

# Europe's Digital Progress Report-2017

## Telecom chapter

### SWEDEN

#### 1. Competitive environment

Coverage	SE-2015	SE-2016	EU-2016
Fixed broadband coverage (total)	99%	99%	98%
Fixed broadband coverage (rural)	94%	91%	93%
Fixed NGA coverage (total)	76%	79%	76%
Fixed NGA coverage (rural)	14%	22%	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

The Swedish broadband market is characterised by rapidly growing consumer demand for ultrafast broadband and a corresponding rapidly declining consumer demand for slower broadband. On the fixed broadband market, fibre subscriptions continued to increase over the reporting period (+17% of fibre LAN compared to 2015). The Swedish broadband market also featured a slight increase (+4%) in cable TV subscriptions and conversely a substantial decrease in xDSL subscriptions (-10%)<sup>1</sup>.

Sweden is currently among the EU countries with a very advanced fixed broadband coverage baseline. Currently, Sweden scores well above the EU average for overall 4G coverage (100% against 84% for the EU) but lags behind the EU average for fixed next-generation access (NGA) coverage in rural areas (21% against 40% for the EU).

The role of municipalities in providing local fibre is remarkable in Sweden. The fibre market is fragmented, with approximately 180 local fibre networks complementing the offer of the incumbent and the cable sector. Municipalities' networks offer their services via what are called communication operators operating the network of the dark fibre owner.

In terms of market trends, bundled services have continued to decrease. Indeed, the total number of bundled subscriptions in the second quarter of 2016 amounted to 1.7 million, a 3% decrease on the overall number of bundled offers for the same period in 2015. As to market share, the three largest operators, Telia Company, Telenor and ComHem, together account for about 75% of the fixed broadband market.

On prices, the cheapest fixed broadband price (12-30 Mbps or above) in Sweden in autumn 2016 was €11.42. This figure was the lowest in the EU and significantly below the EU average of €21.33<sup>2</sup>.

<sup>1</sup> Source: PTS.

<sup>2</sup> Source: Fixed broadband prices in Europe in 2016 (Empirica). Prices expressed in EUR/PPP, VAT included. Data as of autumn 2016.

## Mobile market

Mobile market	SE-2015	SE-2016	EU-2016
Market share of market leader	36%	39%	34%
Market share of second largest operator	29%	27%	28%
Number of MNOs	5	5	-
Number of MVNOs	39	41	-
Market share of MVNO (SIM cards)	6%	6%	-

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

The Swedish mobile market is a fairly competitive market, hosting five mobile network operators: Telia Company, Tele 2, Telenor, Three (HI3G) and Net 1, an operator offering services in the 450 MHz band. There are also several mobile virtual network operators (MVNOs) with very limited market share. In November 2016, the operator Tele2 bought the MVNO TDC Sweden. As of October 2016, the market shares of the market leader and the second largest operator were as follows: 39% and 27%.

The Swedish mobile market has seen a substantial increase of data use in recent years. 4G subscriptions have continued to grow: 6.8 million of end-users used 4G in Q2 2016, an increase of 34% on the same period in 2015. Overall, 47% of all mobile subscriptions are 4G subscriptions. Mobile revenues have also continued to grow: during the first six months of 2016, the total revenue of the mobile market amounted to SEK 14.9 billion (+ 2 % compared to the second quarter of 2015)

Fixed broadband market shares	SE-2015	SE-2016	EU-2016
Incumbent market share in fixed broadband	38.2%	37.1%	40.7%
Technology market shares			
DSL	36.6%	31.0%	66.8%
Cable	18.0%	18.0%	19.1%
FTTH/B	44.9%	50.4%	10.7%
Other	0.6 %	0.6%	3.4%

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

New entrants' DSL subscriptions by type of access (VDSL excluded)	SE-2015	SE-2016	EU-2016
Own network	-	-	0.7%
Full LLU	51.4%	52.3%	75.3%
Shared access	26.1%	23.9%	4.1%
Bitstream	4.1%	-	13.4%
Resale	18.5%	23.8%	6.6%

