




Finnish Communications  
Regulatory Authority

FICORA market review 3/2010

**Bi-annual review**

**2010**

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**FICORA market review 3/2010:  
Bi-annual review 2010**

12/10/2010

## TABLE OF CONTENTS

|   |           |
|---|-----------|
| <b>1. INTRODUCTION .....</b>  | <b>3</b>  |
| <b>2. TELECOMMUNICATIONS MARKET .....</b>   | <b>4</b>  |
| <b>2.1 Broadband services .....</b>   | <b>4</b>  |
| <i>Broadband subscriptions and technologies .....</i>                                   | <i>4</i>  |
| <i>Broadband services and pricing .....</i>   | <i>6</i>  |
| <i>Customer service quality of broadband service providers .....</i>                    | <i>8</i>  |
| <b>2.2 Mobile services .....</b>  | <b>8</b>  |
| <i>Mobile services and pricing .....</i>  | <i>12</i> |
| <i>Quality of customer service in the mobile communications network .....</i>           | <i>12</i> |
| <b>2.3 Fixed telephone network services .....</b>                                       | <b>13</b> |
| <b>2.4 Revenues and investments .....</b>   | <b>15</b> |
| <i>Revenues .....</i>   | <i>15</i> |
| <i>Realized investments .....</i>   | <i>16</i> |
| <i>Investment opportunities and needs .....</i>   | <i>18</i> |
| <b>3. USE OF COMMUNICATIONS SERVICES AND AUDIOVISUAL<br/>CONTENT BY AGE GROUP .....</b> | <b>23</b> |

## 1. INTRODUCTION

The FICORA market bi-annual review 2010 presents central and topical market information depicting the telecommunications market in Finland. In addition to the key figures describing the voice call and broadband markets, the review gives information on telecom operators' investments, as well as their investment opportunities and needs. The use of communications services within different age groups is the special theme for the review.

The figures describing the voice call and broadband markets are based on the information FICORA has collected from telecom operators and public sources. FICORA has released information on investment monitoring annually in its bi-annual reviews since 2008. The section on investments examines the investment opportunities and needs of the 11 largest telecom operators based on their revenue. Furthermore, the investment behaviour of telecom operators and the key figures influencing it are compared with the median

figures of the telecommunications sector and, on the other hand, all Finnish companies. FICORA has received the adjusted financial statements used in the investment monitoring from Balance Consulting Oy and credit ratings from Suomen Asiakastieto Oy.

The special theme of the review comprises survey results from the use of communications services. Unlike the previously published surveys, this review examines the use of communications services by age group. The information on the consumption of communications services and audiovisual content are based on the following surveys commissioned and published by FICORA, as well as on the source material used for the surveys: Consumer survey on audiovisual content services 2009, Finns as users of communications services and Survey on the use of audiovisual content 2009.

## 2. TELECOMMUNICATIONS MARKET

### 2.1 Broadband services

#### *Broadband subscriptions and technologies*

The number of broadband subscriptions grew largely along with that of mobile broadband subscriptions. After the first half-year of 2010, there were nearly 2.7 million broadband subscriptions in Finland. Approximately 76 percent of the subscrip-

tions were used by residential customers and 24 percent by non-residential customers. In all, the number of subscriptions grew by more than 230,000 i.e. by about 9 per cent in 6 months.

| Year   | 2007             |                  | 2008             |                  | 2009             |                  | 2010  |
|--|------------------|------------------|------------------|------------------|------------------|------------------|-------|
| Date   | 31.12.           | 30.6.            | 31.12.           | 30.6.            | 31.12.           | 30.6.            | 30.6. |
| DSL  | 1 270 500        | 1 270 100        | 1 231 300        | 1 216 300        | 1 185 900        | 1 162 600        |       |
| Real estate and housing company subscription | 114 000          | 104 600          | 134 900          | 104 700          | 106 600          | 117 500          |       |
| Cable modem                                  | 209 600          | 212 900          | 214 800          | 215 500          | 222 700          | 229 600          |       |
| Mobile broadband                             | 143 100          | 307 100          | 479 700          | 664 300          | 908 000          | 1 152 200        |       |
| Wireless broadband                           | 15 300           | 19 600           | 26 100           | 31 600           | 31 800           | 30 100           |       |
| FTTH   |                  |                  |                  |                  | 12 600           | 14 500           |       |
| Other*                                       | 7 700            | 9 000            | 9 800            | 11 500           | 6 000            | 800              |       |
| <b>Total</b>                                 | <b>1 760 200</b> | <b>1 923 300</b> | <b>2 096 600</b> | <b>2 243 900</b> | <b>2 473 600</b> | <b>2 707 300</b> |       |

\*The "Other" group includes subscriptions that cannot be directed to the above-mentioned technology categories. The changes may partly be due to the specification of the reporting, which allows a better itemization of technologies.

Table 1: Development of broadband connections 2007-2010

TeliaSonera Oyj emerged as the market leader based on subscription volumes in late 2009, and six months later, TeliaSonera was still the largest company offering broadband services with a market share of 34 per cent. Whereas Elisa Oyj's market share was around 30, DNA Ltd's around 18, with the Finnet group companies' combined share coming to 10 per cent.

TeliaSonera's market share rose by two percentage points since the end of 2009. DNA's market share stayed at 18 per cent, and the share of Elisa and Finnet Group each dropped by one percentage point. The total market share of other companies providing broadband services stood still at eight per cent.

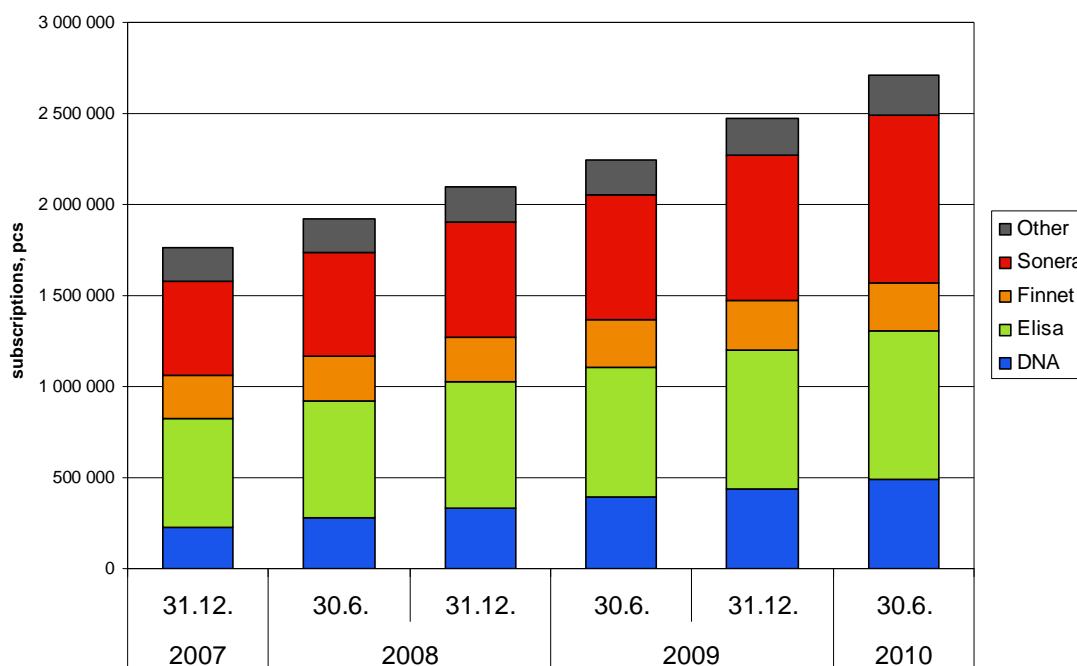


Figure 1: Broadband connections and market shares of operator groups 2007-2010

The first half of 2010 saw the transfer to the use of faster broadband connections. At the end of the first half of 2010, about 52 per cent of all broadband connections had a download speed of 2 Mbps or more. Approximately 13 per cent of broadband subscriptions had a download speed of 10 Mbps or more, with two per cent of subscriptions having a download speed of 100

