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Europe's Digital Progress Report 2017

Europe's Digital Progress Report - 2017

Telecoms chapter

Denmark

1. Competitive environment

Coverage	DK-2015	DK-2016	EU-2016
Fixed broadband coverage (total)	99%	99%	98%
Fixed broadband coverage (rural)	97%	97%	93%
Fixed NGA coverage (total)	92%	93%	76%
Fixed NGA coverage (rural)	55%	59%	40%
4G coverage (average of operators)	no data	100%	84%

Source: Broadband Coverage Study (IHS and Point Topic). Data as of October 2015 and October 2016

Fixed Broadband market

Denmark has almost 100% fixed broadband coverage. Although in 2016 it remained at the same levels as in 2015, both overall and, specifically, in rural areas (exceeding the EU average in both), access to next-generation connectivity improved significantly. Networks providing 30 Mbps or more are available to over 90% of Danish households, significantly above the EU average of 76%. Fixed NGA (Next Generation Access) coverage rose in 2016 to nearly 60% of rural households, 19 percentage points above the EU average. The lowest price for a fixed broadband subscription is €19.01, 10.9% below the EU average of €21.33.[1]

There were several mergers and acquisitions (M&As) on the Danish market in 2016, plus new entrants. *Telia* bought the remaining 50% of shares in *DLG Tele*, an operator offering fixed services on the incumbent *TDC'*s network and mobile services on *Telia*'s own network. Among energy utilities providing fibre, *Himmerlands Elforsyning* and *EnergiMidt* merged to form *Eniig*, while *SE/Stofa* absorbed *Nyfors*. The incumbent *TDC* announced in the summer of 2016 that it was declining a possible takeover bid, and reports that the Swedish incumbent, *Telia*, might pursue acquisition of *TDC* failed to materialise.[2]

On the fixed broadband side of the market, the late 2015 entrant *Hiper* has continued to develop its product portfolio of broadband-only subscriptions on the basis of both commercial and regulated wholesale access to the incumbent's infrastructure. Together with competitive prices from *Kviknet*, another reseller of fixed broadband, this has notably to increased price competition on copper-based broadband offers, as well as coax and fibre-based broadband offers.

Given the competitive pressure, the incumbent's market share in fixed broadband fell by two percentage points in 2016. Nonetheless, at 54.7% it remained significantly above the EU average of 40.7%.

[1] Source: Fixed broadband prices in Europe in 2016 (Empirica). Prices expressed in EUR/PPP, VAT included. Data from autumn 2016.

[2] Most recently, Telia announced at the beginning of February 2017 that the company was not interested in acquiring TDC.

Fixed broadband market shares	DK-2015	DK-2016	EU-2016
Incumbent market share in fixed broadband	56.7%	54.7%	40.7%
Technology market shares			
DSL	47.8%	44.4%	66.8%
Cable	28.2%	29.1%	19.1%
FTTH/B	22.3%	24.7%	10.7%
Other	1.7%	1.8%	3.4%

Source: Communications Committee. Data as of July 2015 and July 2016.

Overall, DSL-based products are becoming less important, as higher-capacity demands become more prevalent. The regulator is expected to notify its broadband market analyses during 2017, against the backdrop of the incumbent already offering commercial access to its cable network.

New entrants' DSL subscriptions by type of access (VDSL excluded)	DK-2015	DK-2016	EU-2016
Own network	-	-	0.7%
Full LLU	49.0%	53.4%	75.3%
Shared Access	6.6%	3.3%	4.1%
Bitstream	29.0%	27.3%	13.4%
Resale	15.4%	16.0%	6.6%

Source: Communications Committee. Data as of July 2015 and July 2016.

Charges of Local Loop Unbundling (monthly average total cost in €)	DK-2015	DK-2016	EU-2016
Full LLU	9.1	9.1	9.2
Shared Access	4.9	4.9	2.4

Source: Communications Committee. Data as of July 2015 and July 2016.

