

Telecommunication Markets in the Nordic and Baltic Countries 2015



Communications Regulatory Authority
of the Republic of Lithuania



PUBLIC
UTILITIES
COMMISSION



TEHNILISE JÄRELEVALVE AMET



Danish Energy
Agency



Nasjonal
kommunikasjons-
myndighet



POST AND TELECOM
ADMINISTRATION
IN ICELAND

About the database

- The database was established in 2007
 - » The Baltic States are included since spring 2013
 - » A descriptive database
- Consists of a selected number of variables that are comparable between the Nordic and Baltic countries
 - » Graphs describing each country are displayed from the point of time (year) where these statistics are available. Because of this, the length of time series may vary
- A dynamic database that will change as the telecom markets develop
- The figures are collected and validated by the Nordic-Baltic working group on statistics and definitions
- If not stated otherwise the source for all figures are the relevant national regulatory agencies and/or the national statistical agencies of each country
- Graphs include figures for both private and business customers
- For more detailed information see the statistical portal under 'Tables':
 - » <http://statistik.pts.se/PTSnordic/NordicBaltic2015>

Development of population, thousand of inhabitants

As most of the graphs in this presentation are scaled based on population in each country it should be noticed that this number is growing in some countries and decreasing in others.

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Denmark | 5427 | 5447 | 5476 | 5511 | 5535 | 5561 | 5581 | 5603 | 5627 | 5660 | 5707 |
| Estonia | 1339 | 1333 | 1327 | 1325 | 1324 | 1323 | 1321 | 1294 | 1320 | 1313 | 1312 |
| Finland | 5256 | 5277 | 5300 | 5327 | 5352 | 5376 | 5401 | 5427 | 5451 | 5472 | 5487 |
| Iceland | 299 | 308 | 313 | 319 | 318 | 318 | 320 | 322 | 326 | 329 | 333 |
| Latvia | 2228 | 2209 | 2192 | 2163 | 2121 | 2075 | 2045 | 2024 | 2002 | 1986 | 1969 |
| Lithuania | 3403 | 3385 | 3366 | 3350 | 3329 | 3245 | 3199 | 2979 | 2944 | 2922 | 2889 |
| Norway | 4606 | 4681 | 4737 | 4799 | 4858 | 4920 | 4986 | 5051 | 5109 | 5166 | 5214 |
| Sweden | 9048 | 9113 | 9183 | 9256 | 9341 | 9416 | 9483 | 9552 | 9645 | 9747 | 9851 |
| Total | 31606 | 31753 | 31894 | 32050 | 32178 | 32234 | 32336 | 32252 | 32424 | 32595 | 32762 |



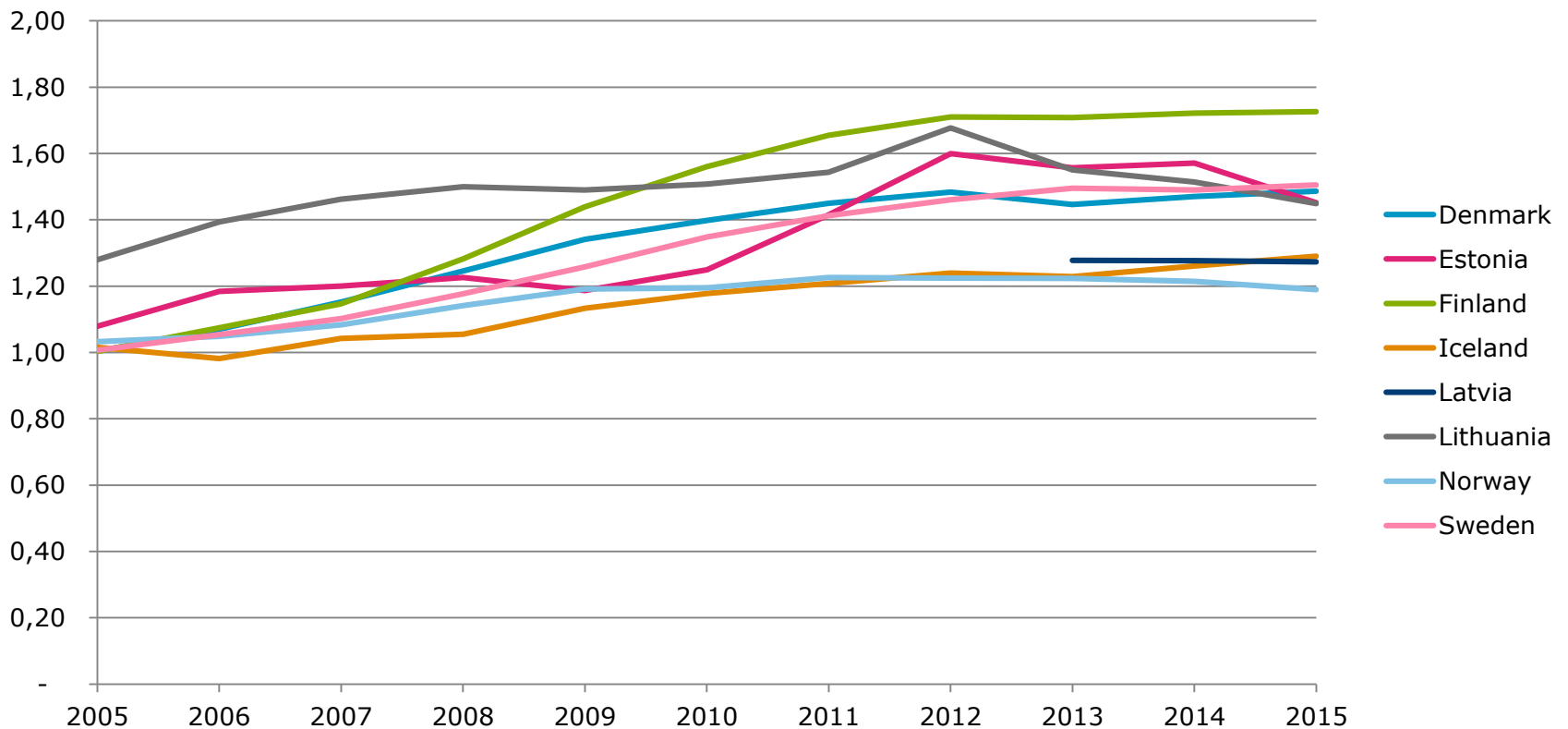
1. Mobile services

Development of mobile services

- Finland is the only country above 1,7 mobile subscriptions per capita whereas in the other countries the number varies between 1,2 – 1,5 subscriptions per capita. Despite some differences in the development it can be considered that the total number of mobile subscriptions is generally stagnating.
- Use of mobile minutes is still growing in all other countries except Finland. The highest growth and usage per capita can be observed in Latvia. One reason for the growth in many countries is that an increasing share of subscriptions include unlimited amount of minutes for the monthly fee.
- SMS-messaging is still more common in Lithuania than in other countries. The number of SMS messages sent per capita in a month in Lithuania was 183 whereas the number in other countries varied between 32-110. Use of SMS is increasing in Estonia, Latvia and Norway whereas in other countries the usage is decreasing quite steadily.
- Data volumes in mobile networks are growing strongly in all countries, especially in Latvia where the growth was 175 percent during 2015. One reason for this is that one of the main operators is offering subscriptions without limitations on data transfer and fair use policy as well as offering TV-services through mobile network. In other countries the growth varied between 28 and 93 percent. When all Nordic and Baltic countries are combined, 2,5 gigabytes of data was transferred over mobile networks per capita in a month and the annual growth was 66 % in 2015.
- There are far more M2M subscriptions in Sweden than in any other country, almost 0,7 per capita. This is due to one particular company which provides most of them. The number of M2M subscriptions is clearly growing in all of the countries.

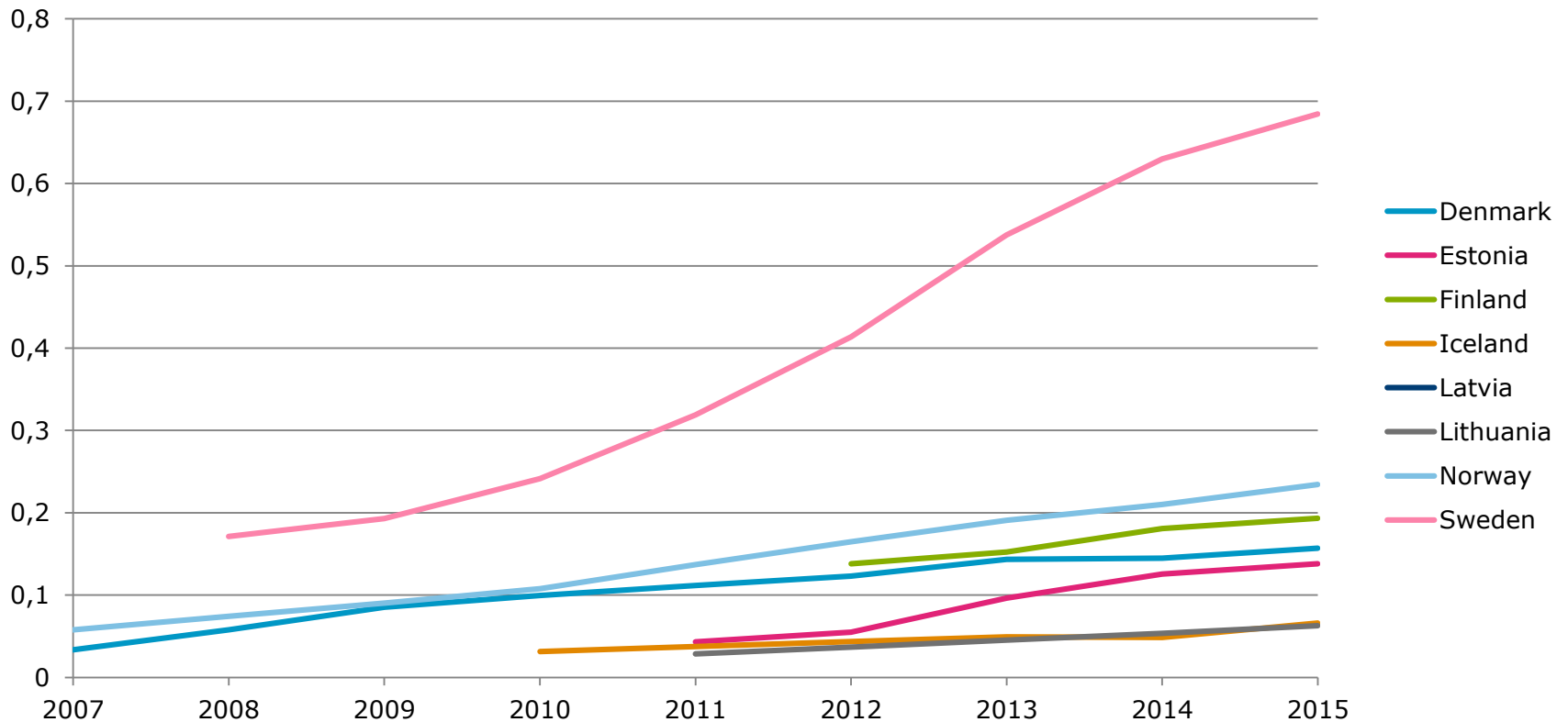
1.1 Mobile subscriptions per capita

Includes GSM/UMTS/LTE subscriptions for voice and mobile broadband that have been active within the last 3 months of the period. Pre-paid subscriptions are also included. The decrease for Lithuania and Estonia in 2013 is due to changes in definitions from the operators. M2M subscriptions are not included.