Mbps or more. The share of connections without mobile broadband subscriptions of 2 Mbps or faster was about 70 per cent, and that of connections of 10 Mbps or faster was 23 per cent, and that of connections of 100 Mbps or faster was three per cent. Approximately 74 per cent of mobile broadband subscriptions had a download speed of less than 2 Mbps.

| Year                                     | 2007   | 2008  |        | 2009  |        | 2010  |
|--|--------|-------|--------|-------|--------|-------|
| Date                                     | 31.12. | 30.6. | 31.12. | 30.6. | 31.12. | 30.6. |
| Less than 2Mbit/s                        | 70 %   | 54 %  | 40 %   | 43 %  | 39 %   | 30 %  |
| 2Mbit/s - less than 4Mbit/s              | 26 %   | 40 %  | 50 %   | 47 %  | 26 %   | 22 %  |
| 4Mbit/s - less than 10Mbit/s             |        |       |        |       | 19 %   | 25 %  |
| 10Mbit/s or more, but less than 25Mbit/s | 4 %    | 6 %   | 9 %    | 9 %   | 14 %   | 19 %  |
| 25Mbit/s - less than 100Mbit/s           |        |       | < 1 %  | < 1 % | 1 %    |       |
| 100Mbit/s or more                        |        |       | 1 %    | 1 %   | 2 %    | 3 %   |

Table 2: Development of fixed broadband connection speeds 2007-2010

Broadband subscriptions based on ADSL or other DSL technology was most prevalent, but subscriptions based on DSL technology outnumbered the number of mobile broadband subscriptions by only 10,000 items. The number of broadband subscriptions based on DSL technology fell by approximately 23,000 subscriptions during the first half-year. Respectively, the number of mobile broadband subscriptions grew by approximately 245,000. Percentually, both broadband subscrip-

tions and mobile broadband subscriptions based on DSL technology represented approximately 43 per cent of all broadband subscriptions. The share of cable modem subscriptions dropped by one percentage point to eight per cent, although the number of cable modem subscriptions grew by almost 7,000 subscriptions. Also, the share of real estate and housing company subscriptions dropped by one percentage point to four per cent, although they also grew by almost 11,000 subscriptions.

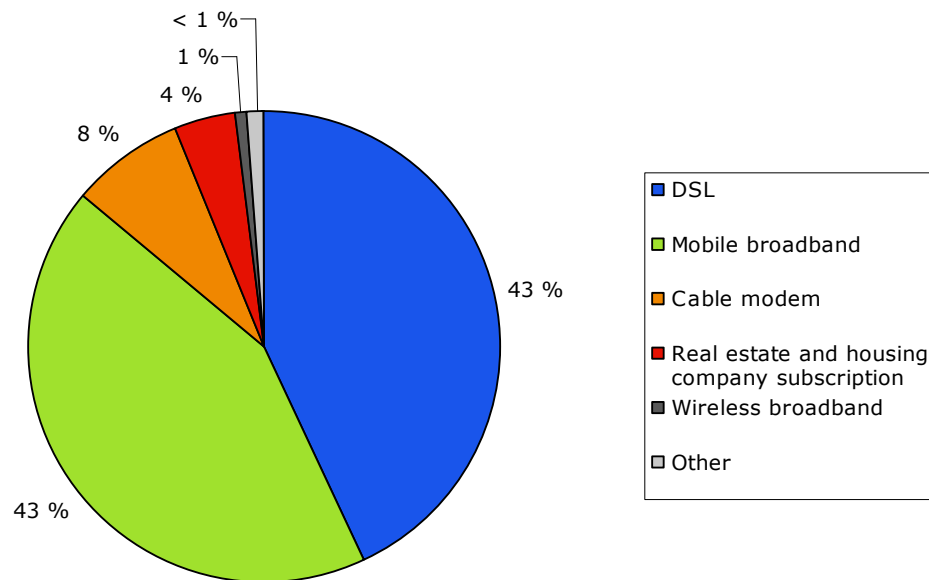


Figure 2: Broadband subscriptions by type, 30 June 2010

### **Broadband services and pricing**

The decline of the monthly charges of broadband subscriptions accelerated somewhat during the first half-year. Especially the prices of the fastest fixed broadband subscriptions dropped. The prices of

wireless subscriptions excluding mobile broadband subscriptions dropped, but the list prices of mobile broadband subscriptions remained stable. In July 2010, the rise in VAT from 22 per cent to 23 per cent entered into force causing a small price rise. Nearly all service providers

have passed the rise directly on to consumers through subscription prices. In July 2010, the average monthly charge of a fixed or wireless broadband subscription with a theoretical download speed of 2 Mbps was EUR 39. The monthly charge of a mobile broadband subscription with corresponding download speed was considerably lower, less than EUR 30 on the average.

Increasingly more often, telecom operators market broadband services through price campaigns offering broadband subscriptions at a much lower monthly

charges than the list prices. Broadband subscriptions sold as special offers are normally tied to fixed-term agreements as list pricing is basically based on agreements that are valid until further notice.

Price campaigns and special offers are part of the telecom operators' competition over customers. For example, in the spring of 2010, there was price competition through price campaigns and fixed-term agreements regarding mobile broadband subscriptions and the fixed broadband subscriptions in the greater Helsinki area.

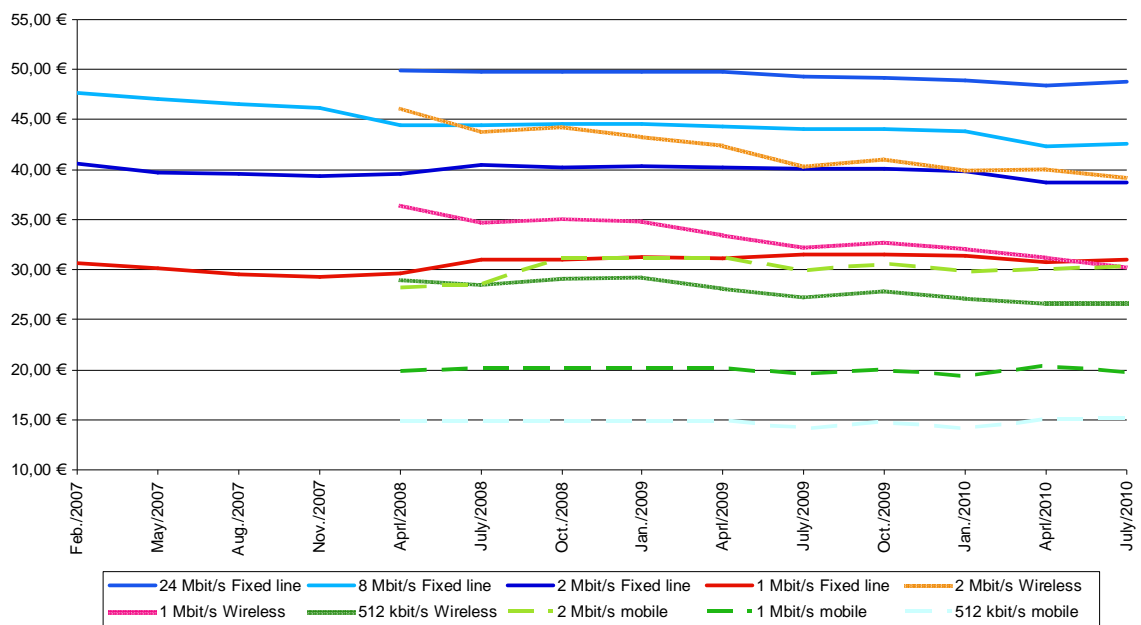


Figure 3: Development of list prices for broadband subscriptions, 02/2007 - 07/2010.