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

Charges of Local Loop Unbundling (monthly average total cost in €)	SE-2015	SE-2016	EU-2016
Full LLU	11.8	11.8	9.2
Shared Access	5.5	5.5	2.4

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

Mobile broadband prices	SE-2015	SE-2016	EU-2016
Least expensive offer for handset (1 GB + 300 calls basket)	19	19	30

Least expensive offer for tablet and laptop (5 GB basket)	14	8	18
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Source: *Mobile Broadband Price Study (Van Dijk)*. Prices expressed in EUR/PPP, VAT included. Data as of February 2015 and February 2016

Sweden has some of the cheapest mobile broadband offers in the EU, with 8 EUR/PPP for tablet and laptop (5 GB basket) against an average EU offer of 18 EUR/PPP for the same type of product.

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

### a. Spectrum

Harmonised bands	MHz spectrum assigned	% of harmonised band assigned
700 MHz	0	0%
800 MHz	60.0	100%
900 MHz	70.0	100%
1500 MHz	0.0	0%
1800 MHz	150.0	100%
2000 MHz paired	120.0	100%
2600 MHz	190.0	100%
3400-3 600 MHz	168.0	84%
3600-3 800 MHz	200.0	100%

In Sweden, 88% of the spectrum harmonised at EU level for electronic communications services has been assigned.

2x5 MHz in the 1800 MHz band were assigned in a one-bid sealed auction in October 2016. The auction attracted only one applicant, Hi3G, who tabled a €10 million bid. By winning the licence, Hi3G became a new entrant in the 1800 MHz band. Like other licences in the 1800 MHz band, the licence runs until end 2027.

In November 2016, the national regulatory authority PTS cancelled the planned auction for the 700 MHz band that was due to start on 1 December 2016. This followed the government's decision to keep the 694-790 MHz frequencies included in the planned auction available for terrestrial television broadcasting until 31 May 2018. This overturned the previous decision of 2014 ruling that the frequencies should be available for use other than terrestrial television from 1 April 2017. PTS announced that it would resume work on how to assign the 700 MHz band when the conditions are clarified.

Some 5G testing has already started in the millimeter wave (mmW) bands: the Ericsson company is performing outdoor testing in Kista, Gothenburg, while Lund University is performing outdoor testing in Lund. PTS is planning to issue a first communication to the market on 5G plans in spring 2017.

## **b. EU and national investments in broadband**

Sweden's previous broadband strategy<sup>3</sup> was adopted in 2009 with the overarching goal that Sweden should have world-class broadband. The long-term objective was to achieve 90% coverage of households and businesses with 100 Mbps by 2020. Sweden's broadband objectives evidently surpass the Digital Agenda for Europe broadband targets. State aid for deployment of broadband infrastructure with very high speed has been made available in remote areas where market players were unwilling to invest. Aid has been made available through two EU funds: the Rural Development Programme and, for the northern part of Sweden, also through the European Regional Development Fund.

The implementation of Sweden's previous broadband strategy has been efficient in practice: the Ministry of Enterprise and Innovation notably expects that the 90% coverage target described above will be fulfilled before the initial target date of 2020. In this context, the Swedish government drew up a new broadband strategy<sup>4</sup> which was presented in December 2016.

Sweden's new broadband strategy, as adopted in December 2016, aims at having a completely connected country by 2025 and has the following three objectives: by 2020 95% (as opposed to the initial 90% target) of all households and businesses should have access to broadband of at least 100 Mbps; by 2023 the whole country should have access to stable mobile services of good quality; by 2025 the whole country should have access to high-speed broadband.

Sweden's new broadband strategy aims in particular at meeting rapidly growing consumer demand for high-speed broadband. Providing the coverage to meet this demand is challenging given the country's geography.

## **c. State of transposition of the Broadband Cost Reduction Directive**

Following the expiry of the deadline for transposing the Broadband Cost Reduction Directive<sup>5</sup> on 1 January 2016, the Commission opened infringement proceedings against Sweden for failure to notify implementing measures.

