telenor dealer

[125] https://www.nkom.no/ekom-markedet/godkjentordning-for-prissammenlikningstjenester

the residential market have good access to information. However, the subsidising of handsets, additional services (e.g., security services or cloud storage), and the providers' marketing of coverage and capacity, contribute to complicating the end-user's ability to compare products.

490. Nkom is also of the view that there are no direct switching costs that significantly hinder the mobility of end-users in the residential market. The ability to set a lock-in period in agreements between providers and end-users in the residential market is also restricted to a maximum duration of 12 months, cf. Section 2-4 of the Electronic Communications Act. In Nkom's survey of the residential market, 8 per cent state that they have a lock-in period which means that they are not likely to switch providers.

491. The procedures for number portability must also be said to be simple and not very time-consuming. However, the use of eSIM currently appears to have a limited scope. In November 2021, under the NiceMobil brand, Ice launched all-digital services only with eSIM. However, the prevalence of eSIM-compatible mobile phones proved not to be large enough, and NiceMobil was forced to abandon this strategy in September 2022. However, Ice still offers the option of all-digital registration and eSIM.[126]

492. Despite this, the number of residential customers who switch providers is relatively limited. Nkom's market survey showed that only 30 per cent of residential customers had switched providers in the last two years. When asked whether they would like to switch subscriptions in the next two years, 24 per cent answered yes, 38 per cent no and 38 per cent did not know. Among Telenor's customers, however, the proportion responding negatively is 47 per cent, while only 16 per cent say they would consider switching providers within the next two years. Telenor's customers do not want to switch providers to any great extent, even though a significantly smaller proportion of these believe they have an affordable subscription, compared with customers of other providers. Only 30 per cent of Telenor's customers thought they had an affordable subscription, while 63 per cent of Telia's customers and 87 per cent of Ice's customers thought the same.

493. Nkom's market research shows that after price, coverage is the most important parameter for choosing a provider. In the residential market, 66 per cent of customers answered that coverage is among the key factors when choosing a provider.

494. When asked which operator has the best coverage, 43 per cent of customers in the residential market answer that it is Telenor, 17 per cent respond that Telenor and Telia have approximately equally good coverage, while eight per cent respond that Telenor, Telia and Ice have approximately equally good coverage. Only six per cent responded that Telia has the best coverage. There was also a group of an entire 23 per cent who responded that they did not know. It can be assumed that a certain proportion of this group considers the two networks to be the same in terms of coverage.

495. Telenor also won the Ookla Speedtest Awards for 2022 and the first half of 2023 and was named the best mobile network in Norway[127]. The award is based on speed measurements using the Ookla Speedtest app. Norwegian mobile user statistics in the first and second quarters of 2023 show that Telenor had the fastest mobile network, as well as the best coverage in Norway.[128] Telenor's mobile network has been named Norway's fastest mobile network five years in a row[129]. Opensignal also designates Telenor as the fastest mobile network by the end of 2023. Opensignal tests a number of parameters and names Telia as the winner of 5G coverage in the same period, based on the fact that

[126] Ice introduces esim, promises quick operator switch - Insidetelecom.no

[127] https://www.speedtest.net/awards/norway/2022?award_type=best_mobile&time_period=q3-q4

[128] Norway – 2023 Speedtest Awards

[129] https://www.telenor.no/bedrift/aktuelt/mobil/raskeste-mobilnett-ookla/

Telia could offer access to 5G at most of the tested locations in the test. However, Telenor wins most of the categories in the[130] test.

496. However, the customers' perception of coverage is the deciding factor in choosing a provider. When Nkom asked residential customers at the end of 2021 which mobile network will have the best 5G coverage over the next 1-2 years, 31 per cent of the customers in the residential market responded that it would be Telenor, 21 per cent responded that Telenor and Telia will be approximately equal, while nine per cent responded that Telenor, Telia and Ice will be approximately equal. Only seven per cent responded that Telia wants the best 5G coverage. However, 31 per cent responded "Do not know" to this question.

497. For Telenor's residential customers, the fear of poorer coverage is the most important reason for not switching subscriptions/ providers. For customers of Ice and Telia who do not wish to switch providers, price is the most important reason.