## Customer service quality of broadband service providers

In the first half of the year, the response times of the largest telecom operators providing broadband services remained largely at the same level as in the latter

half-year of 2009. The response times of nearly all telecom operators were under three minutes. On average, calls made to small telecom operators were still picked up faster than those made to larger telecom operators' customer services.

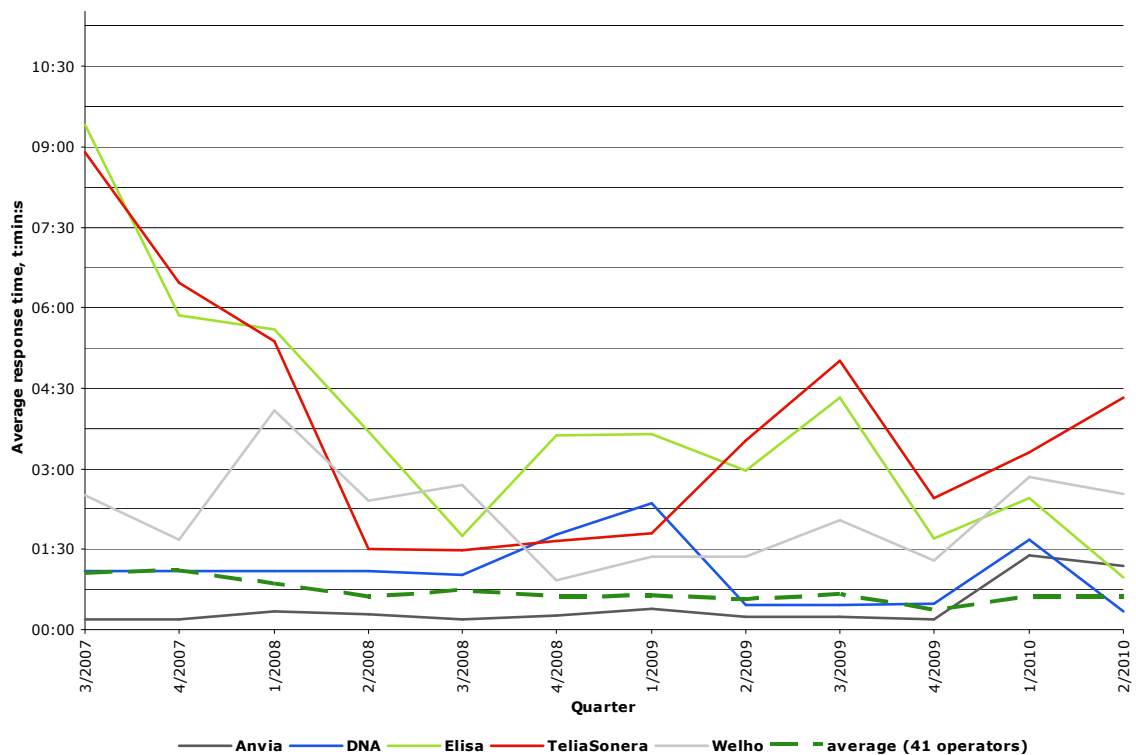


Figure 4: Broadband operators' response times.

## 2.2 Mobile services

During the first half-year of 2010, the number of mobile subscriptions grew by approximately five per cent or 370,000 subscriptions. A significant part of the growth is based on new mobile broadband subscriptions primarily meant for data

transmission. At the end of June, there were as many as eight million or more mobile subscriptions in Finland. The majority of them - about 78 per cent - were used by residential customers.

The share of prepaid subscriptions of all mobile subscriptions remained at around 10 per cent. The number of valid tied-in subscription agreements totalled 1.6 million. Over six months, the share of tied-in

subscriptions grew by more than 20 per cent, which is nearly 300,000 subscriptions. The share of tied-in subscriptions over all mobile subscriptions was about 20 per cent.

| Year                  | 2007          |               | 2008          |               | 2009          |               | 2010         |
|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
| Period                | July-December | January-June  | July-December | January-June  | July-December | January-June  | January-June |
| Mobile subscriptions  | 6 080 000     | 6 430 000     | 6 830 000     | 7 280 000     | 7 700 000     | 8 070 000     |              |
| Telephone calls (no.) | 2 467 000 000 | 2 472 000 000 | 2 490 000 000 | 2 439 000 000 | 2 547 000 000 | 2 533 000 000 |              |
| Call minutes          | 6 859 000 000 | 7 233 000 000 | 7 315 000 000 | 7 479 000 000 | 7 641 000 000 | 7 900 000 000 |              |

Table 3: Development of mobile subscription and phone call volumes 2007-2010

Based on subscription volumes, Elisa remained as the market leader, but Teli-aSonera somewhat reached Elisa. At the end of June 2010, Elisa's market share was 38 percent and Teli-aSonera's 37 percent, while the corresponding figures at year-end 2009 stood at 38% and 36%.

The market share of DNA, the third largest operator by market share, resumed its 2009 first-half level of 23 per cent after having jumped one percentage point higher at the end of 2009. The combined market share of other operators remained at two per cent.

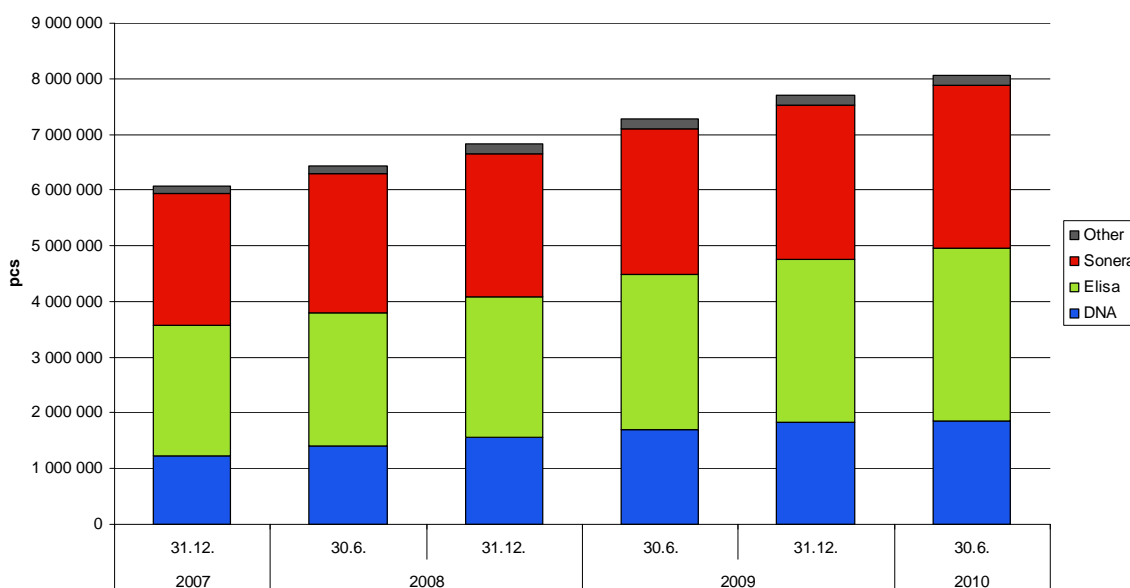


Figure 5: Mobile subscriptions and market shares 2007-2010

According to the number portability statistics of Numpac Oy, during the first half of 2010, there was a decline of seven per cent in number portability compared to the corresponding time period in 2009. A total of 290,000 mobile phone numbers were transferred over the first half of 2010. Proportioned to subscription volumes, a total of 3.6 numbers were transferred per 100 subscriptions whereas the corresponding figure for the same period in 2009 was 4.2 per 100 subscriptions.