Two new MVNO operators entered the Danish mobile market in 2016, further increasing price competition. They have different strategies: *Plenti* focuses on mobile service bundles with access to digital content such as ebooks, newspapers, weeklies and online news, while *Tjeep* provides stand-alone mobile connectivity at challenger prices, including advertisement-paid free services.

The established MNOs have continued to broaden the services they offer. For instance, they now offer roam-like-at-home (RLAH) services covering a wider range of countries (between 35 and 41). Their numbers remained static in 2016.

Mobile market

Mobile market	DK-2015	DK-2016	EU-2016
Market share of market leader	38%	38%	34%
Market share of second largest operator	24%	24%	28%
Number of MNOs	5	5	-
Number of MVNOs	2	2	-
Market share of MVNO (SIM cards)	-	-	-

Source: Communications Committee. Data as of July 2015 and July 2016.

Mobile broadband prices	DK-2015	DK-2016	EU-2016
Least expensive offer for handset (1 GB + 300 calls basket)	14	15	30
Least expensive offer for tablet and laptop (5 GB basket)	10	10	18

Source: Commission calculation on the basis of the Mobile Broadband Price Study (Van Dijk).
Prices expressed in EUR/PPP, VAT included. Data as of February 2015 and February 2016.

Pricing for mobile broadband services in Denmark is significantly below the EU average. When combined with voice calls, the least expensive offer available on the Danish market is half the average price of the cheapest offers across all Member States. Mobile broadband connectivity using a laptop or tablet is significantly cheaper than the EU average in Denmark. A subscription to a fixed broadband connection in Denmark costs, on average, 1.0% of gross income, which is below the EU average of 1.2%.[3]

On average, bundles play a more important role in the Danish electronic communications market than in the EU as a whole; 67% of Danish households have bundled subscriptions, compared with the EU average of 50% in October 2015.[4] Bundles are more likely to include Internet access (52%) and television channels (51%). Danes assign almost equal importance to these service categories and rank them significantly differently from the average EU user. EU-wide, Internet access is the most important component (40%) and fixed telephony the second (32%), while it is the least important component in Denmark (19%). 31% of bundles include mobile telephony, compared with an average of 23% across the EU. The continued importance of mobile as opposed to fixed telephony in bundles reflects the increasing match in consumer choice between Danish users' mobile lifestyle and the highly competitive offers in the mobile market. There were no specific consumer protection issues pertaining to bundles in 2016, although customers generally find consumption monitoring more difficult than on average in the EU.

2. Supporting measures for deployment and investment in high-speed networks

a. Spectrum

Harmonised bands	MHz of spectrum assigned[5]	% of the harmonised spectrum assigned
700MHz	0	0
800MHz	60	100%
900MHz	70	100%
1500MHz	0	0
1800MHz	150	100%
2000MHz paired	120	100%
2600MHz	190	100%
3400-3600MHz	24	12%
3600-3800MHz	0	0%

In Denmark, 56.33%[6] of the spectrum available for electronic communications services under EU rules has been assigned. Operators report full usage of all assigned frequency resources.

[3] Source: Communications Committee. Data as of July 2015 and July 2016.
[4] Source: Special Eurobarometer 438. Data as of October 2015.
[5] Including guard bands.

Moreover, the regulator estimates that there will be significant spectrum needs by 2021 and that these will have grown further by 2026. The 700 MHz, 900 MHz and 2.3 GHz bands are expected to be assigned in 2018. Applying technology and service neutrality principles as widely as possible to existing licences and allowing licensed operators to trade their spectrum both support the flexible exploitation of frequency resources.

In 2016, Denmark auctioned licences in the 1800 MHz band, resulting in assignments to the three major network operators. Usage rights were granted subject to coverage requirements, with mobile voice and mobile broadband connectivity (30 Mbps down / 3 Mbps up) being met in 245 designated areas by December 2019. Licence expiry was aligned with existing in-band assignments, scheduled for 2032.

b. EU and national investments in broadband

Denmark has established nationwide broadband targets of 100 Mbps download and 30 Mbps upload, to be met by 2020. In 2016, broadband availability in Denmark's rural areas remained unchanged at 97%, while the EU average rose from 91% to 93%. At the same time, rural NGA coverage rose to 59%, a year-on-year increase of nearly five percentage points, compared with the EU average of 40%.