498. Furthermore, family subscriptions are a factor that means that some (17 per cent of those who do not consider switching) do not envisage switching providers in the next few years. The proportion who do not wish to switch because of a family subscription is distributed relatively evenly among the main providers.

499. Among those who do not want to switch providers, an average of 10 per cent responded that they have good additional services that make them less willing to switch. However, this share is 17 per cent among Telenor's customers. In other words, more Telenor customers cite good additional services as an argument for not switching providers than the customers of other providers. Smaller operators do not necessarily have the same opportunities to offer additional services as part of their mobile subscriptions. These types of additional services can be expensive and require a certain customer base to be able to enter into agreements with external partners. One example is the possibility of eSIM functionality on the Apple Watch, where Apple requires direct agreement and system integration with each provider. This is extremely complicated, time-consuming, and costly. As a result, no access buyer is currently able to offer the Apple Watch with eSIM capability[131]. Nkom believes that such additional services can both have lock-in effects for end-users and contribute to raising the threshold for smaller operators to achieve further growth.

The business market

500. However, in the business market, a 12-month lock-in period can be agreed upon according to Section 2-4 of the Electronic Communications Act, which means there is a greater lock-in effect on end-users. Nkom's August 2022 business market survey showed that 12 per cent of business customers considered they were unable to switch providers due to contractual commitments, while 6 per cent were unsure whether they had contractual barriers. Among those who were prevented from switching, 57 per cent had more than a 12-month lock-in period. Even though a sizeable proportion of companies considered that they had the opportunity to switch, only 30 per cent of the companies had switched providers during the last two years. In addition, 22 per cent of the respondents had a lock-in period and termination fee in the agreement but did not consider this a barrier to switching providers.

501. Most providers also operate with early termination fees for premature cancellation of the subscription. According to operators in the business market, NOK 3,000 to 3,500 per subscription is common. The early termination fee depends on how long the lock-in period has been running for. This contrasts with Denmark where termination fees are paid for the remaining part of the agreement, and in Sweden where it is not common to operate with termination fees. Providers in the business market are often willing to buy out a customer during a lock-in period and take over the termination fee.

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[130] Norway, December 2023, Mobile Network Experience Report | Opensignal

[131] Therefore, only Telenor and Telia offer eSIM for Apple Watch - Tek.no

However, the new provider will then often double their termination fee against the customer, and the fees are thus passed on. Buying out customers with a lock-in period and termination fee requires a lot of capital and thus is less relevant for challengers in the market. Longer lock-in periods and early termination fees mean less mobility for the customer and a stronger lock-in effect compared with the residential market. Lock-in periods and termination fees are used to a lesser extent by Telenor than by other providers

502. Coverage and data speed are among the most important reasons for choosing a provider in the business market (51 per cent). The preferences for Telenor's network are even stronger in the business market. As many as 51 per cent of the respondents stated that they believe Telenor has the best coverage, 18 per cent believe Telenor and Telia have almost equal coverage, while 5 per cent believe Telenor, Telia and Ice have almost equal coverage. Only four per cent believe Telia has the best coverage.

503. In terms of price and coverage, business customers cite "knowledge and trust in the mobile operator" as the most important reason for choosing a provider. On average, 10 per cent of the respondents stated that this is the most important reason for their choice. Among Telenor's customers, however, 17 per cent consider this to be the most important reason.

504. In the business market, 65 per cent of Telenor's customers respond that it is quite or very unlikely that their company will switch mobile providers within the next 1-2 years or when the lock-in period expires. By comparison, 44 per cent and 47 per cent of Telia and Ice's corporate customers respectively respond that this is quite or very unlikely. The main reason Telenor's customers do not want to switch providers is that they believe Telenor has the best coverage and that they fear that the coverage may not be as good. The main reason Telia and Ice's customers do not want to switch providers, however, is that their mobile provider offers an affordable mobile solution.

505. In addition to coverage, the fact that customers have chosen a total package consisting of several electronic communications services is a reason for not considering it likely to switch providers. If a company has a total package that includes several electronic communications services, it may often be resource-intensive and less attractive to switch providers for one or more of the services. On average, 12 per cent said they did not want to switch because their current provider offers the best overall package. Telenor has a larger proportion of customers who emphasise the total package (17 per cent) than other providers.