The number of calls made remained roughly at the level of the end of 2009, but the volume of call minutes made increased by three per cent during the first half of 2010. The duration of an average mobile call reached to as many as three minutes and seven seconds, whereas it was approximately five seconds shorter six months earlier.

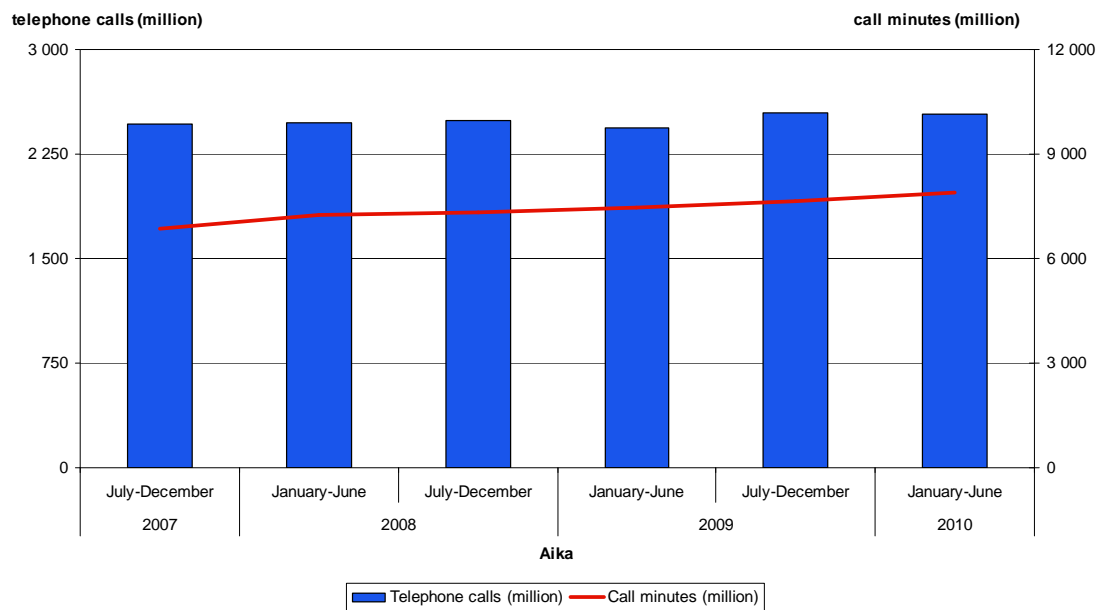


Figure 6: Mobile calls 2007-2010

During the first half of 2010, 1.9 billion text messages were sent, which was about one per cent less than the previous half-year period. The number of sent mul-

timedia messages remained at the same level as in the latter part of 2009, which was slightly less than 20 million pieces.

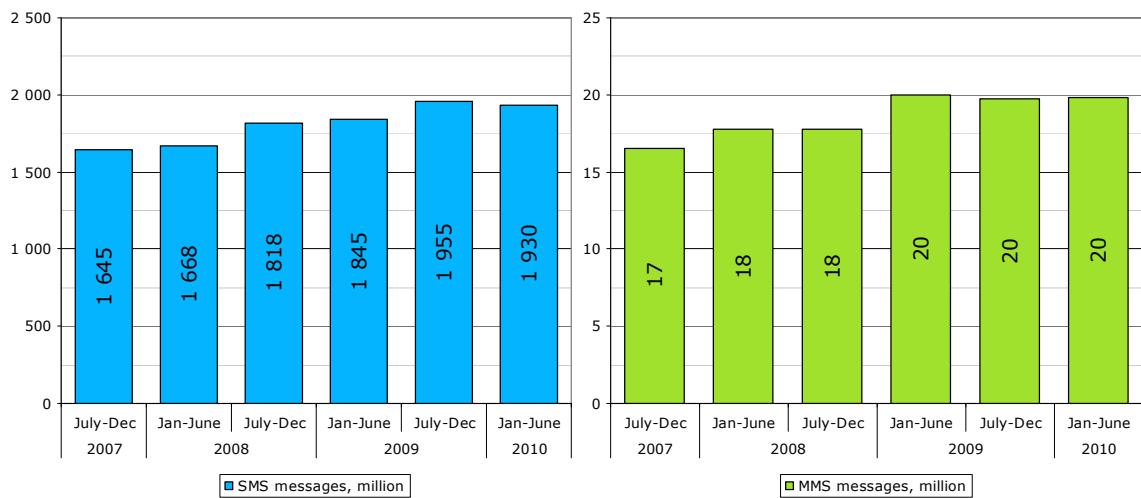


Figure 7: SMS and MMS messages sent in 2007-2010

| Year                  | 2007          |              | 2008          |              | 2009          |              | 2010         |
|-----------------------|---------------|--------------|---------------|--------------|---------------|--------------|--------------|
| Period                | July-December | January-June | July-December | January-June | July-December | January-June | January-June |
| Mobile subscriptions  | 1 645         | 1 668        | 1 818         | 1 845        | 1 955         | 1 930        | 1 930        |
| Telephone calls (no.) | 17            | 18           | 18            | 20           | 20            | 20           | 20           |

Table 4: SMS and MMS messages sent in 2007-2010 (million pieces)

Data traffic volumes in mobile networks continued to increase strongly. The data volume transferred in mobile networks was 30 per cent greater in the first half of 2010 than that in the latter half of 2009.

During the first half-year of 2010 alone, a total of 13,000 terabytes were transferred in the mobile networks, whereas the volume was 16,000 for the entire year in 2009.

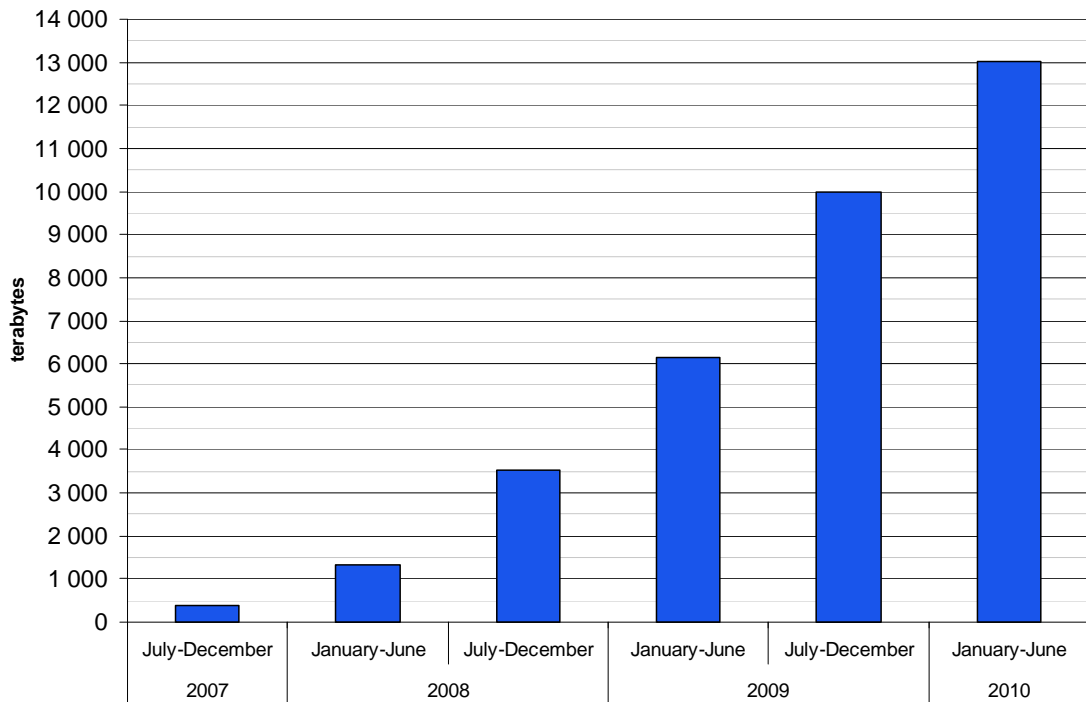


Figure 8: Data volume transferred over mobile networks 2007-2010

### **Mobile services and pricing**

The list prices of mobile calls and communications services are well-established. The price changes have mainly taken place in the form of different voice call and text message packages and other additional benefits. Nearly all service providers had taken into consideration the rise in the VAT that entered into force in July 2010 and passed it on to their price lists by raising prices.