Information about the coverage of both fixed and mobile networks is available online through a national mapping initiative entitled *Tjekditnet.dk* ('check your network'), which gives customers details of operators providing connectivity at their location of service.

To address remaining connectivity issues, in 2016 the Danish Government earmarked DKK 200 million for broadband roll-out up to 2019 in areas with poor coverage. While there is no requirement that such areas must be rural, they must not be about to benefit from any commercial roll-out in the near future. This initiative met with substantial interest in its first year of operation, with nearly all the 31 funded projects in rural locations.

Currently, no deployment projects are financed under the Connecting Europe Facility or the Juncker Plan; similarly, no ESIF funds were earmarked for broadband under the Operational Programmes in 2016. The overall limited relevance of both national and EU funding in broadband deployment reflects overwhelming reliance on private investment, facilitated by regional and local organisations. Only in isolated cases have administrative bodies themselves launched procedures to directly finance roll-out activities in their jurisdiction. In early 2017, the fibre-deploying cooperative energy utilities *SE* and *Fibia* announced own-funding initiatives of DKK 300 million and DKK 100 million respectively to complement the national broadband fund, with a focus on promoting connectivity in rural areas.

c. State of transposition of the Broadband Cost Reduction Directive

As Denmark had not notified complete transposition of the Broadband Cost Reduction Directive 2014/61/EU by the due date of 1 January 2016, the Commission opened infringement proceedings in March 2016. Denmark notified complete transposition of the Directive in June 2016 and has applied the rules for which the Directive provides since 1 July

[6] This percentage slightly differs from the one used in the EDPR country profile following feedback from the authorities concerned and reflected in the above table.

2016, after which date the infringement proceedings were discontinued. The Cost Reduction Directive has been transposed into Danish law by a combination of amendments to electronic communications and transport legislation. No known joint deployment activities have thus far relied on the mechanisms provided for by the transposition measures.

3. Regulatory function

Functions in the domain of market analysis and regulation are the preserve of the Danish Business Authority. While the DBA has deregulated all markets included in the 2003 Recommendation, regulation of call origination on fixed networks and of access to public telephone networks for residential and non-residential customers under the 2007 Recommendation has remained in place.

In 2016, efforts were made to overcome delays in the analysis of market 3a (wholesale physical network infrastructure access at a fixed location), market 3b (wholesale broadband access) and market 4 (wholesale terminating segments of leased lines) of the 2014 Recommendation, which had been under investigation by Commission departments since 2015. As a result, an analysis of market 4 was notified, and it is anticipated that further analyses of markets 3a and 3b will be notified in the first quarter of 2017. Market 4 will thus be deregulated after a transition period.

For both fixed and mobile termination rates, DBA has applied a pure BU-LRIC cost model, in accordance with the 2009 Recommendation on Termination Rates. For fixed networks, an LRAIC model has been developed in accordance with the Non-Discrimination and Costing Methodology Recommendation, on the basis of which prices are updated annually; the current prices took effect on 1 January 2017. The regulator is also preparing for the upcoming analyses of markets 3a and 3b in accordance with the Recommendation.