On 8 June 2016, Sweden notified the Commission of the measures it had taken to transpose the Directive into national law<sup>6</sup>. The infringement procedure was closed and the Commission will check the compliance of the measures notified by Sweden.

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<sup>3</sup> <http://www.regeringen.se/rapporter/2009/11/n20098317itp/> (Swedish).

<sup>4</sup> <http://www.regeringen.se/informationsmaterial/2016/12/sverige-helt-uppkopplat-2025---en-bredbandsstrategi/> (Swedish).

<sup>5</sup> (OJ L 155, 23.5.2014, p. 1).

<sup>6</sup> Sweden adopted the following acts, which entered into force on 1 July 2016: Lag (2016:534) om åtgärder för utbyggnad av bredbandsnät (Act on measures for deploying broadband network), which is the main piece of legislation implementing Directive 2014/61/EU into Swedish Law, and which the Swedish authorities notified to the Commission. The Act was published on 26 May 2016 in the Swedish Code of Statutes.

The Swedish authorities also notified the following relevant legal acts in connection with the adoption of the Lag (2016:534):

Förordning (2016:538) om åtgärder för utbyggnad av bredbandsnät (Decree on measures for deploying broadband network);

Förordning (2016:539) om ändring i plan- och byggförordningen (2011:338) (Amending Decree to planning and building decree);

Lag (2016:537) om ändring i plan- och bygglagen (2010:900), (Amending Act to planning and building Act);

Lag (2016:536) om ändring i lagen (2003:389) om elektronisk kommunikation, (Amending Act to the Electronic

### 3. Regulatory function

On the deregulation of markets as per the 2014 Commission Regulation, the state of play is the following: market 1 (calls terminating on fixed network) — still regulated; market 2 (voice call terminating on mobile networks) — still regulated; market 3a (wholesale local access) — still regulated; market 3b (wholesale central access) — deregulated; market 4 (wholesale high quality access) — deregulated.

Over the reporting period, PTS notified the Commission of three market reviews: a market review for market 1 in November 2016, a market review for market 2 in June 2016 and a market review for market 4 in November 2016. The market review for market 2 required a revision of the LRIC model for mobile termination rates (MTRs).

A model reference document for a new BU-LRIC model for the fixed network was put to public consultation by PTS in the summer 2016. A new public consultation of the model reference document, a WACC-calculation and a new model including additional documentation is planned for the summer 2017.

Besides, PTS has announced that there will be a review of market analysis for market 3a and 3b in February 2018.

In December 2016, price regulation on fibre access was lifted for market 3a, where Telia Company is a dominant player. Since then, PTS has started the supervision process on economic replicability which should be completed in June 2017. It should be recalled that for fibre, price caps were set according to geotype until 30 November 2016. Taking account of the Commission's Recommendation on non-discrimination and costing methodologies, PTS considered that from 1 December 2016 no price caps should apply to Telia Company's fibre network. However, this was conditional on there being sufficient competition constraints deriving from the successful and timely implementation of equivalence of input and of an economic replicability test.

As far as PTS' management is concerned, PTS Director General Göran Marby resigned in March 2016 to take up a new position as CEO of ICANN<sup>7</sup>.

### 4. Consumer issues

In 2016, PTS received 1,437 consumer complaints. The most common topics raised were the following: interruption in services, unfair marketing and coverage.

#### Number portability

Number portability		SE-2015	SE-2016
Fixed	Number of transactions [1]	94,283	110,869

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Communications Act);

Lag (2016:535) om ändring i väglagen (1971:948), (Amending Act to the road Act);

Lag (2016:503) om ändring i ledningsrättslagen (1973:1144) (Amending Act to the Rights of way Act)

<sup>7</sup> Catarina Wretman worked as acting Director General until 1 February 2017, when newly appointed PTS Director General Dan Sjöblom took over.