The wholesale market

506. The buyer's access to information in the wholesale market is more limited than in the retail market. In accordance with Nkom's decision in Market 15, Telenor has been ordered to publish standard agreements for MNVO access and national roaming, but this obligation does not include information on prices. However, the fact that there are few providers in the wholesale market means that the market is still relatively transparent.

507. Coverage is one of the most important parameters when selecting a provider in the residential market and a key factor for business customers. Switching the host network in a wholesale agreement would therefore be a factor that could have major consequences for access buyers and thereby create uncertainty regarding a possible switch and make this less attractive. Nkom refers to the discussion of perceived quality and coverage on the network.

508. Host operators potentially also have different technical profiles due to different equipment suppliers, which creates a need for adaptations in the event of a switch. This increases the switching costs for access buyers. For service providers, such a switch will also entail that the end-users will have to change their SIM cards. This can be an extensive process that also results in lost customers. Operators with MVNO and national roaming agreements do not need to change SIMs with their customers when changing host networks as they use their own SIMs.

Summary and conclusion

509. In summary, Nkom believes that there are few direct barriers and costs that prevent residential customers from switching. In the business market, the use of lock-in periods and termination fees has a stronger lock-in effect. However, several other factors make many customers not interested in switching providers, and this particularly applies to customers of Telenor. Telenor is the player that has invested most in its mobile network in recent years, cf. section 5.1.2.1. Over time, clear perception has been established in both the residential and business markets that Telenor has the best cellular coverage, particularly in the business market. Many companies and private individuals also remain Telenor customers due to a fear of poorer coverage. A market perception that Telenor has the best network gives Telenor's retail and wholesale operations an advantage with regard to gaining and retaining customers.

510. The assessment of barriers to switching indicates that Telenor will be able to maintain its strong position in the market also in the future, thereby supporting the assessment of significant market power for Telenor.

6.7 Ownership and control of the network for transmission capacity and other input factors

511. Telenor has ownership and control of networks that are used in several markets, and transmission capacity is a necessary input factor in the production of mobile services. Telenor owns a nationwide transmission capacity network and offers this to other mobile providers where they do not have access to their own or other networks for transmission capacity. However, competition to provide transmission capacity is increasing. Altibox and GlobalConnect both have an almost nationwide autonomous main network but are dependent on leasing local networks for smaller communities[132].

512. Telenor has been Telia's largest supplier of access to fibre for transport from the base stations to the core network. However, in the past few years, Telia has followed a strategy to become less dependent on Telenor. In 2018, Telia acquired Get and TDC Norway and through this gained access to infrastructure for fixed broadband, TV broadcasting and transmission services. In recent years, Telia has also established its own transmission services for its mobile network through its own infrastructure and cooperation agreements with regional fibre providers, such as BKK and Eidsiva Bredbånd, in addition to GlobalConnect. However, Telia is still dependent on leasing transmission to smaller communities.

513. Before Lyse acquired Ice, the company mainly used Telenor and GlobalConnect, as well as Altibox in certain areas. In recent years, Altibox has continued to expand its national transmission network through the cooperation it has entered into with local and regional broadband providers. Today, they can offer transmission services to most major towns throughout the country. As a result of the acquisition, Ice can be expected to increasingly switch to using Altibox's network for transmission capacity. However, this will take several years to implement.

514. However, no other operators in Norway have such a well-developed fibre network as Telenor. For some sections, Telenor is the only provider. Telia and Ice will therefore continue to depend on access to Telenor's fibre network at many locations.

515. From January 2020, Telenor gathered all passive infrastructure in the company Telenor Infra AS. The masts and buildings for mobile, broadcasting, and fixed networks, which were previously located in the companies Telenor Norway, Norkring and Telenor Eiendom, were thus gathered under

[132] Robust transmission network for Norway towards 2030 - Nkom

one company. Telenor Infra has close to 15,000 locations for the placement of equipment spread across Norway[133]. Both Telia and Ice also have locations for the placement of equipment in their own companies and offer access to other operators on commercial terms. However, these companies do not have the same scope of locations as Telenor. However, the company's offer of co-location for mobile telephony has been subject to the obligations imposed on Telenor in accordance with the regulation in Market 15. Without sector-specific ex ante regulation, Telenor's ownership of Norkring and this company's infrastructure would give Telenor advantages through the expansion and densification of the mobile network.