4. Consumer issues

Number portability

Number portability		DK-2015	DK-2016
Fixed	Number of transactions [1]	167,132	156,568
	Transactions as a % of total numbers [1]	10.3%	10.6%
	Maximum wholesale price [2]	1	1
	Maximum time under regulation (number of working days) [2]	1	-
Mobile	Number of transactions [1]	520,940	440,794
	Transactions as a % of total numbers [1]	7.3%	6.2%
	Maximum wholesale price [2]	1	1
	Maximum time under regulation (number of working days) [2]	1	-

[1] Source: Communications Committee. Data as of January to September 2015 and January to September 2016.
[2] Source: Communications Committee. Data as of October 2015 and October 2016

Transparency

The 2015 Eurobarometer survey[7] shows that 31% of Danish consumers can easily compare bundle offers (EU average 69%). This reflects a 12% fall since January 2014. 31% is the lowest figure anywhere in the EU. They are also less likely than all other EU consumers to find it easy to monitor, check and - as a result - also control their consumption of fixed telephony; only 51% do so, which is 20 percentage points below the EU average. While this difference is much less pronounced with mobile telephony, in which sector 72% report that they can easily monitor consumption - as compared with 78% across the EU - this nonetheless makes Denmark last but one among EU countries. Moreover, 24% of Danish consumers are dissatisfied with the information in their communications contract (13% report low satisfaction and 11% none). This is higher than the EU averages: 9% and 7% respectively.

Roaming

The average retail Eurotariff price for roaming is €0.060 (EEA average €0.112) per minute of outgoing calls and €0.018 per minute of incoming calls (EEA average: €0.026) Alternative tariffs are more expensive for both outgoing and incoming calls. Euro-SMS cost an average of €0.032 (EEA average: €0.047), while intra-European data roaming on average is charged at €0.008 per MB (EEA average: €0.047). This corresponds to price levels significantly below the EEA average: 46.4% and 30.8% for calls made and received, 31.9% for SMS and 83.0% for data within the EEA.[8]

Net neutrality

It is the Danish Energy Agency (DEA) that monitors net neutrality. Denmark had no pre-existing net neutrality legislation before Regulation 2015/2120 was adopted, and the Danish authorities have not adopted any supplementary implementation measures beyond those required by the Regulation. Rules on penalties and sanctions were notified to the Commission in line with Article 6 of Regulation 2015/2120 by the target date of 30 April 2016 (Executive Order BEK nr 324 of 31 March 2016)[9]. The Agency is authorised to issue regulatory orders to comply with net neutrality rules, which, in cases of non-compliance, can be backed up with penalty payments, as provided for under the Electronic Communications Act.

Operators resolve issues at industry level through a self-regulatory forum, and there are no complaints from consumers or traders that might suggest any infringement of the net neutrality rules. The DEA actively participates in industry dialogue, providing guidance on the implications of the new rules for existing self-regulatory mechanisms. Ongoing market functioning has not led to any targeted investigations.

Universal service

Despite political consideration in 2016, it was decided not to include broadband access within the scope of universal service for 2017-2022. The designated provider, the former incumbent TDC, has been tasked with providing telephony services, directory enquiry services and directories, and ensuring mandatory access for disabled end-users through a text relay service. Public payphones, although not part of universal service, continue to be provided under a distinct regulatory regime. No social tariffs exist.

[7] Source: Special Eurobarometer 438. Data as of October 2015.
[8] International Roaming BEREC Benchmark Data Report, October 2015 – March 2016, BoR(16)160.
[9] https://www.retsinformation.dk/Forms/R0710.aspx?id=179230

112 and access for disabled end-users to emergency services

In 2016, 94% of Danish citizens were aware of 112 as the single national emergency number, a small increase on the 2015 level of 93%. Although awareness that the number can also be used outside Denmark rose by eight percentage points over the same period – a far more significant increase – overall awareness in this regard remained relatively low at 49%. The Danish authorities have not undertaken or planned any further awareness-raising campaigns. Disabled end-users have access via SMS and can also use the commonly available 112 App. The application is accurate to 10-60 metres within 12 seconds.[10]

5. Conclusion

As regards broadband deployment, there seems to be further scope for exploring the opportunities opened up by transposing the Cost Reduction Directive. Continued non-use should prompt an ex post evaluation to identify possible hurdles to utilisation. User concerns over the comparability of offers and the quality of contract-related information suggest that further measures could be taken to improve transparency and boost demand-side competitive dynamics.

[10] Source: Communications Committee, COCOM 17-01, 10.2.2017.