The prices of basic data transmission services connectible to mobile phones have declined due to price competition in mobile broadband subscriptions. Often, it is

advisable that users acquire a data transmission service at a fixed monthly charge if they use their mobile phones for active data transmission, such as reading e-mail and browsing web pages.

### **Quality of customer service in the mobile communications network**

During the first half of 2010, the response times of telecom operators offering mobile services still developed positively compared to the situation at the end of 2009. Over the first two quarters of 2010, the average response times of mobile operators remained below three minutes.

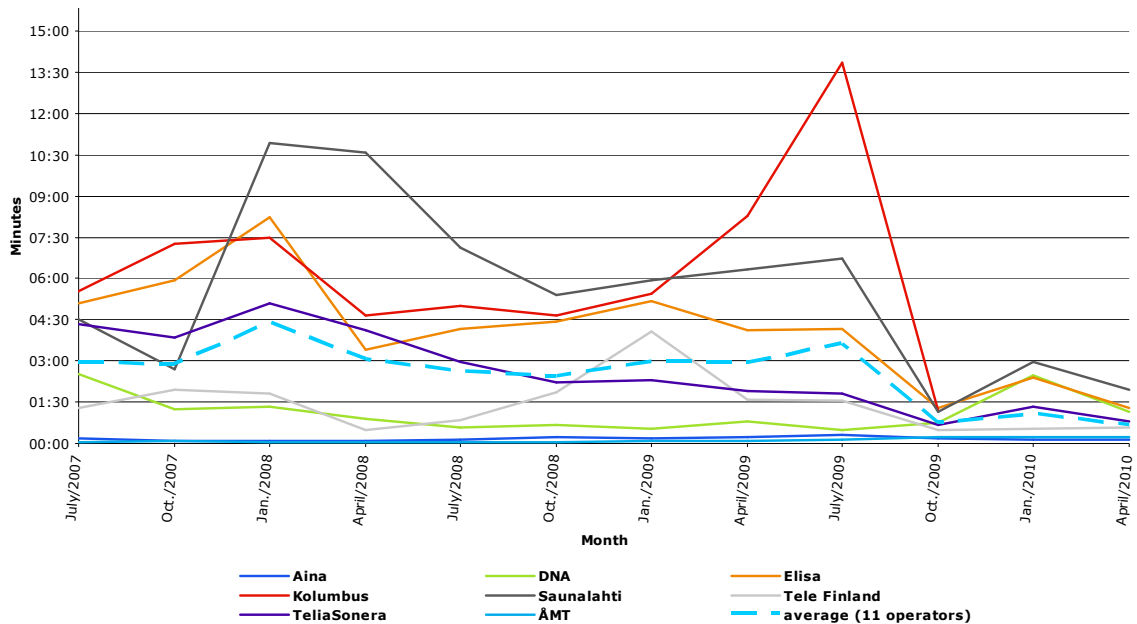


Figure 9: Response times of mobile operators' customer service

### 2.3 Fixed telephone network services

The use of fixed telephone network services continued to fall in the first half of 2010 when the number of fixed subscriptions dropped by approximately six per cent. At the end of June 2010, the number of fixed-line telephone subscriptions in Finland totalled less than 1.4 million. The

figure includes not only the traditional fixed network subscriptions, but also the VoIP subscriptions which are subject to a fee and provided by telecom operators. The number of VoIP subscriptions underwent little change during the first part of the year.

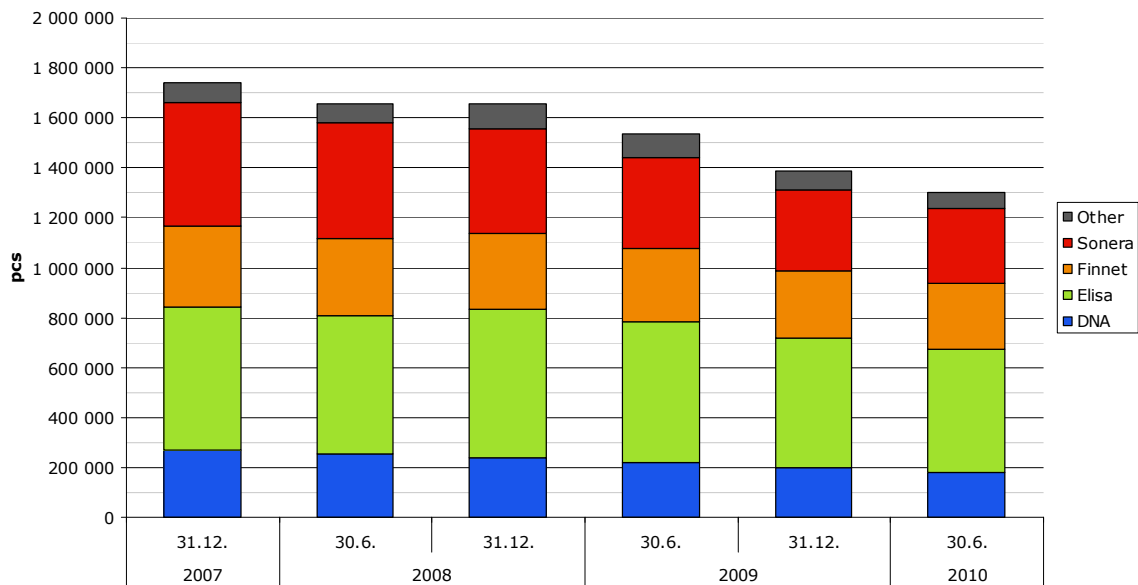


Figure 10: Fixed-line subscriptions and market share by operator group in 2007-2010.

At the end of June of 2010, based on subscription volumes, Elisa was the market leader, holding a market share of 38 per cent. TeliaSonera's market share was 22, Finnet Group's 20 and DNA's 14 per cent. There were no significant changes in the market shares. The market share of Fin-

net Group grew by one percentage point and that of TeliaSonera's dropped by one percentage point. The market shares of Elisa and DNA remained at the 2009 level. The combined market share of other independent operators' service remained at six per cent.

| Year                   | 2007          |               | 2008          |               | 2009          |              | 2010          |              |
|------------------------|---------------|---------------|---------------|---------------|---------------|--------------|---------------|--------------|
| Period                 | July-December | January-June  | July-December | January-June  | July-December | January-June | July-December | January-June |
| Fixed-line connections | 1 740 000     | 1 650 000     | 1 650 000     | 1 530 000     | 1 430 000     | 1 350 000    | 1 350 000     | 1 350 000    |
| Telephone calls (no.)  | 495 000 000   | 458 000 000   | 409 000 000   | 363 000 000   | 329 000 000   | 304 000 000  | 304 000 000   | 304 000 000  |
| Call minutes           | 1 827 000 000 | 1 644 000 000 | 1 396 000 000 | 1 244 000 000 | 1 077 000 000 | 998 000 000  | 998 000 000   | 998 000 000  |

Table 5: Development of fixed-line connection and phone call volumes 2007-2010

Similar to previous half-years, the voice call minutes and volumes of the fixed telephone network have dropped more strongly than the subscription volume. Call minutes made from the fixed network

dropped by seven per cent during the first half of 2010 and call volumes by less than eight per cent. Thus, the average duration of a call was three minutes and 17 seconds.