	Transactions as a % of total numbers [1]	2.6%	3.3%
	Maximum wholesale price [2]	-	-
	Maximum time under regulation (number of working days) [2]	-	-
Mobile	Number of transactions [1]	407,000	411,000
	Transactions as a % of total numbers [1]	3.3%	3.3%
	Maximum wholesale price [2]	-	-
	Maximum time under regulation (number of working days) [2]	-	-

[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

## Roaming

On the basis of price levels from the first quarter of 2016, the average retail Eurotariff price for roaming customers of Swedish mobile operators was: 0.118 EUR/min for calls made (above the EEA average of 0.112 EUR/min); 0.033 EUR/min for calls received (above the EEA average 0.026 EUR/min); 0.042 per SMS (below the EEA average of 0.047 EUR/Mb).

As regards data, the price was 0.019 EUR/Mb, which was below the EEA average of 0.047 EUR/Mb.

In cases of non-compliance with the roaming rules laid down in Regulation (EU) 2015/2120, PTS is empowered to take action under Chapter 7, Section 3a of the Electronic Communications Act (SFS 2003:389). Under general provisions of Swedish administrative law, a communication is served on the infringing operator, setting out the reasons for the allegation of non-compliance, together with any evidence collected. The operator will then be given reasonable time to answer the allegations and comment on the evidence. If the operator does not then voluntarily take corrective measures, PTS is empowered to issue all bans or orders necessary to ensure compliance.

Bans or orders in cases of non-compliance may also involve the payment of monetary fines. This means that if an operator does not comply with the ban or order, PTS can bring an action before the Administrative Court for payment of the fine.

The monetary amount of fines is in principle unlimited. The amount should be high enough to be dissuasive, but not excessive, taking into account the principle of proportionality.

## Net neutrality

Sweden has laid down rules on penalties for infringements of Articles 3, 4 and 5 of Regulation (EU) 2015/2120 and the necessary measures to ensure that they are implemented in accordance with Article 6 of Regulation (EU) 2015/2120.

Amendments to the Act on Electronic Communications were adopted on 23 March 2016 (SFS 2016:344) and came into force on 30 April 2016. These were notified to the Commission on 9 June 2016. Under that Act, as in cases of non-compliance with roaming rules, PTS may

issue orders and bans necessary to ensure compliance with the obligations stemming from Regulation (EU) 2015/2120. In this context, PTS may issue fines as deemed appropriate.

PTS has been party to two net neutrality cases, one involving the operator Telia Company and the other one the operator Tre. In April 2016, Telia Company launched two offers: one for ‘free surf on social media’ and the other one for ‘free surf listening’. In addition, in August 2015, the operator Tre launched an offer for ‘free surf for music streaming’. According to PTS, the offers from Telia Company and Tre infringed the EU regulatory provisions on equal treatment of traffic as laid down in Article 3(3) of Regulation (EU) 2015/2120<sup>8</sup>. The infringement laid in the fact that once the data cap is reached all internet traffic is blocked except for those services and applications that are part of the offers in question. PTS communicated this opinion to Telia Company and Tre, and in an order served on Telia Company on 24 January 2017, PTS banned Telia Company’s practice. Telia Company appealed PTS’ order before the Stockholm Court of Appeal<sup>9</sup>. Tre, on the other hand, has communicated its intention to adjust its offer.

### **Universal service**

During the reporting period, PTS did not impose any universal service obligation to provide electronic communications on any operator. In any case, the scope of the universal service has remained unchanged. Since December 2011, functional access to the internet for universal service provision is set at a minimum speed of 1 Mbps<sup>10</sup>.

## **5. Conclusion**

Sweden is a front runner on connectivity in the EU. Given the country’s geography, one of the challenges still to be addressed is to achieve connectivity coverage in more remote areas. However, the timely execution of Sweden’s new broadband strategy may generate positive results on that issue.

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<sup>8</sup> Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users’ rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union (OJ L 310, 26.11.2015, p. 1).

<sup>9</sup> On 8 March 2017, the Stockholm Court of Appeal suspended PTS’s order banning Telia Company’s practice.

<sup>10</sup> On 23 February 2017, the Swedish government instructed PTS to evaluate what minimum internet connection quality should be guaranteed by the State to citizens and businesses across the country. The report is expected to be delivered by 30 April 2017. PTS is expected to evaluate which connection speed citizens and businesses should have the right to access so as to be able to fully participate in the digital society.