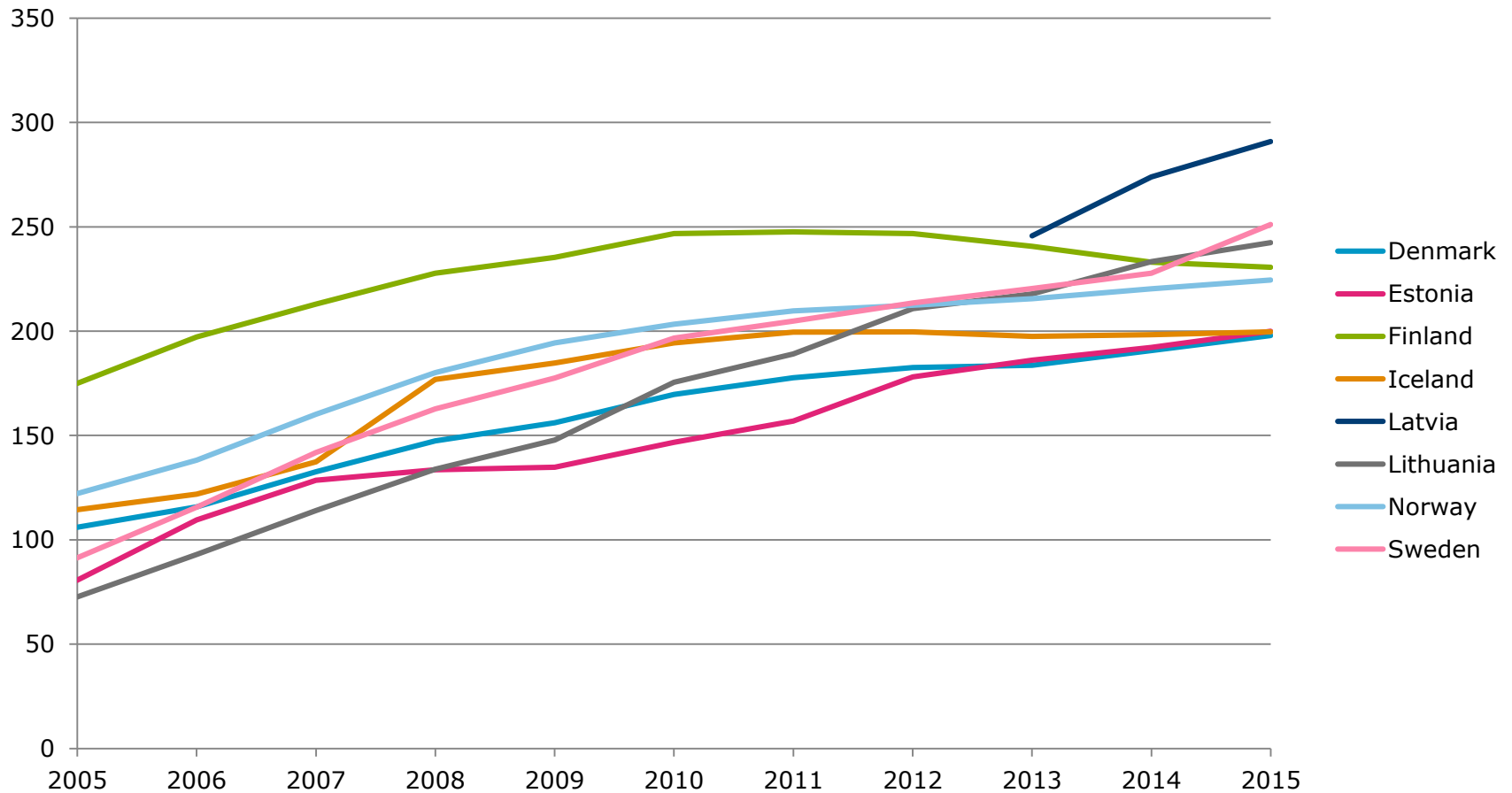


1.2 Mobile M2M subscriptions per capita

Includes subscriptions sold specifically to be used with or between two machines in for example energy consumption meters, cars and surveillance cameras.