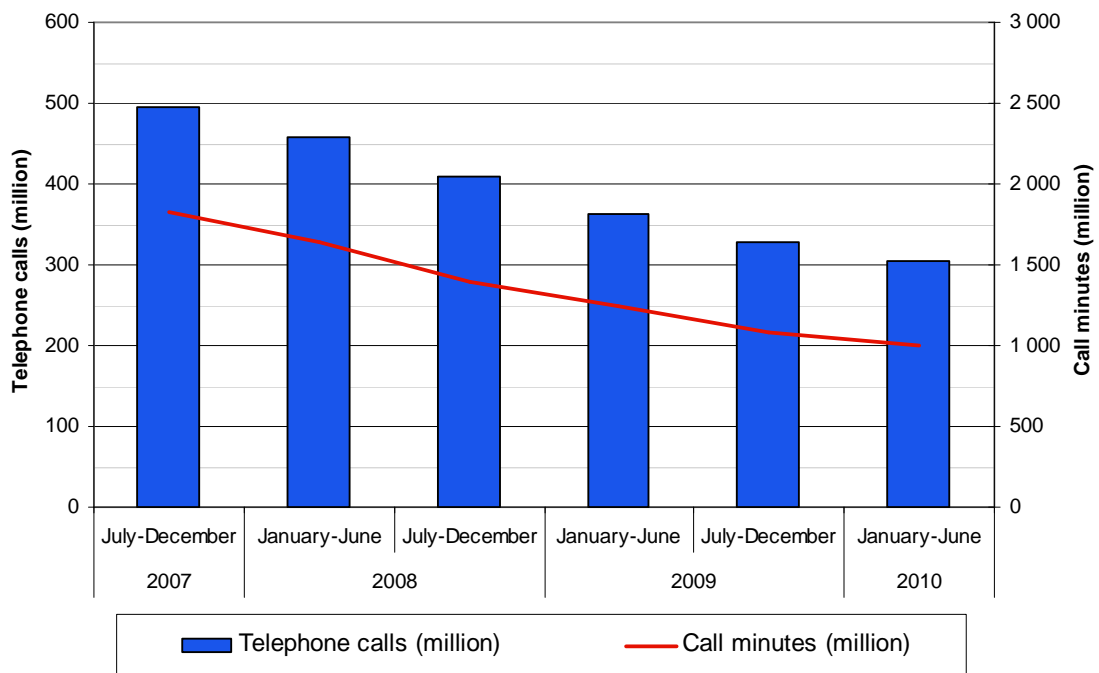


Figure 11: Phone calls in the fixed-line network 2007-2010

## 2.4 Revenues and investments

### Revenues

The combined turnover of telecom operators with activities in Finland was more than 4.7 billion in 2009. Of this, more than 80 per cent or less than 3.8 billion euros consisted of the turnover of the wholesale and retail services in the fixed-line and mobile networks. The remaining 0.9 billion euros consisted of e.g. device sales and cable television operations. The turnover from the telephone network was divided so that the turnover from mobile telephone network was about 55 per cent and that from the fixed telephone network

was 45 per cent. When examining turnover from retail services, the difference is smaller with the turnover from mobile telephone services being 52 per cent and that of fixed-line services 48 per cent.

The revenue from retail services totalled 2.9 billion euros, of which a third came from data transmission services. The data transmission services in the fixed-line network accounted for half the turnover whereas their share in the mobile network was only slightly more than one tenth. Nearly half of the retail service turnover consisted of services sold to residential

customers and the rest of the services were sold to non-residential customers. The majority of the turnover from residential customers consisted of mobile network services whereas the majority of the turnover from non-residential customers came from fixed-line services.

Slightly less than a fourth of the telecommunications network turnover consisted of wholesale sales. The revenue from mobile wholesale services were 0.6 billion euros, which is clearly more than that from the fixed telephone network - yielding a reve-

nue of 0.3 billion euros. Wholesale services are services that telecom operators sell to each other, and which are used for the provision of other telecom services. Therefore, if a telecom operator wants to provide a fixed internet access service in the area of a telecommunications network owned by another telecom operator, it has to lease a wholesale product from the telecom operator in the area. In addition to the leasing of networks, interconnection fees form another significant wholesale instalment.

| Turnover (EUR mil.)                         | 2009         |
|---|--------------|
| <b>Telecom operators' combined turnover</b> | <b>4 730</b> |
| Revenue from fixed telecom network          | 1 690        |
| Revenue from retail services                | 1 410        |
| Revenue from wholesale services             | 280          |
| Revenue from mobile network                 | 2 100        |
| Revenue from retail services                | 1 500        |
| Revenue from wholesale services             | 600          |
| Total revenue from other operations*        | 940          |

\* other operations include revenue from cable TV, TV and radio programmes distribution services, device sales and other operations.

Table 6: Telecom operators' turnover in 2009

### **Realized investments**

Telecom operators invested in fixed assets and other non-current investments in 2009, totalling 580 million euros. The total investments were approximately 12.3 per cent of the total turnover of telecom operators. The investments include both tangible and intangible investments.

Approximately 380 million euros were invested in telecom networks, of which about 60 per cent in fixed telecom networks and about 40 per cent in mobile networks. In addition to telecom networks, telecom operators invest among other things in television networks and in the provision of ancillary and supplementary services.

| Investments (EUR mil.)   | 2009       |
|--|------------|
| <b>Investments in fixed assets and other long-term investments</b> | <b>580</b> |
| Investments in telecom networks                                    | 380        |
| Investments in fixed telecom network                               | 230        |
| Investments in mobile network                                      | 150        |
| Other investments  | 200        |

Table 7: Telecom operators' tangible and intangible investments in 2009

Investments in the telecom branch are long-term and they are made in cycles of more than one year. Therefore, the investment development should also be assessed over the long-haul. The share of telecom operators' tangible investments compared to total turnover has varied in 2003-2005 from more than 11 per cent to 13 per cent, whereas the share has remained at 10 per cent in 2006-2008. On

the other hand, when tangible investments made in telecom networks are compared to the revenue from it, the annual fluctuation has not been as great. The tangible investments made in 2003-2004 in money were, however, much greater than those made annually in the years following.