516. In summary, Nkom believes that Telenor's ownership and control of underlying input factors (infrastructure for transmission capacity, locations, etc.) help give the company advantages that other operators cannot achieve to the same extent. This helps to support an assessment that Telenor has significant market power.

6.8 Countervailing buying power on the demand side

517. Countervailing buying power is a factor that can discipline a provider's market behaviour. Buying power may be said to exist when a defined buyer or group of buyers of a product or service is so important to the seller as to be able to influence the price the seller charges for the product or service. The question here is whether, in the short or medium term, one or several existing buyers will be able to exert sufficient influence on prices and other terms for Telenor to nonetheless not be considered to hold significant market power.

518. A threat not to buy can be a strong bargaining tool on the part of the buyer. The effectiveness of this bargaining tool will depend on how attractive the buyer is to the seller, whether there are alternative providers with which to enter into agreements, and how attractive they are.

519. The buyers of access and origination on public mobile telephone networks are described in Chapter 3.2 as operators on the demand side. As of today, Telenor does not have buyers of national roaming in its network. As mentioned, Telavox has entered into an MVNO agreement with Telenor and is in the process of transferring customers from the service provider platform to the MVNO platform. Beyond this agreement, Telenor does not have any other MVNO agreements. However, Telavox is a major buyer of access. The company resells access to a number of other operators who at the end of the first half of 2023 collectively accounted for around four per cent of the number of subscriptions in the retail market. Telenor also sells access to certain other service providers and these together account for less than 1 percent of the market.

520. Until the present date, Nkom has not experienced Telavox or other access buyers being able to exert buyer power vis-à-vis Telenor to a sufficient degree to be able to discipline the company's wholesale services. None of the operators have succeeded in negotiating agreements other than the standard contract terms. This is despite Nkom having stipulated in the current decision that the non-discrimination requirement does not prevent Telenor from being able to offer multiple access agreements, provided that all access buyers have equal opportunities to enter into such agreements.

521. A threat to purchase access from Telia instead of Telenor must be expected to be genuine on Telenor's part. Previously, Chilimobil, TDC[134] and Fjordkraft have switched to buying access from Telia. However, other access buyers at Telenor/Telavox are relatively small. Unifon together with Nortel is the largest buyer with around a 2 per cent market share and Xplora is the second largest with a 1.4 per cent market share. The threat of losing one of these, either to Telia or eventually to Ice, can have some

[133] About - Telenor Infra

[134] Get TDC had an access agreement with Telia prior to the merger which, independent of the merger, involved TDC being in the process of switching networks.

disciplining effect. At the same time, it is known that many customer groups, particularly in the business market, have preferences for Telenor's network, cf. Chapter 6.6. It is also generally the case that a switch of network will always entail a risk of losing customers. Nkom therefore finds that, within the next two to three years, the threat of customers switching to Telia or Ice will not discipline Telenor's services offer to a greater degree than it does at present.

522. Telia presently has one buyer of MVNO access on its network, Com4, in addition to Ice as a buyer of national roaming and buyers of service provider access. Ice is aiming to free itself from national roaming and is expected to purchase a limited volume of traffic going forward. Com4 is not expected to be relevant as an access buyer on the traditional MVNO agreement. Chilimobil (1.4 per cent of subscriptions) is also an access buyer with Telia and is the second largest service provider in the market. Chilimobil has previously been an access buyer with Telenor and may still be attractive to Telenor. However, as mentioned above, Nkom has not seen that operators of this size can have a disciplinary effect on Telenor's services.