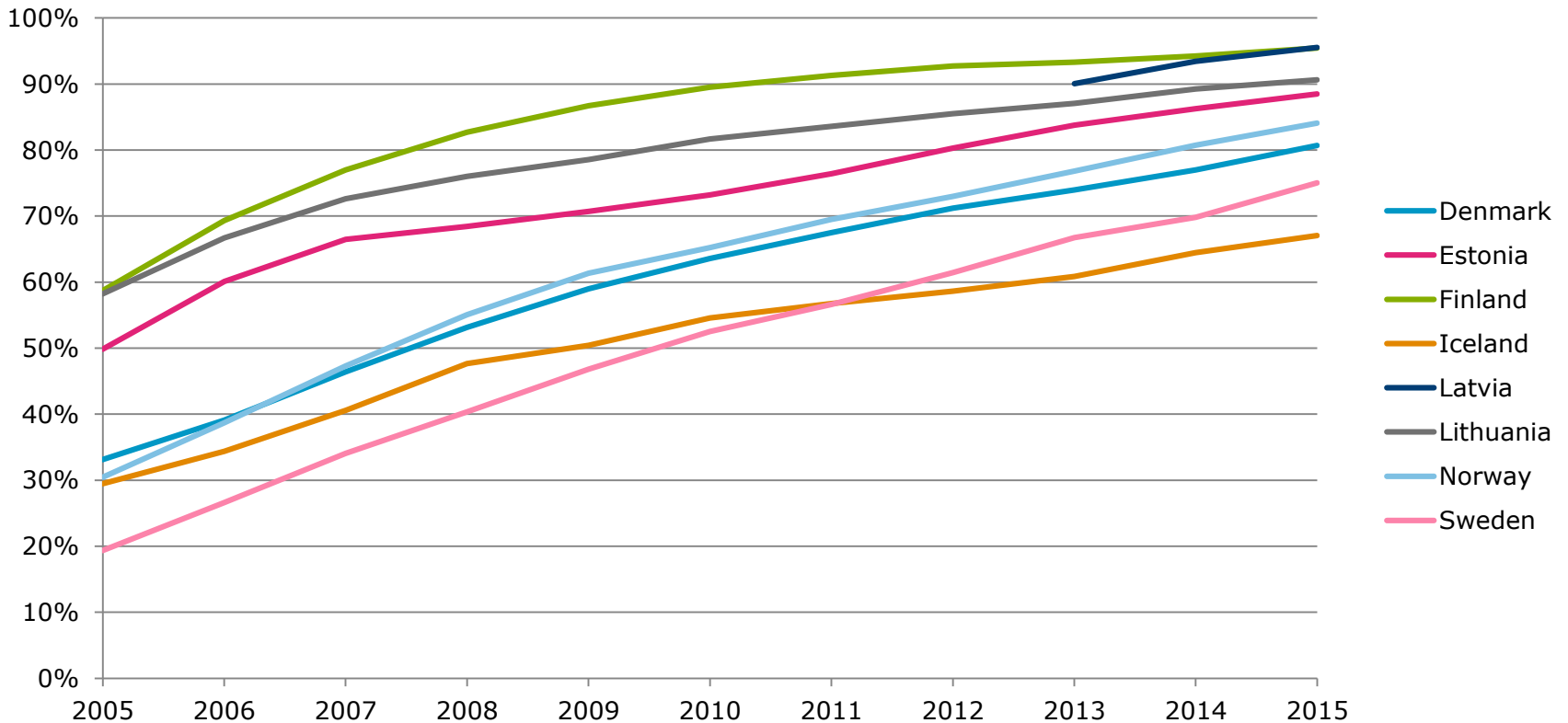


1.3 Mobile call minutes per capita in a month

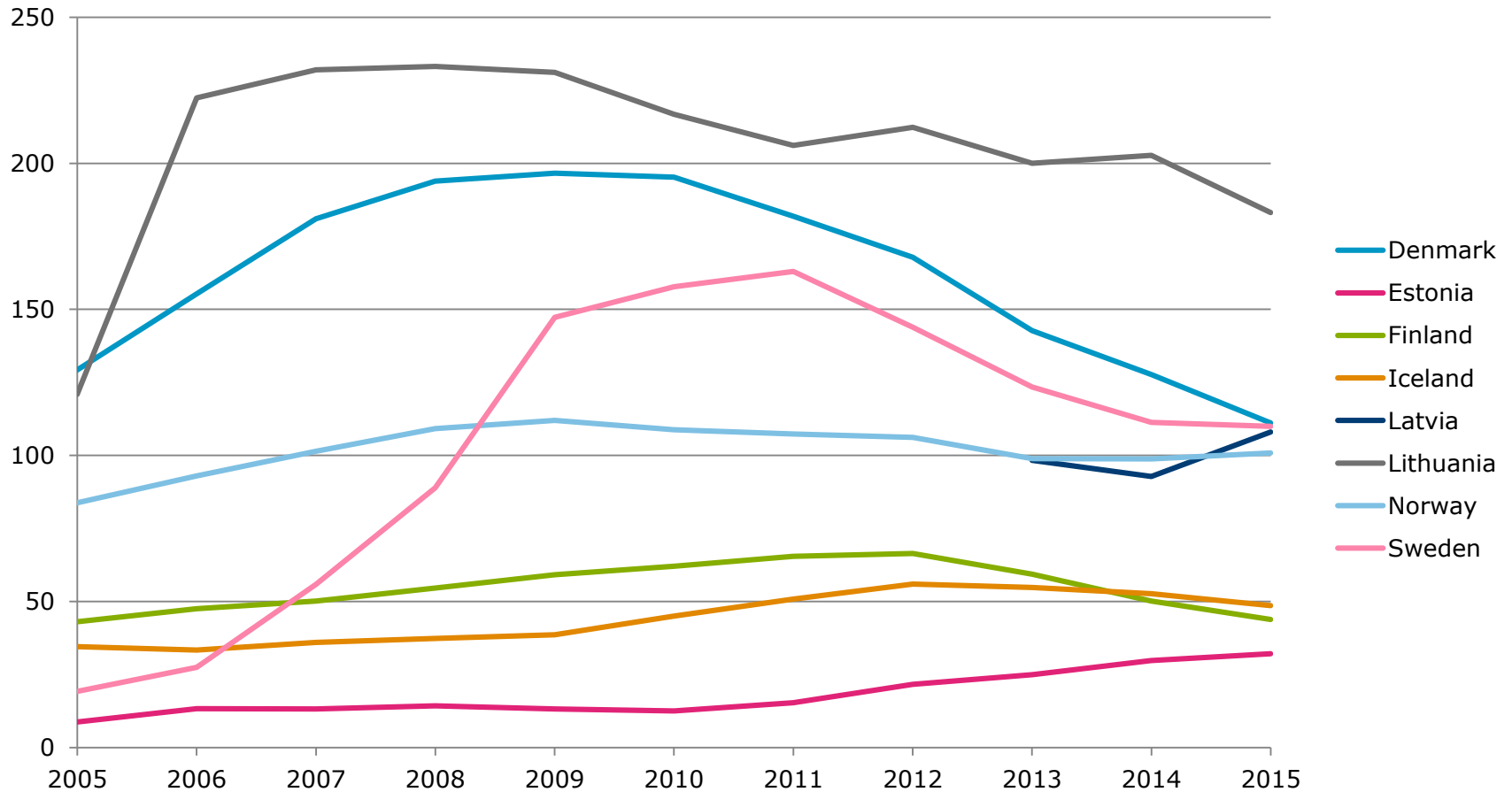


1.4 Share of mobile minutes of all originated minutes

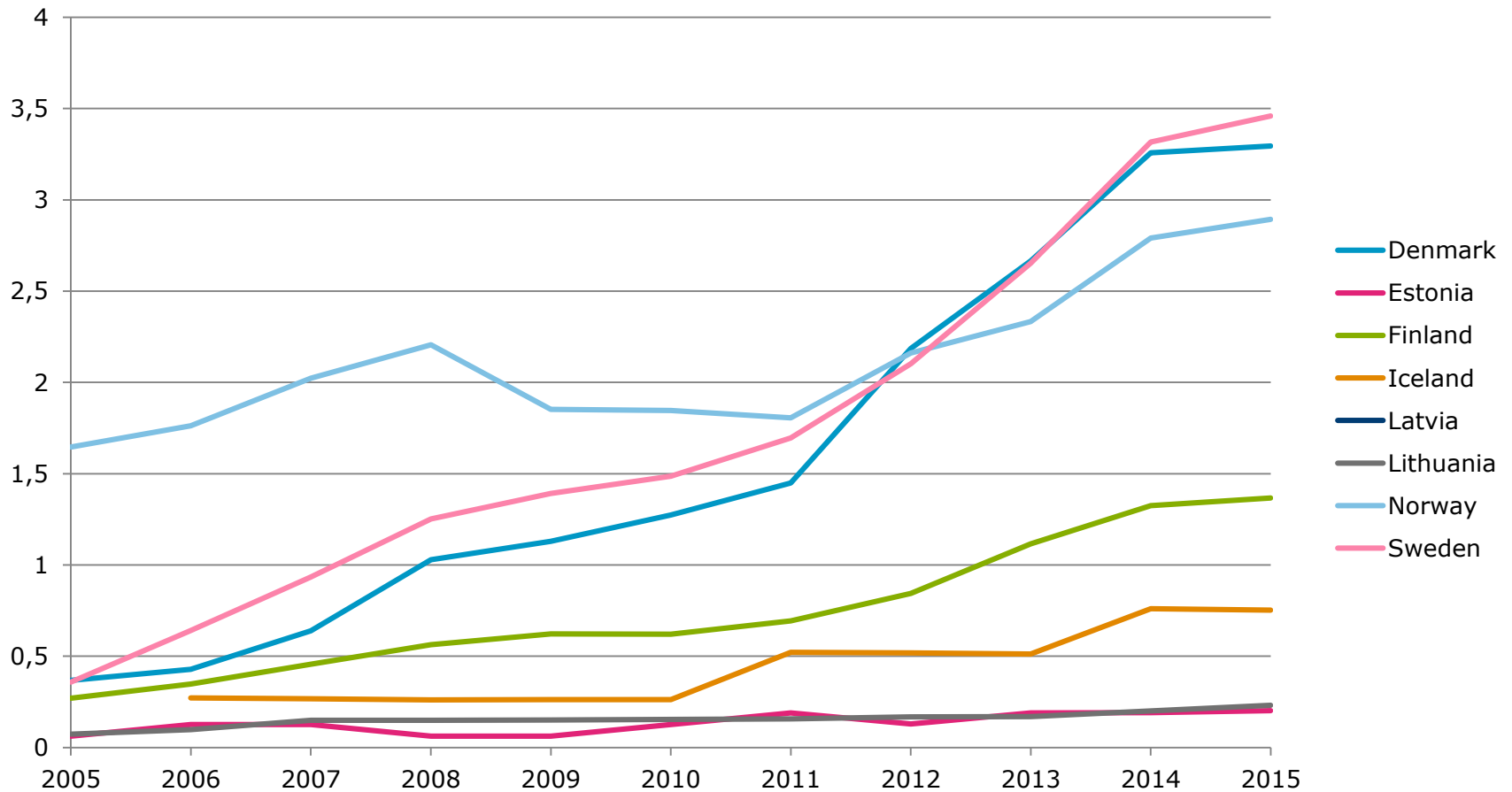
All originated minutes are the sum of all fixed minutes and all mobile minutes



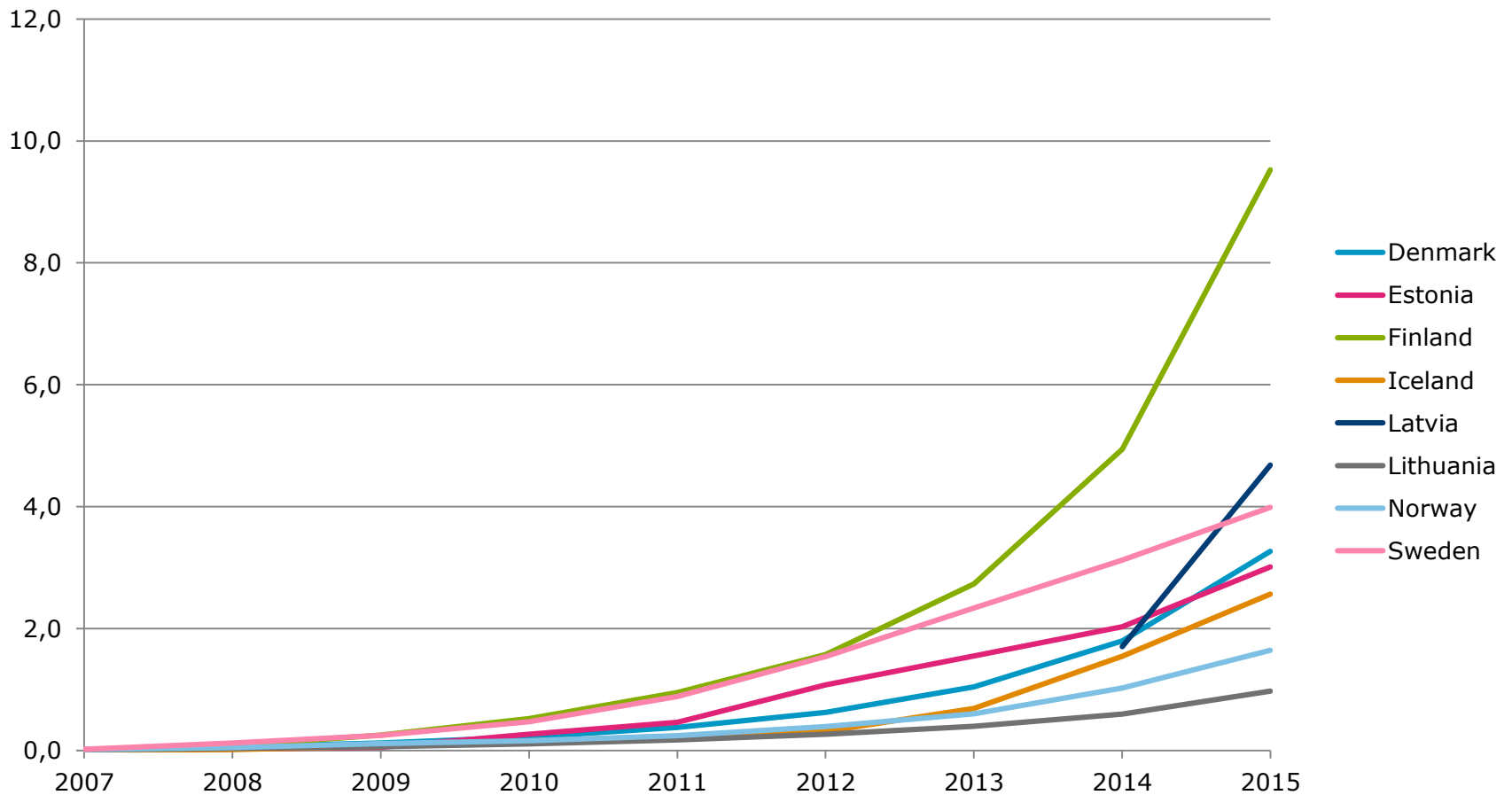
1.5 Average number of SMS messages sent per capita in a month



1.6 Average number of MMS messages sent per capita in a month



1.7 Gbytes of data transferred over mobile networks per capita in a month





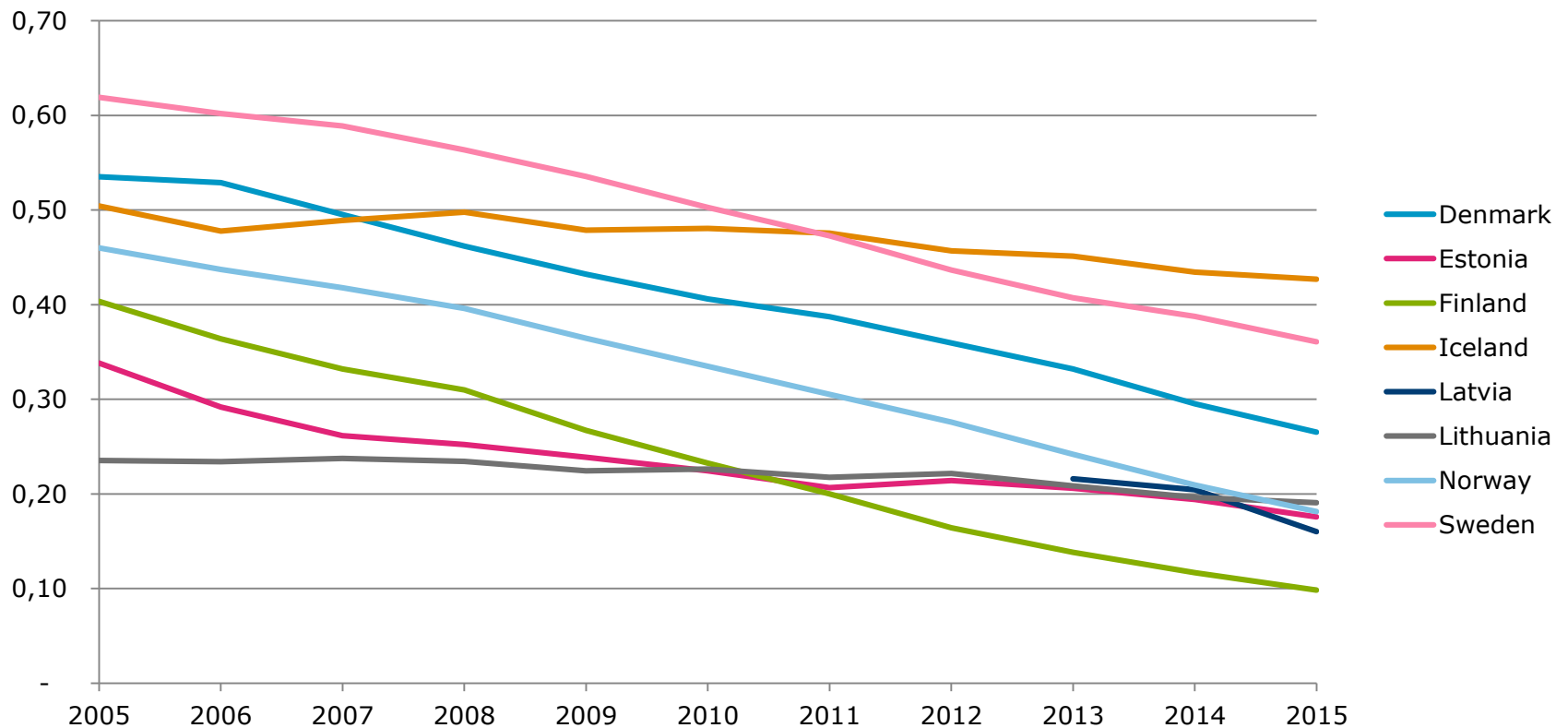
2. Fixed Call Services

Development of fixed call services

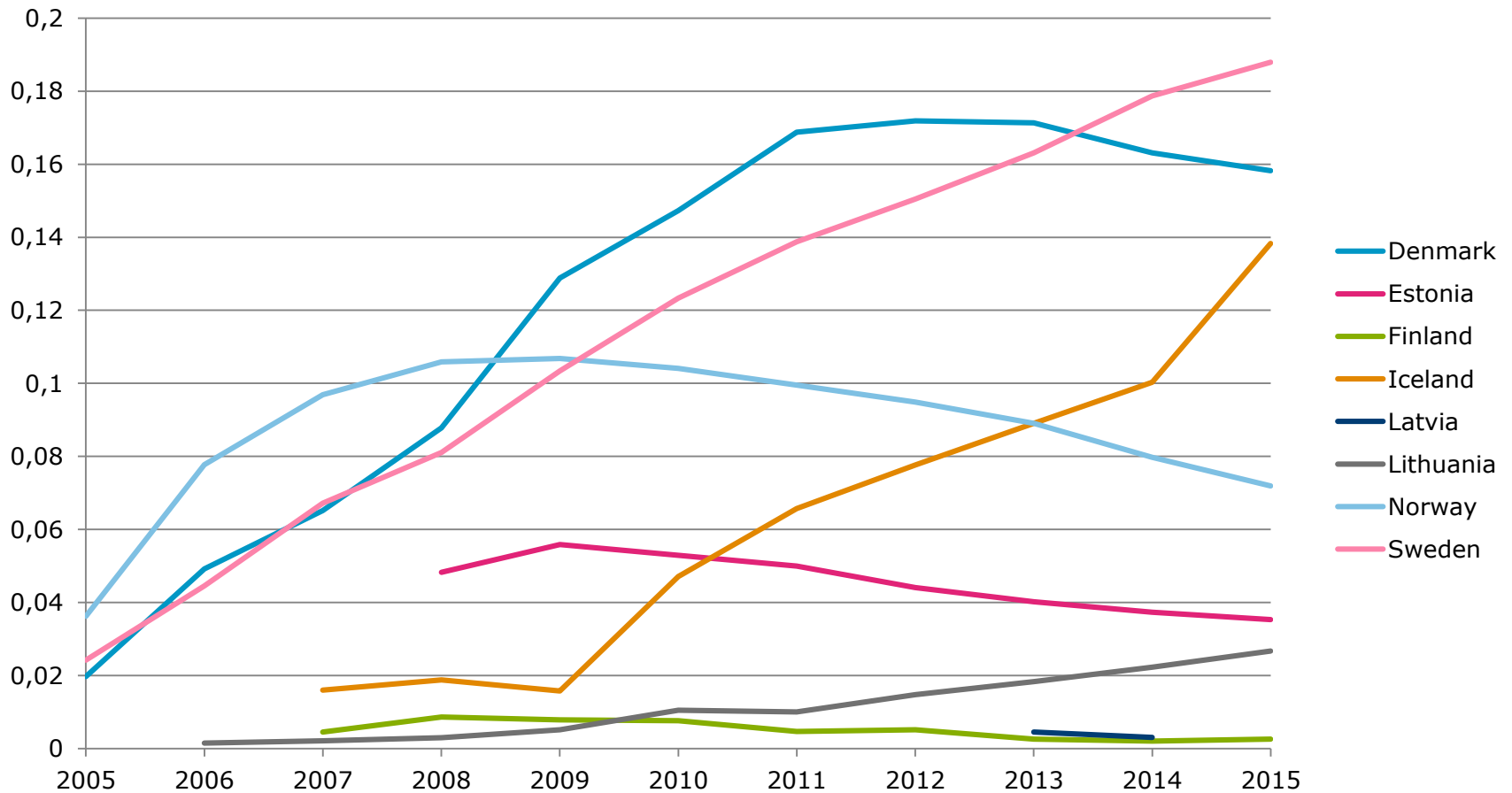
- The number of fixed telephone subscriptions per capita as well as the number of fixed call minutes is decreasing in all countries and there is no sign to indicate any change in the future. Though share of mobile minutes of all originated minutes vary between countries from 67 to 96 percent, the relative amount of fixed call minutes is steadily decreasing in every country.
- There are major differences between the countries in the number of IP telephony (managed VoIP) subscriptions per capita and the numbers are developing very differently as well. In Sweden, Denmark and Iceland there are well above 0,1 subscriptions per capita whereas in Estonia, Lithuania, and Finland the number of VoIP subscriptions per capita is below 0,04. Lithuania, Sweden and especially in Iceland the number of subscriptions is still growing. Latvian and Icelandic incumbent fixed network operators plan to gradually switch the entire fixed network over to IP technology and switch off PSTN network based on economic feasibility. IP telephony is often bundled with other services, e.g. fixed broadband and TV. In such cases the IP telephony part of the bundle may be inactive.