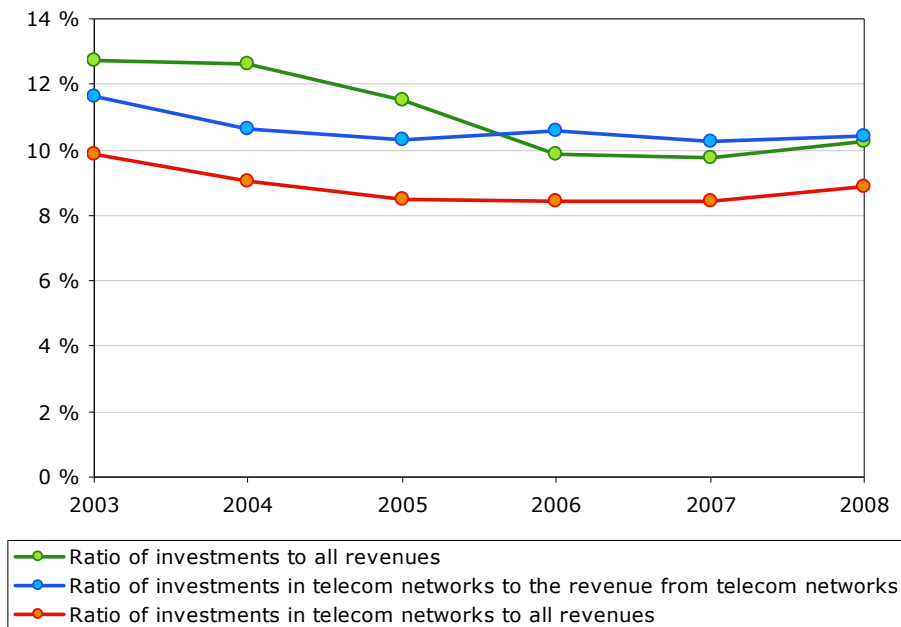


Figure 12: The ratio of telecom operators' tangible investments 2003-2008. (Source: Statistics Finland, Telecommunications statistics).

## Investment opportunities and needs

All Finnish telecommunications operators are the target group of FICORA's monitoring of investments. The 11 largest telecom operators, measured by telecom operations turnover and overall turnover, were selected for closer inspection in the investment monitoring. The combined telecommunications turnover of these operators is 90 per cent of the telecommunications turnover of all Finnish telecom operators. Therefore, a comprehensive picture of the investment behaviour of the entire branch is reached by examining the financial figures of them.

The operators selected for the investment monitoring are in the order of overall turnover: TeliaSonera Finland Oyj (hereinafter TSF), Elisa Corporation (Elisa), DNA Group (DNA), Sanoma Television Ltd (Sanoma), Anvia Group (Anvia), Pohjanmaan Puhelin PPO Group (PPO), TDC Ltd Finland (TDC), Digita Ltd (Digita), Aina Group (Aina), Kymen Puhelin Oy (KYMP), and Salon Seudun Puhelin Group (SSP). In the future, FICORA will monitor the investment opportunities and needs of the largest telecom operators as well as changes occurring to them. All gross amount investments are included in investments, and investments are not separated into tangible and intangible investments.

| Final accounts information 2009, M C                | T-S <sup>1</sup> | Elisa | DNA  | Sanoma | Anvia | PPO  | TDC  | Digita <sup>2</sup> | Aina  | KYMP | SSP  |
|---|------------------|-------|------|--------|-------|------|------|---------------------|-------|------|------|
| turnover  | 3 114            | 1 430 | 652  | 144    | 103   | 102  | 88   | 87                  | 82    | 39   | 35   |
| investments, average of 3 years                     | 801              | 187   | 94   | 13     | 17    | 33   | 8    | 19                  | 6     | 8    | 24   |
| investments rate, average of 3 years                | 28 %             | 13 %  | 15 % | 9 %    | 19 %  | 45 % | 9 %  | 19 %                | 7 %   | 20 % | 76 % |
| planned depreciations                               | 422              | 216   | 116  | 11     | 12    | 9    | 9    | 9                   | 6     | 7    | 3    |
| accounting profit/loss                              | 1 105            | 176   | -57  | 17     | 8     | 10   | 7    | 5                   | -6    | 1    | 0    |
| balance sheet value                                 | 10 021           | 1 965 | 772  | 128    | 139   | 174  | 88   | 172                 | 73    | 63   | 81   |
| income before extraordinary items                   | 1 700            | 393   | 154  | 34     | 20    | 18   | 15   | 35                  | 0     | 7    | 5    |
| balance sheet substance                             | 7 335            | 899   | 425  | 81     | 68    | 137  | 61   | 139                 | -22   | 54   | 73   |
| net liabilities with interest                       | -39              | 719   | 173  | 0      | -32   | -12  | -32  | -40                 | 67    | -19  | -19  |
| return on investment                                | 22 %             | 17 %  | 9 %  | 30 %   | 9 %   | 8 %  | 10 % | 23 %                | -9 %  | 3 %  | 4 %  |
| equity ratio  | 80 %             | 46 %  | 55 % | 68 %   | 79 %  | 89 % | 75 % | 81 %                | -19 % | 86 % | 91 % |
| growth of turnover in percentage, average of 3 yrs. | 8 %              | -2 %  | 20 % | 4 %    | 12 %  | 61 % | 2 %  | -4 %                | 33 %  | 8 %  | -8 % |
| credit rating                                       | AAA              | AAA   | AAA* | AAA    | AAA   | AA+  | AAA  | AAA                 | A+    | AAA  | AAA  |

<sup>1</sup>Final accounts information 31 Dec. 2008 <sup>2</sup>Final accounts information 31 March 2009

\* Credit classification according to final accounts information from 2008.

Table 8: Largest telecom operators' final accounts information 2009 and credit classifications (source: Balance Consulting and Suomen Asiakastieto Oy).

The nature of telecommunications is very investment-intensive, and the investment rate of operators i.e. the ratio of investments to turnover is very high compared to the investment rate of all Finnish companies. According to Balance Consulting's

information, the median investment rate of Finnish telecom operators in the telecommunications branch was on average 11.7 per cent in 2007-2009, while the median investment rate of all Finnish companies was 1.2 per cent.

| Information on industry, Balance Tilasto 2008      | Median of telecommunications industry | Median of all companies |
|--|---------------------------------------|-------------------------|
| investment rate, average of 3 years                | 11,7 %                                | 1,2 %                   |
| return on investment                               | 6,8 %                                 | 11,4 %                  |
| equity ratio                                       | 75,8 %                                | 46,0 %                  |
| growth of turnover in percentage, average of 3 yrs | 2,3 %                                 | 1,4 %                   |

The table combines the indicator and investment rate medians of the telecom sector from 2009-2007, compiled from Balance Tilasto, and all Finnish companies, for comparison.

Table 9: Key figures of the financial statements of the telecommunications industry and all Finnish companies in 2009. (Source: Balance Consulting)

The key final accounts figures and indicators with regard to investments in the sector were obtained from Balance Consulting's adjusted final accounts analyses. The credit classifications are based on Suomen Asiakastieto Oy's Rating Alfa reports. The consolidated financial statements of TSF must take into consideration that in addition to Finnish operations, the financial statements of many other foreign groups are also included in the figures<sup>1</sup>.

The profitability, solvency ratio and credit classification of almost all of the 11 companies were very good. Aina's return on investment was negative, whereas all other operators had a positive ROI. Rela-

tive to turnover, PPO and SSP clearly invested most during the last three years.

A notable issue is that all of the companies feature strong shareholder's equity, representing the amount of the companies' own assets. A strong shareholder's equity acts as a buffer against bad years, i.e. successive loss-making periods.

Compared to the median information of all companies, in addition to their investment intensiveness, telecom operators are depicted by high solvency ratio. The median of return on investment is not, however, as high as all companies in Finland have.

<sup>1</sup> TSF's consolidated accounts include companies in which the parent company TeliaSonera Finland Oyj either directly or indirectly owns more than 50 per cent of shares and votes, and parts, in accordance with the capital share method, of the companies in which the parent company owns 20 to 50 per cent of shares and votes.

Balance Consulting has monitored the median of the investment rate in the telecommunications sector and its upper and lower quartile in the 2000s. Based on the figures, there are no major differences in the size of the investment rate within the telecommunications sector. The differences between the upper and lower quar-

tiles have been approximately 20 percentage points in the first decade of the 21st century. The investment rate in the telecommunications has dropped annually from the top rates of 2000 until 2007. Over the past few years, the investment rate has either remained stable or risen depending on the quartile.