523. Telenor's wholesale sales make up a relatively small share of the company's total sales. Of the total number of subscriptions for bundled mobile services, Telenor has 43 per cent as own residential customers and around 5 per cent as wholesale customers. Wholesale revenues constitute a relatively small share of the company's total revenue when compared with the retail sales revenue. Telenor also has a very high EBITDA margin, cf. Chapter 5.2.4. Telenor's incentives to pursue and achieve competitive advantages in the retail market, rather than selling wholesale access, must thus be assumed to be strong. Since Telenor has an extensive presence in different retail markets (bundled mobile services, mobile broadband, both business and residential), access will in most cases entail direct competition with its own retail operations. Based on this, Telenor must be assumed to have limited incentives to compete with Telia in providing access, since attractive terms will increase the competitiveness of access buyers at the retail level in direct competition with Telenor's own operations.

Summary and conclusion

524. The assessment of buyer power shows that access buyers have had and are expected to have limited opportunities to exert buyer power in the relevant wholesale market. At the same time, Nkom has no evidence that a threat from existing access buyers to switch to Telia or Ice will discipline Telenor's wholesale services significantly more strongly than previously within three years.

525. On this basis, Nkom believes that access buyers will not be able to exert buyer power towards Telenor that can discipline the company to such a degree that the company cannot act independently of competitors, customers, and consumers within the analysis' time horizon. The absence of buyer power strengthens the assessment of Telenor's significant market power.

6.9 Entry barriers and potential competition

526. In a market with considerable entry barriers, established operators will be protected from potential competition. The disciplining effect that the threat of competition could otherwise have will consequently be dramatically reduced or absent. The existence of high entry barriers will thereby be central to the analysis of significant market power from a forward-oriented perspective. Reference is made to Chapter 5.1, where Nkom concludes that there are high and permanent structural entry barriers in the relevant market.

527. In the assessment of the second criterion, Nkom assessed the importance of the third mobile network and potential competition from operators that are not in the market as of today, and the extent to which these can contribute to disciplining the established network owners. Nkom thereby concluded that there is no clear evidence that the third network would be able to sufficiently discipline

the established operators on the supply side in the relevant market within the time horizon of the analysis. Furthermore, Nkom did not find there to be grounds for potential competition from other operators that are not providers within the relevant market being able to discipline the offers from the established operators in the wholesale market within the time horizon of the analysis.

528. Nkom finds no evidence that potential competition will discipline Telenor's wholesale services within the time horizon of the analysis.

6.10 Summary and conclusion concerning significant market power

529. Telenor is the largest provider in the retail markets for bundled mobile services when measured by sales and subscriptions. At the end of the first half of 2023, the company accounted for 53 per cent of sales in the total retail market and 43 per cent of the total number of subscriptions. The share of subscriptions has fallen by about 5 per cent since the previous market analysis, while the share of sales has only declined by 2 per cent. Telenor's market shares have fallen slightly in recent years. However, Telenor's share of revenue tends to be more stable and higher than its market share measured in the number of subscriptions. This indicates that Telenor achieves higher earnings per subscription than the other operators in the market and succeeds in retaining this position.

530. Telia has around 34 per cent of the total number of subscriptions in the retail markets for bundled mobile services. This is a decline of 2 per cent from the previous analysis. Telia accounted for around 32 per cent of turnover in the retail market in the first half of 2023.

531. Telenor is particularly large in the business market for bundled mobile services, where the company has 52 per cent of the number of subscriptions and 58 per cent of the turnover in the market. Telenor has almost twice as much turnover as Telia. This market is characterized by less mobility and higher earnings per subscription than the residential market. A strong position in this market is therefore difficult for other operators to challenge.

532. At the network level, Telenor is also still the largest provider both in terms of subscriptions and data traffic, with around 48 per cent of subscriptions and data traffic. Both the number of subscriptions and the share of traffic have fallen slightly since the previous analysis due to the decline in the number of own customers, as well as Fjordkraft's transition to Telia. Nkom believes these figures give a conservative view of the balance of power in the wholesale market, as market shares based on revenue must be considered to be even higher in favour of Telenor.

533. By comparison, Telia has around 39 per cent of the total number of subscriptions in its network (Ice is not included) and 38 per cent of data traffic. Data traffic in Telia's network includes 10 per cent of Ice's data traffic. Ice is expected to transfer the remaining part of the traffic to its own network over the next few years, and Telia's share of data traffic will then be reduced somewhat.