2.1 Fixed telephony subscriptions per capita

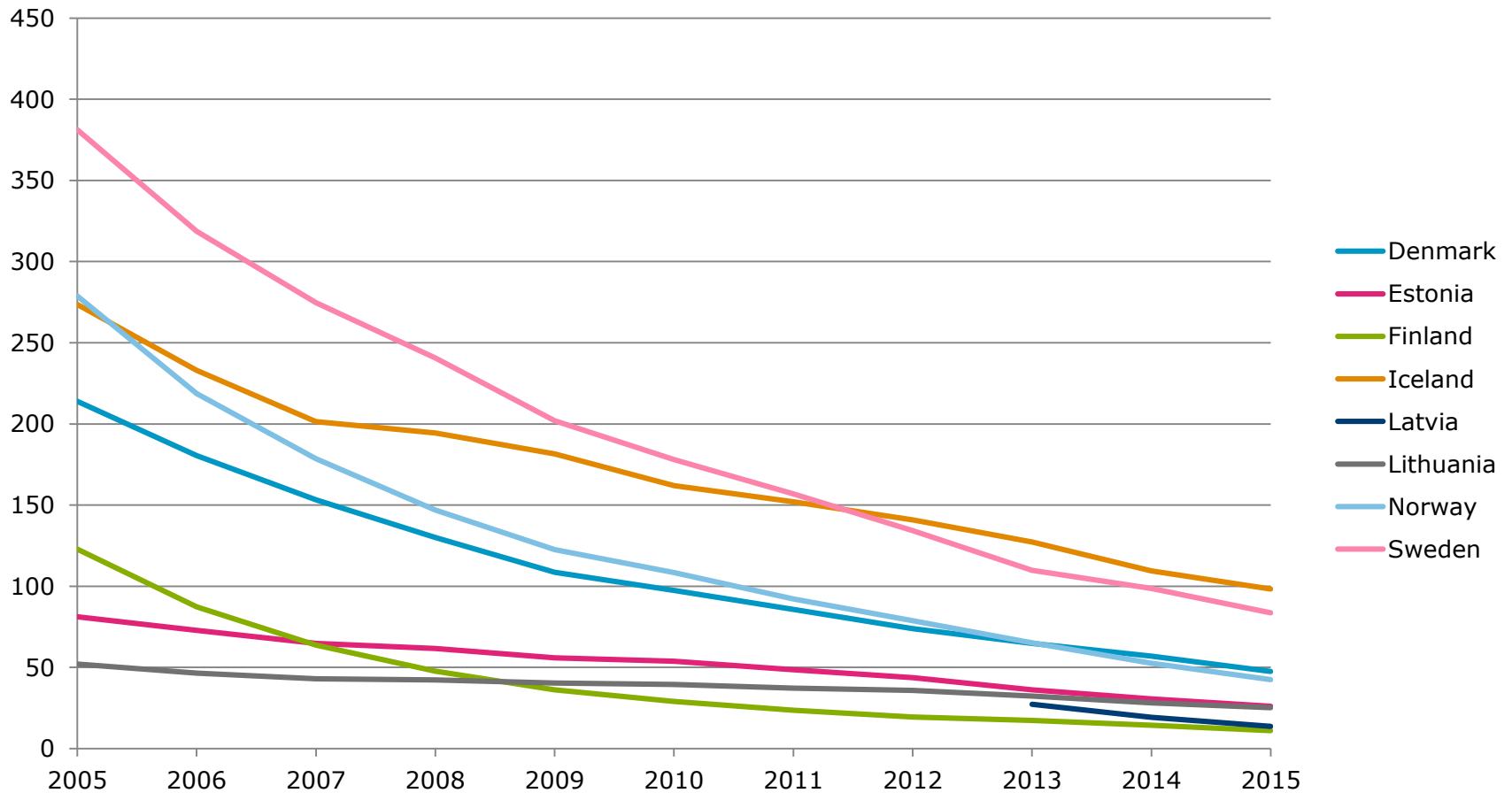
Includes PSTN, ISDN and IP telephony

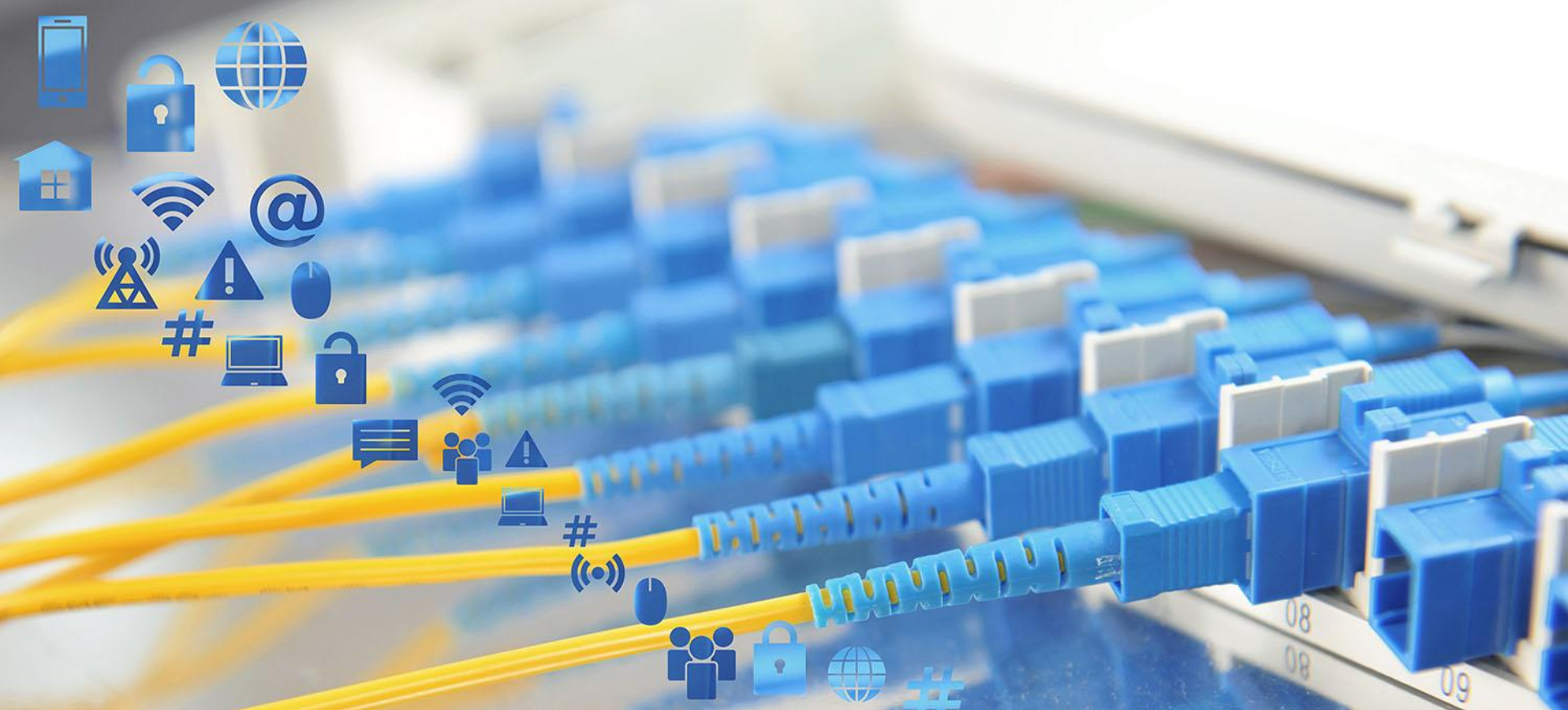


2.2 IP telephony subscriptions per capita



2.3 Fixed call minutes per capita in a month



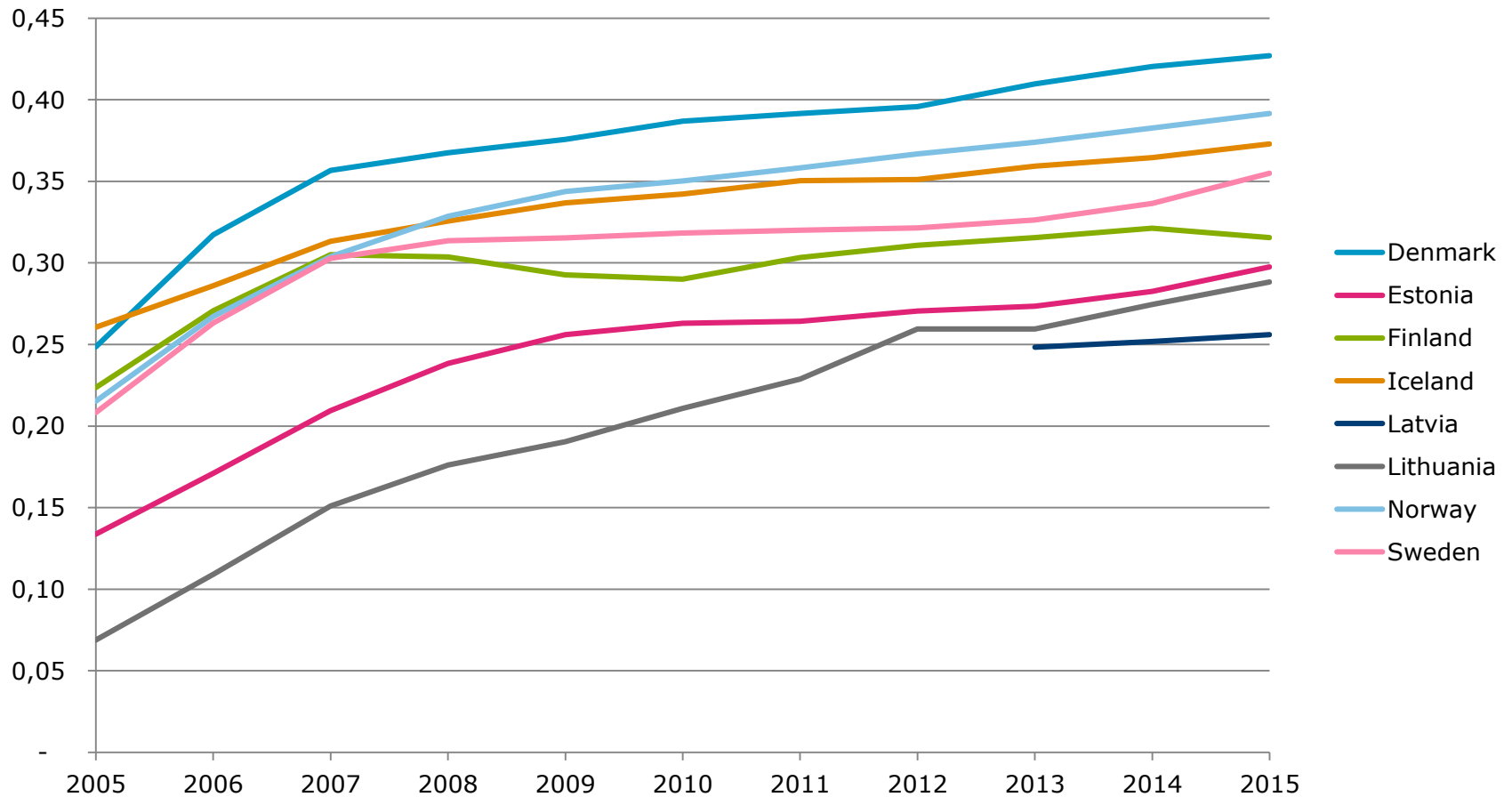


3. Broadband Services

Broadband penetration

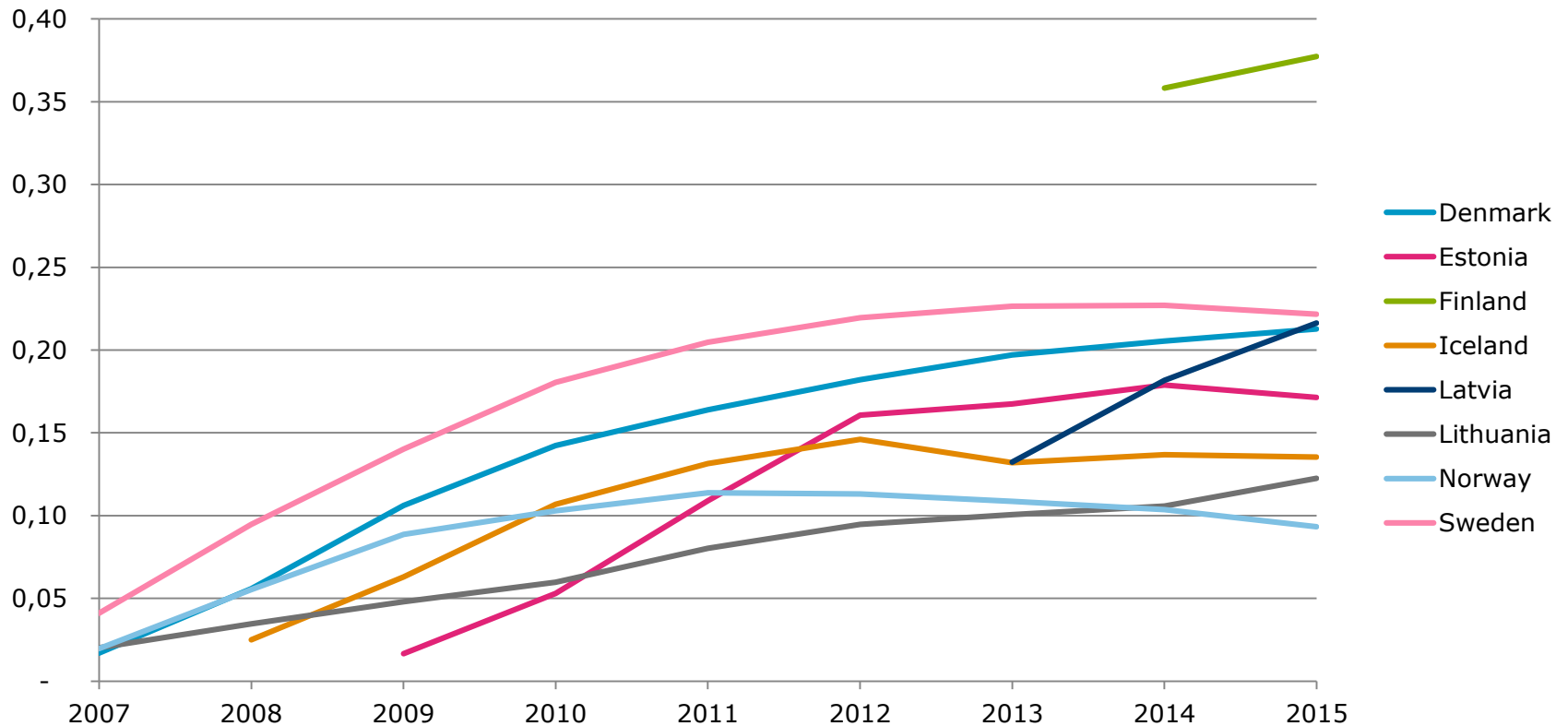
- Denmark still has most fixed broadband subscriptions per capita with a penetration of well over 40 percent. This share is over 25 percent in all of the countries. The number of fixed broadband subscriptions is still growing steadily in all countries except Finland.
- When comparing the penetration of dedicated mobile data subscriptions, Finland is well above the rest of the countries with 0,38 subscriptions per capita. Sweden, Latvia and Denmark have the second highest penetration of around 0,22.
- When adding the dedicated mobile broadband subscriptions to fixed broadband subscriptions, Finland has the highest broadband penetration rate with 0,69 subscriptions per capita. The total broadband penetration rate is growing other countries as well.

3.1 Fixed broadband subscriptions per capita



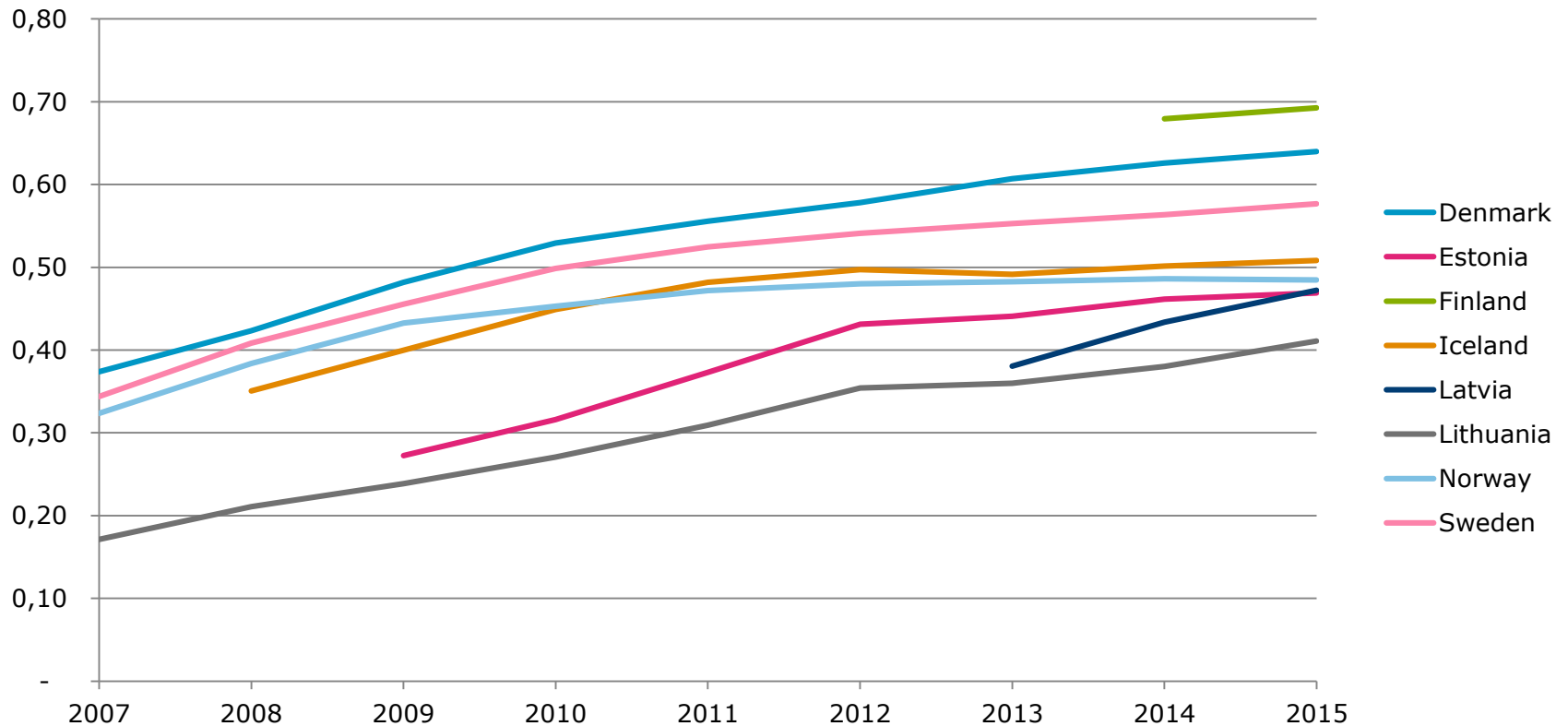
3.2 Number of dedicated mobile data subscriptions per capita

Subscriptions without traditional call and SMS/MMS-messaging services used for example via dongles and tablets



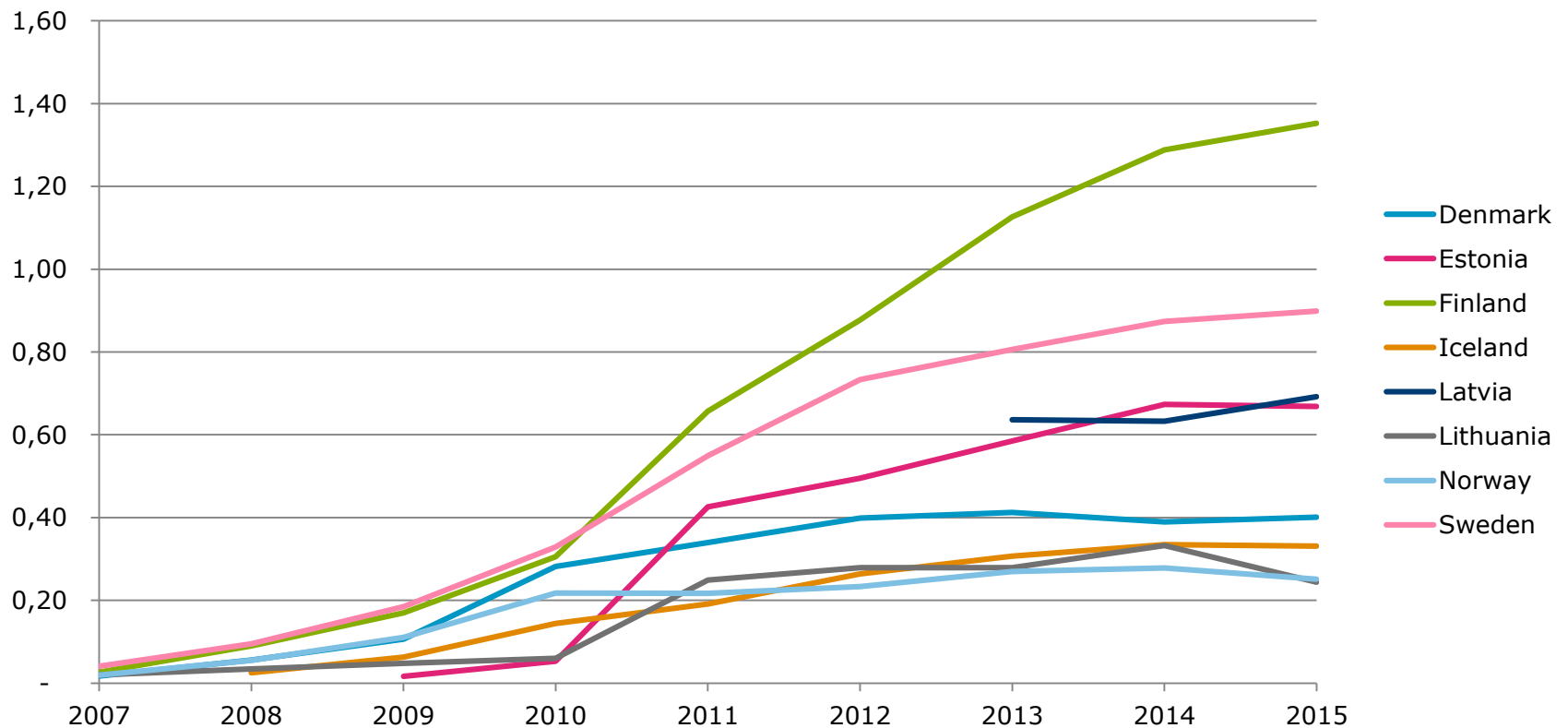
3.3 Total number of broadband subscriptions per capita

Includes all fixed broadband subscriptions and dedicated mobile data subscriptions in mobile network.



3.4 Total number of mobile broadband subscriptions per capita

Includes dedicated mobile data subscriptions and add-on data packages.

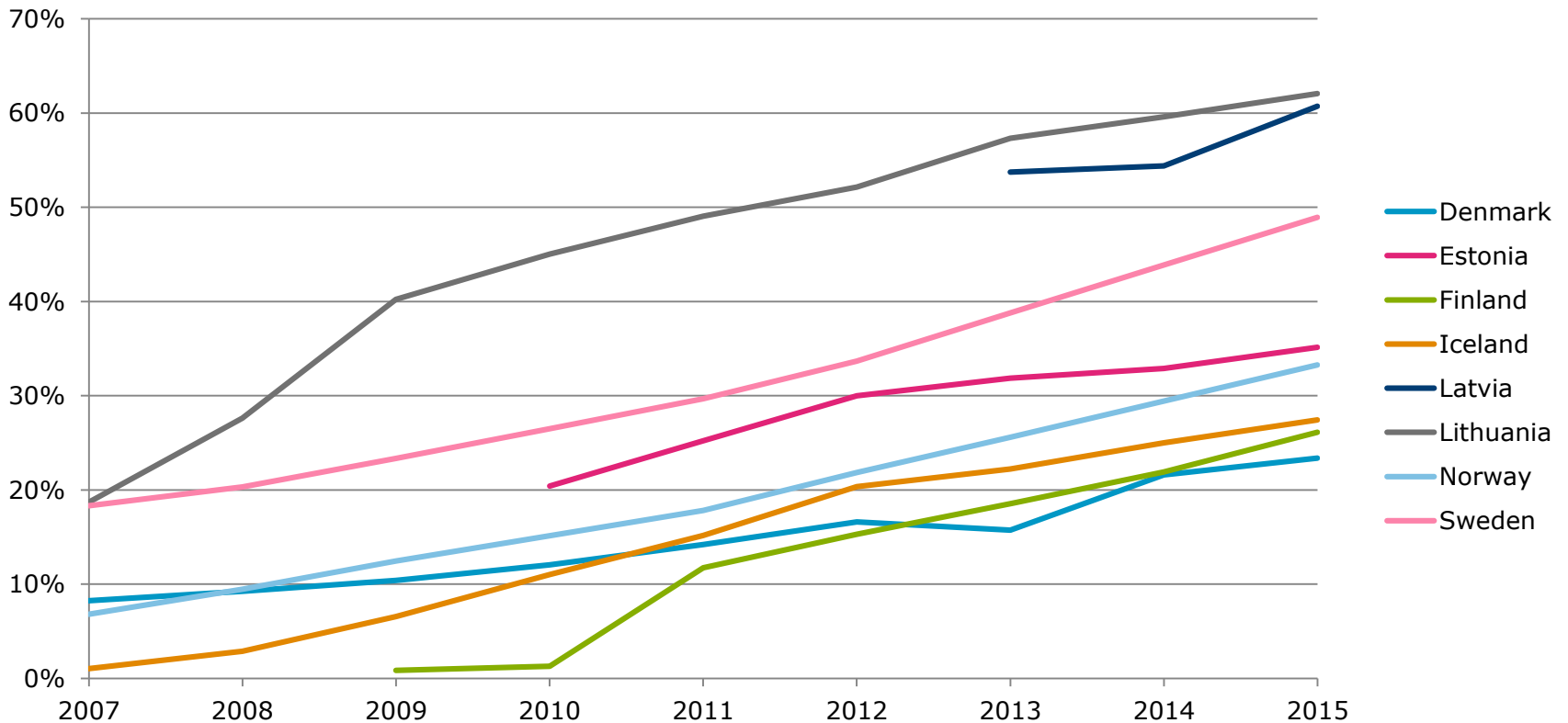


Development of faster broadband

- The share of fiber subscriptions of total fixed broadband subscriptions was highest in Lithuania and Latvia with over 60 percent in 2015, while Sweden as the third is closing in on the 50 percent mark.
- When it comes to broadband penetration for subscriptions with speeds of 100 Mbps or more downstream Sweden is well above the other countries. The penetration increased in all countries during 2015. The Swedish penetration rate for 100 Mbps reached 0,16 subscriptions per capita while the second highest penetration of 0,12 was found in Latvia. In the Nordic and Baltic countries combined there were 0,09 fixed broadband subscriptions with 100 Mbps per capita and the annual growth was 37 percent in 2015.
- Iceland is the only country where most of the fixed broadband connections are still via DSL technology, after the share dropped below 50 percent in Finland in 2015. In Latvia and Lithuania most of the connection are fiber. In Sweden the share of fiber connections is also close to 50 percent mark.

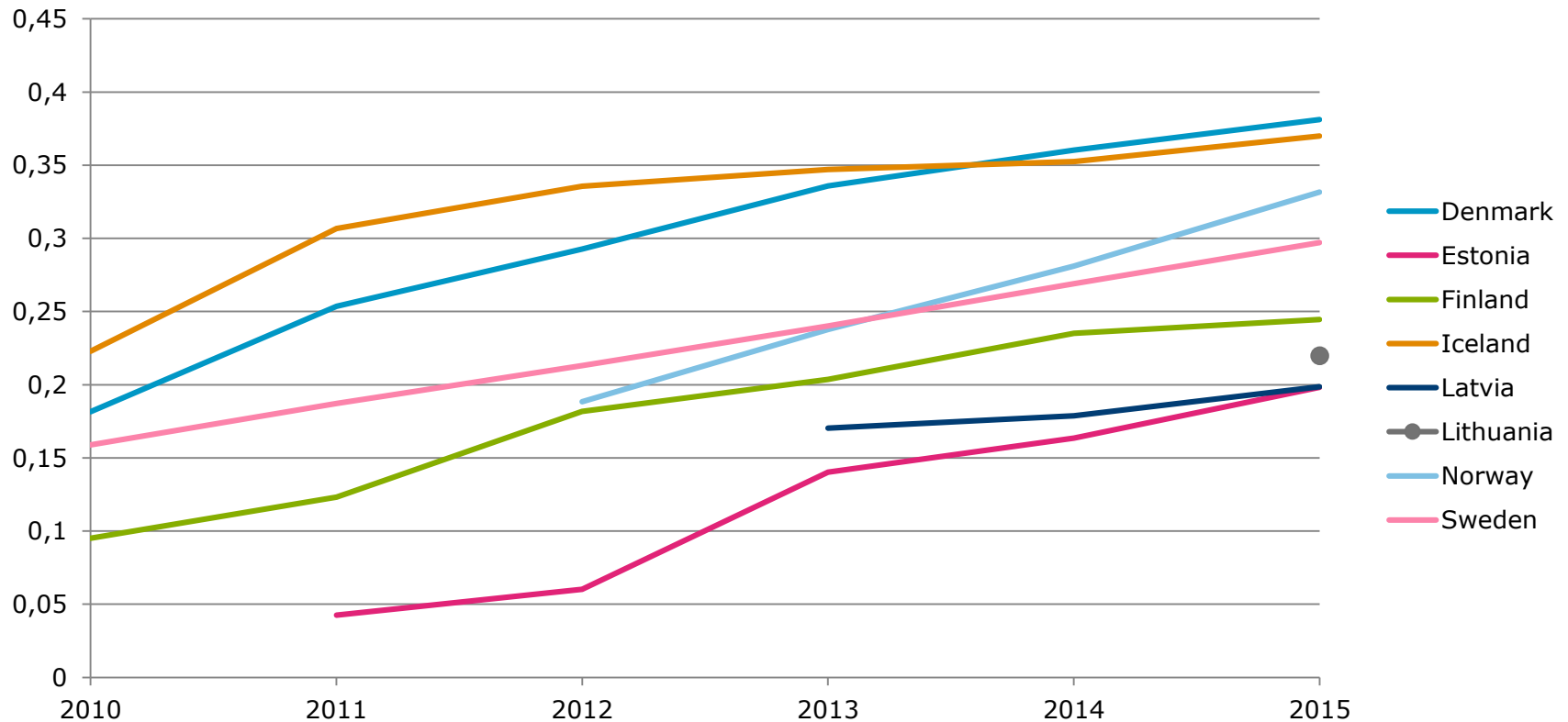
3.5 Share of fiber subscriptions of total fixed broadband subscriptions

Fiber includes fiber-LAN networks (LAN connected to fiber)



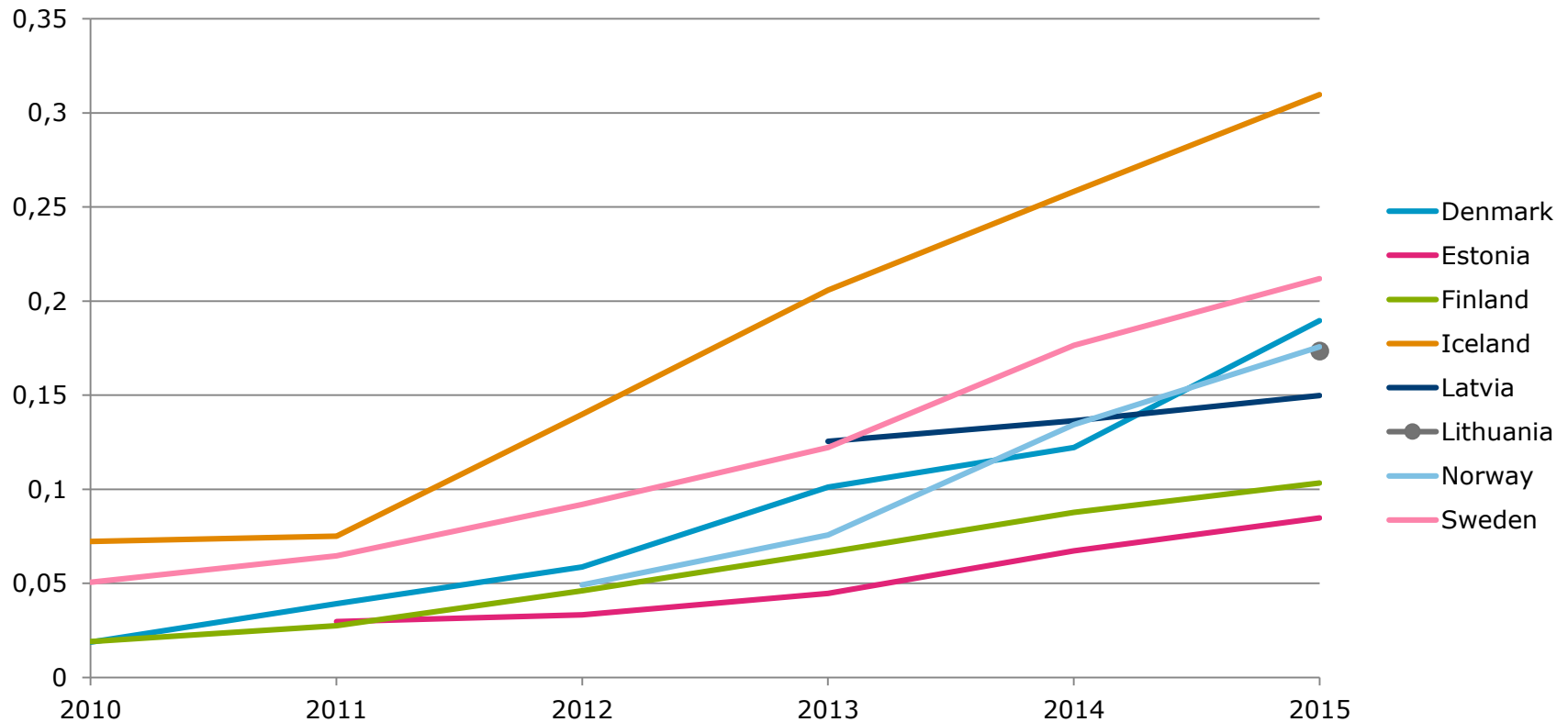
3.6 Fixed broadband subscriptions with a marketed downstream capacity of 10 Mbps or more per capita

Actual speed for xDSL subscriptions depends on factors like distance from the central exchange etc. This is the case in all countries.