534. Telenor's size, particularly measured in terms of revenue, but also measured in number of customers and traffic, indicates that Telenor is a player with significant market power, but the analysis is supplemented by several factors.

535. Telenor has had excellent profitability over time, significantly better than Telia, particularly if one looks at mobile activities in isolation. However, Telia has had a positive development in EBITDA margin, and the operators have become relatively equal over the past four years. The telecommunications business in Lyse has a somewhat lower EBITDA margin. The decline in 2022 is attributed to the acquisition of Ice where margins for the mobile business are significantly lower.

536. An analysis of significant market power must be done from a forward-looking perspective, where opportunities to retain an existing position are crucial. Nkom believes Telenor is in an outstanding position to acquire new customers and retain and increase sales to existing customers.

Telenor has a significant network of its own physical stores in addition to sales agreements through retailers. Neither Telia, Ice nor other operators have such a well-developed sales network as Telenor in Norway.

537. Coverage is particularly important for Norwegian end users when choosing a provider. Telenor is the player that has invested most in its mobile network in recent years. A clear perception is established in both the residential and business markets that Telenor has the best cellular coverage. This perception has persisted over time, even though Telia also has invested significantly in coverage and marketing coverage.

538. Nkom's market research also indicates that Telenor's existing customers are very loyal. Telenor has a larger proportion of customers who cannot imagine switching providers in the next couple of years compared with other operators. In Nkom's assessment, this applies to both the residential and business markets. Preferences for Telenor's coverage are the main reason the company's customers, both in the residential and business, cannot imagine switching providers. In addition, factors such as family subscriptions and good additional services are other reasons for not switching residential subscriptions. Telenor's residential customers appear to be more concerned with additional services than those of other providers.

539. In the business market, Telenor's total package of communication solutions (fixed broadband and mobile) is a key reason not to switch providers for the company's customers. A larger proportion of Telenor customers cite the total package as a reason for not switching providers than customers of other competitors.

540. Telenor's high revenue per customer shows that the company has succeeded in differentiating its products in a way that allows the company to charge more than other operators in the market. No other providers in Norway or our neighbouring countries have a similarly high revenue per mobile subscriber. This supports the view that Telenor will continue to maintain its strong position in the relevant market, and in Nkom's view, the prerequisites for maintaining its position within the time horizon of the analysis are present.

541. On the network side, Telenor has ownership and control over underlying input factors that are likely to give the company advantages that other operators cannot achieve to the same extent. However, no other operators in Norway have such a well-developed fibre network as Telenor. For some sections, Telenor is the only provider, and therefore, Telia depends on purchasing leased lines from Telenor for these sections. Furthermore, Telenor has particularly good access to infrastructure for the placement of equipment through its ownership in Telenor Infra.

542. With regard to buyer power, until now Nkom has not experienced that access buyers with Telenor can exercise buyer power to a degree that is liable to discipline Telenor's services in this market. Nkom does not expect this to be a factor that will be changed within the coming regulation period. The absence of buyer power is a circumstance that strengthens the indications of significant market power.

543. Nkom has also assessed whether potential competition from other operators can discipline Telenor's offer in the wholesale market within the time horizon of the analysis. In Nkom's view, neither competition from Telia, Ice nor other potential operations will be liable to discipline what Telenor offers in the wholesale market to a sufficient extent within the analysis' time horizon.

544. The sum of the factors described above, together with the conclusion from the three-criteria test, is the basis for concluding that Telenor can act independently of competitors, customers and consumers in the period covered by the analysis.

545. On this basis, Nkom has concluded that Telenor still has significant market power in the market for access and origination on mobile networks.

546. In theory, the existence of individual dominance precludes the possibility of finding joint SMP[135]. This analysis therefore does not include any assessment of joint dominance.

[135]Reference is made to Section 3-1 of the Electronic Communications Act and the preparatory works (Proposition No. 58 (2002-2003) (white paper) to the Odelsting, pages 98-99) which lists significant market power alone or together with others as alternatives that cannot exist at the same time.