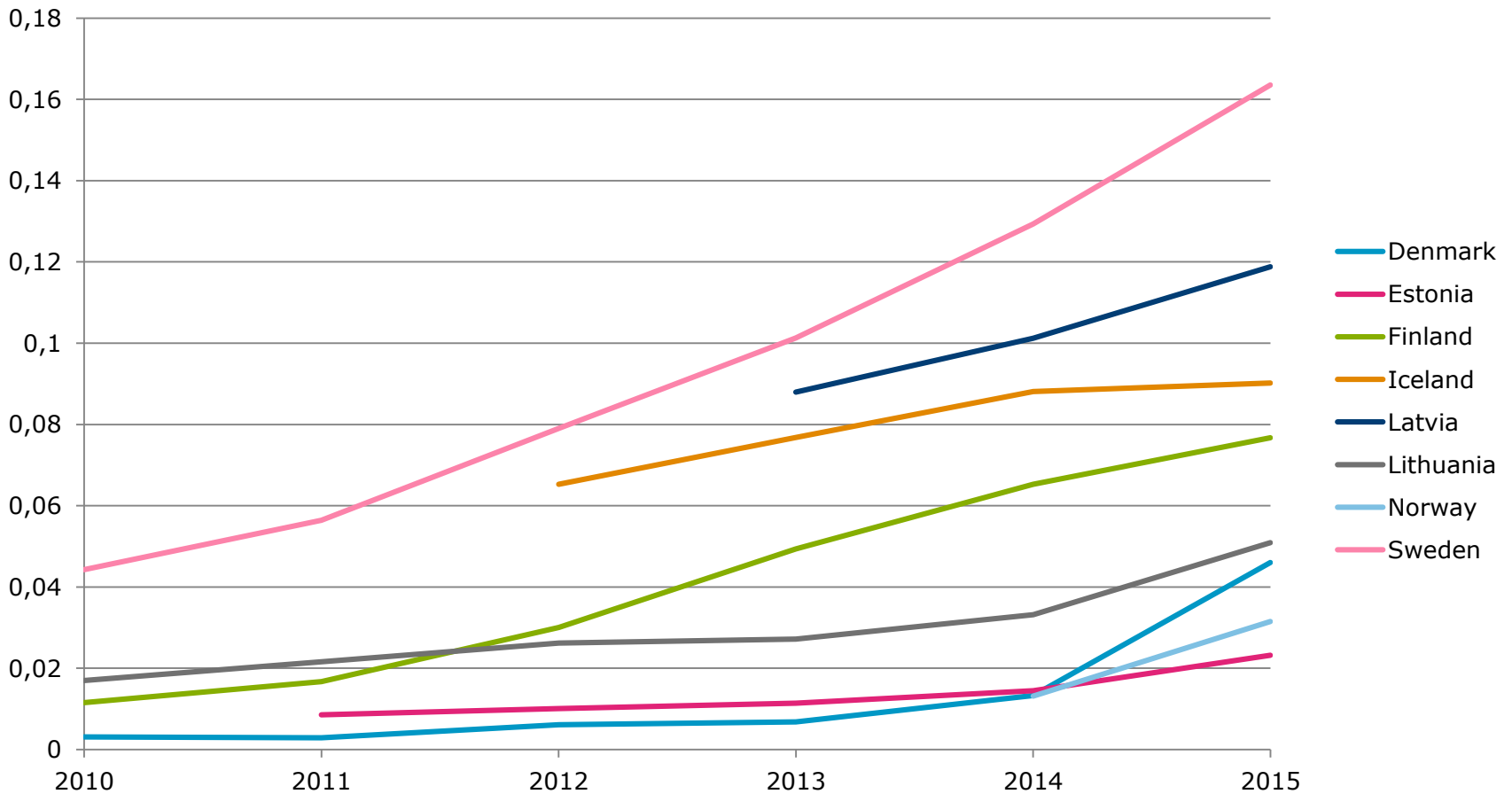


3.7 Fixed broadband subscriptions with a marketed downstream capacity of 30 Mbps or more per capita

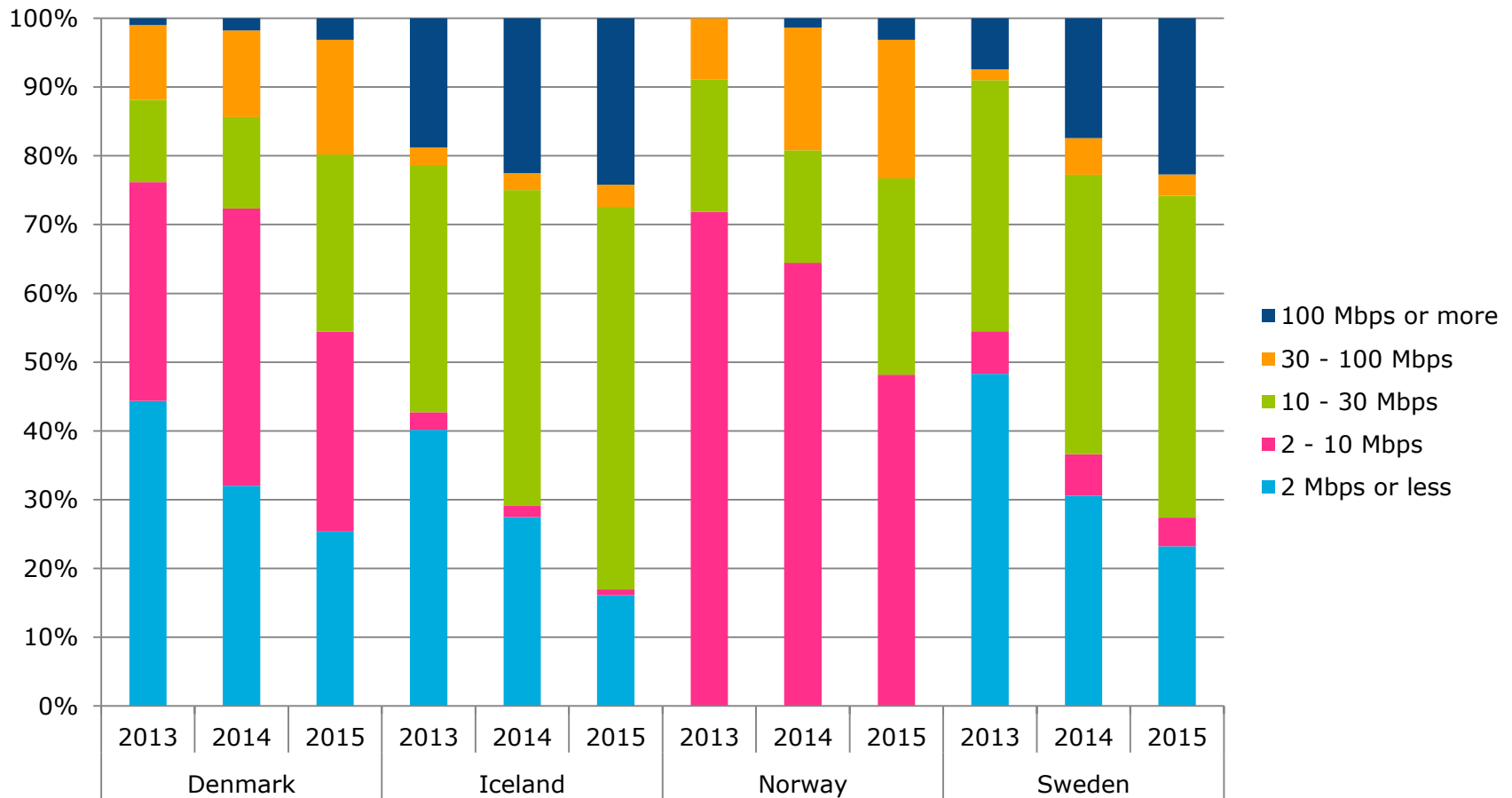
Actual speed depends on factors like distance from the central exchange etc. This is the case for xDSL subscriptions in all countries.



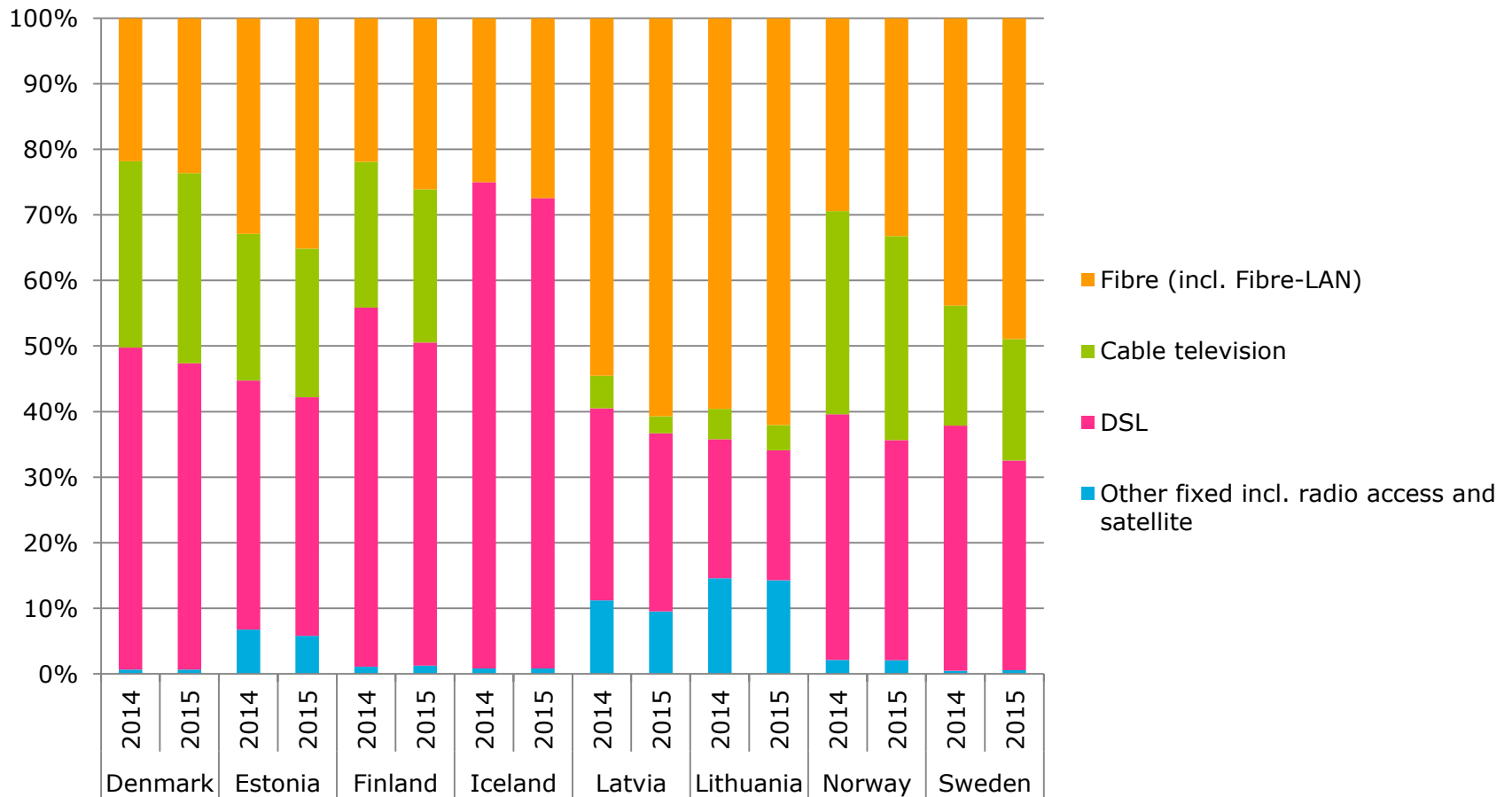
3.8 Fixed broadband subscriptions with a marketed downstream capacity of 100 Mbps or more per capita



3.9 Fixed broadband subscriptions by marketed upstream capacity



3.10 Fixed broadband subscriptions by connection technology





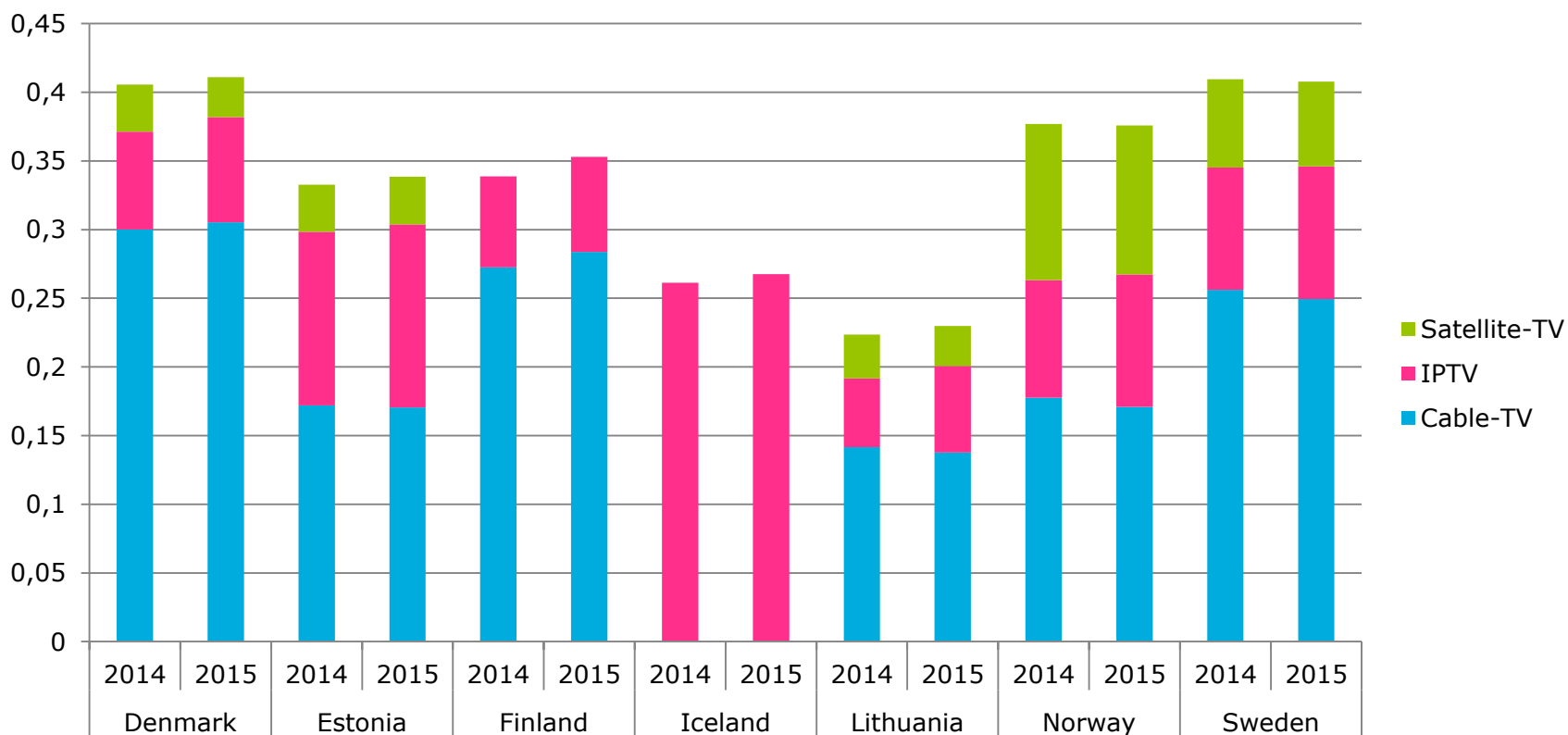
4. TV-services

TV-services

- In Denmark there are over 0,3 cable-TV subscriptions per capita (0,66 per household). The number of subscriptions is growing only in Denmark and Finland. Satellite-TV subscriptions are most common in Norway where despite continuous decline the number is still over 0,1 (0,24 per household) and much higher than in other countries.
- IPTV penetration is highest in Iceland where there is no cable-tv. On average 27 out of 100 Icelandic inhabitants (0,7 per household) have an IPTV subscription. Estonia is second with 13 out of 100 inhabitants (0,29 per household). The rest of the countries are rather close with rates from 6 to 10 subscriptions per 100 inhabitants (0,14-0,22 per household). The number is not available in Latvia but in all other countries the penetration is growing.

4.1 Number of Cable-TV, IPTV and Satellite-TV subscriptions per capita

Data is not available from Latvia and data of satellite-TV subscriptions is missing for Finland. Digital terrestrial TV is not included.

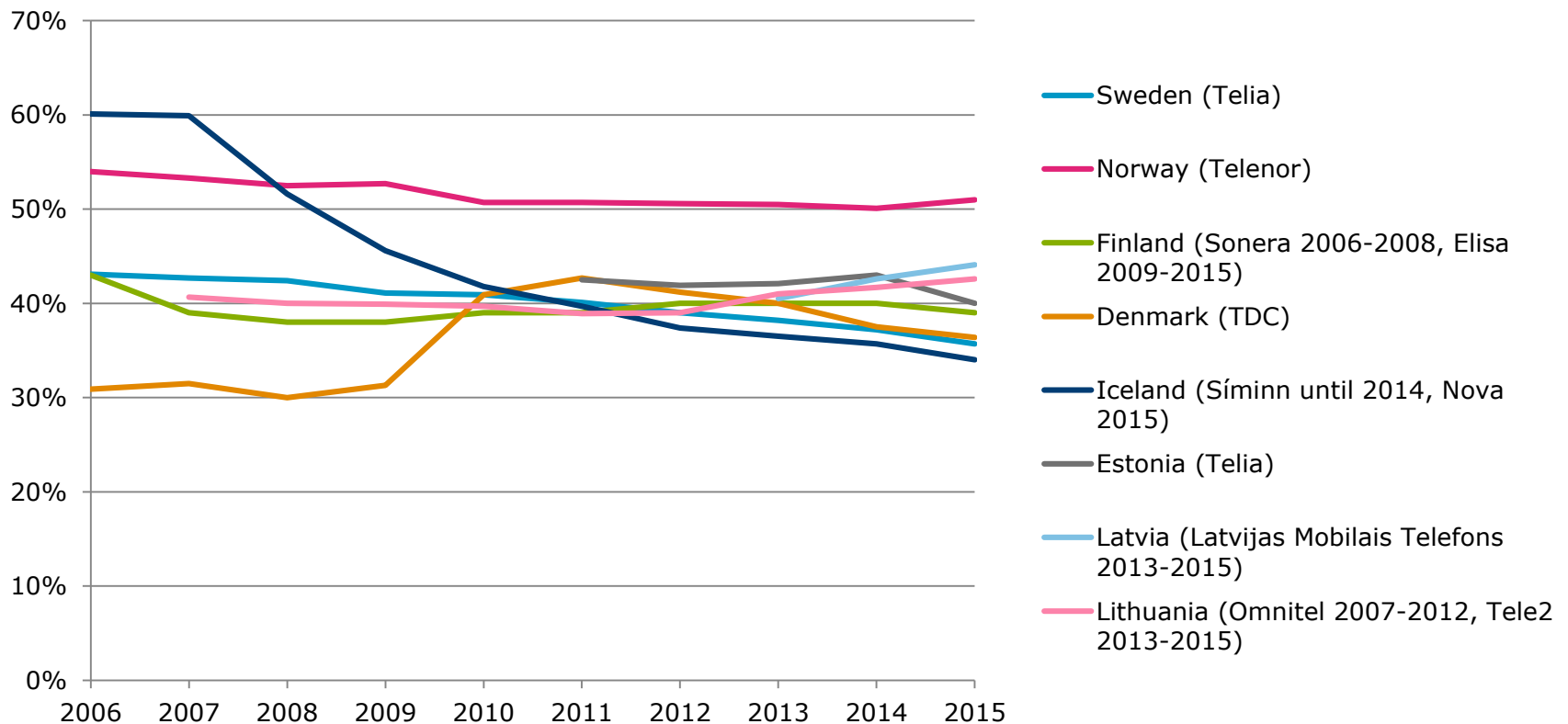




5. Market shares

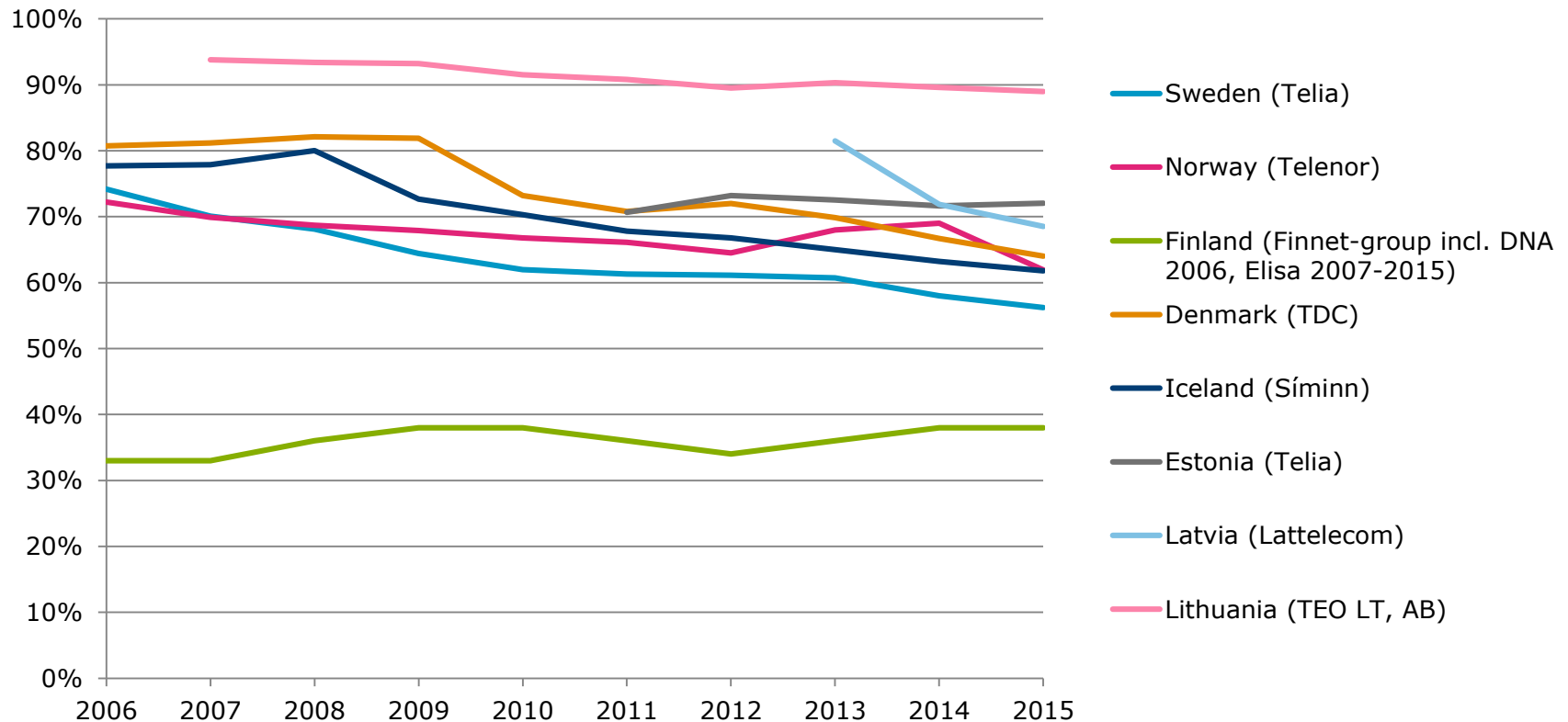
5.1 Market share of leading mobile operator

Operator with the biggest market share in the period based on subscriptions. Market share includes subsidiaries. Mobile subscriptions includes ordinary mobile subscriptions and dedicated data subscriptions.



5.2 Market share of leading operator in fixed telephony

Operator with the biggest market share in the period based on subscriptions. Market share includes subsidiaries. Fixed telephony subscriptions includes PSTN, ISDN and IP telephony subscriptions (VoIP).



5.3 Market share of leading operator in fixed broadband services

Operator with the biggest market share in the period based on subscriptions. Market share of subscriptions in the period. Market share includes subsidiaries. *In Finland leading operator: Elisa 2006-2009, 2013 and 2015, Telia Sonera Finland 2010-2011, 2012 and 2014 Telia Sonera Finland and Elisa are even.