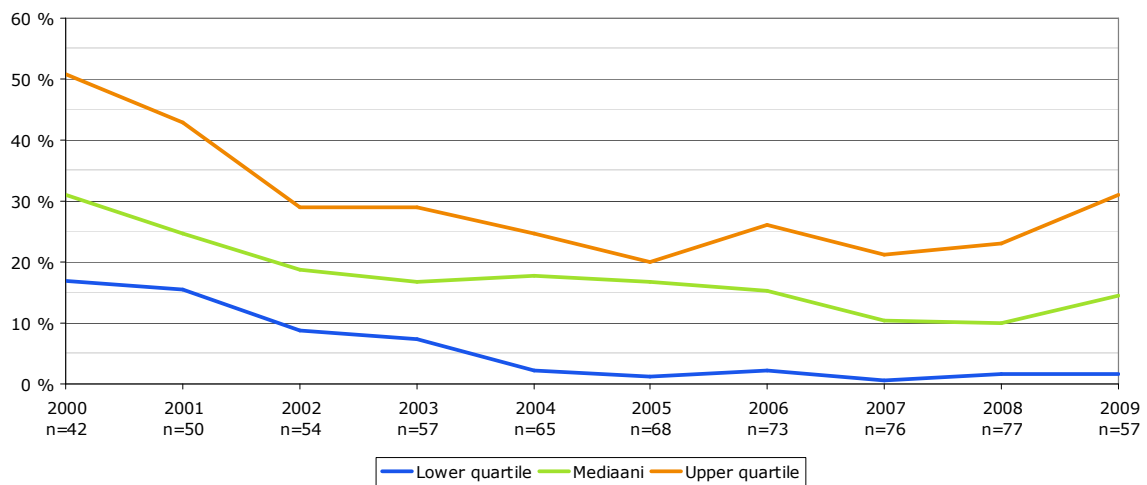


Figure 13: The investment rate of telecommunications in the 2000s for different quartiles. Source: Balance Consulting.

The investment opportunities of the selected 11 companies have been assessed by comparing the amount of money owned by a company to the average investments it carried out during the last three years. The greater the amount of

money in comparison to carried out investments, the better that company's chances are of making new investments. The amount of money is calculated by using the following formula:

$$\text{Amount of money} = \text{income before extraordinary items} + \text{shareholder's equity} - \text{interest-bearing net liabilities} - \text{calculatory shareholder's distribution share (10 \% of shareholder's equity)}.$$

Investment needs can be assessed by means of an index comparing the sector's

average median investment rate from the last three years to the company's own av-

average investment rate for the same period. The greater the sector's investment rate relative to the company's own investment rate, the greater the company's need to invest.

It should be taken into consideration that the selected meters are suggestive. Their

purpose is to give an estimation that is as simple as possible, but still descriptive, of the investment capabilities and needs of companies. The indicators were developed for FICORA's investment development monitoring needs in partnership with Balance Consulting.

| The key figures of investment opportunities and needs | T-S  | Elisa | DNA | Sanoma <sup>1</sup> | Anvia | PPO | TDC  | Digita | Aina  | KYMP | SSP |
|---|------|-------|-----|---------------------|-------|-----|------|--------|-------|------|-----|
| investment opportunities                              | 10,4 | 2,6   | 3,9 | 8,2                 | 6,5   | 4,7 | 13,0 | 10,2   | -15,5 | 9,5  | 3,7 |
| investment needs                                      | 0,4  | 0,9   | 0,8 | 1,2                 | 0,6   | 0,3 | 1,3  | 0,6    | 1,8   | 0,6  | 0,2 |

Classification of investment opportunities: under 0.5 very difficult, 0.5 to 1 difficult, 1 to 1.5 moderate, 1.5 to 2 good, and over 2.5 very good. Classification of investment needs: under 0.7 poor, 0.7 to 1.5 moderate, and over 1.5 great. <sup>1</sup>Interest-bearing net liabilities were missing from Sanoma Television Ltd's information, so they were marked down as zero by default.

Table 10: Largest telecom operators' investment opportunities and needs.

In sum, it can be stated that the selected 11 companies' investment opportunities are very solid in financial terms. Having doubled its turnover a few years ago,

Aina's investment opportunities are clearly poorer than those of the other companies, when judged by these indicators.

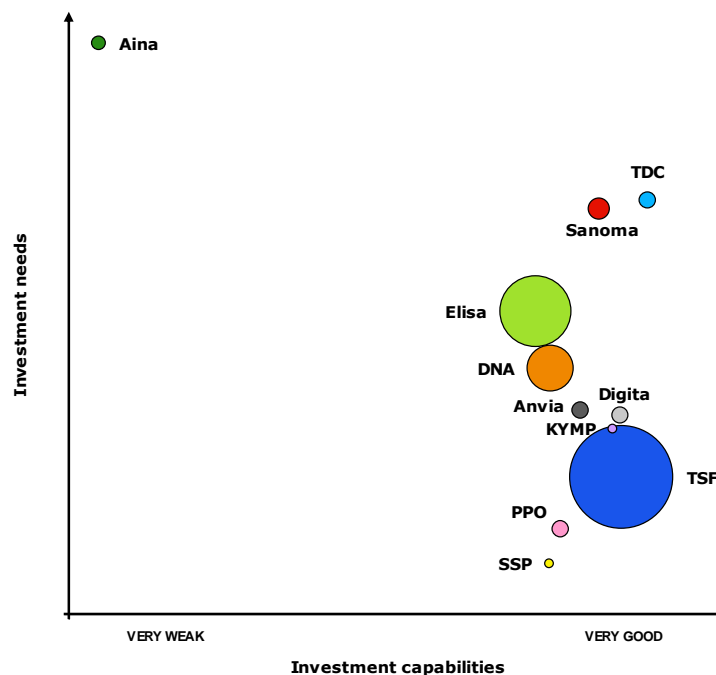



Figure 14: Telecom operators' investment opportunities and needs.



The investments in the telecommunications industry are also cyclic in nature, which is why there is variation in investment needs. If a company has recently made large investments, it may not need to make anything other than the required replacement investments in the near future. For instance, SSP in 2007 made investments corresponding to one and a half times its turnover (160 %), while its 2008 and 2009 investments amounted to more than a third of its turnover (36 % and 44 %). Based on this, it can be concluded that the company does not have

great investment needs at the moment, even though its investment opportunities, similar to other telecom operators, are solid. Aina, Sanoma and TDC carry the greatest investment needs.

Good financial possibilities to invest do not, however, guarantee investments, because they are affected by a number of other factors related to the company's own strategy and operating environment. Companies must be confident in that new investments are profitable for them before the investments are made.

### 3. USE OF COMMUNICATIONS SERVICES AND AUDIOVISUAL CONTENT BY AGE GROUP

The figures discussed in this chapter are based on the following surveys commissioned by FICORA in 2009: Finns as users of communications services, Use of telecommunications services and Consumer survey on audiovisual content services 2009.

The data for the two first-mentioned surveys has been collected by telephone interviews among Finnish consumers between 15-79 years of age. The sampling of both surveys was 2,000 persons.

Survey on audiovisual content services 2009 was restricted to population in age group 15-65. Broadband penetration

drops significantly in households with residents aged more than 65 who often do not have the possibility to use the services referred to in the survey. The survey was carried out as an internet questionnaire, and there were a total of 4,399 respondents.

#### Penetration of telecom services in households

The use of different telecom services varies greatly within age groups. The differences between age groups are accentuated in the penetration of internet and fixed telephone, in particular, which are reverse to one another.

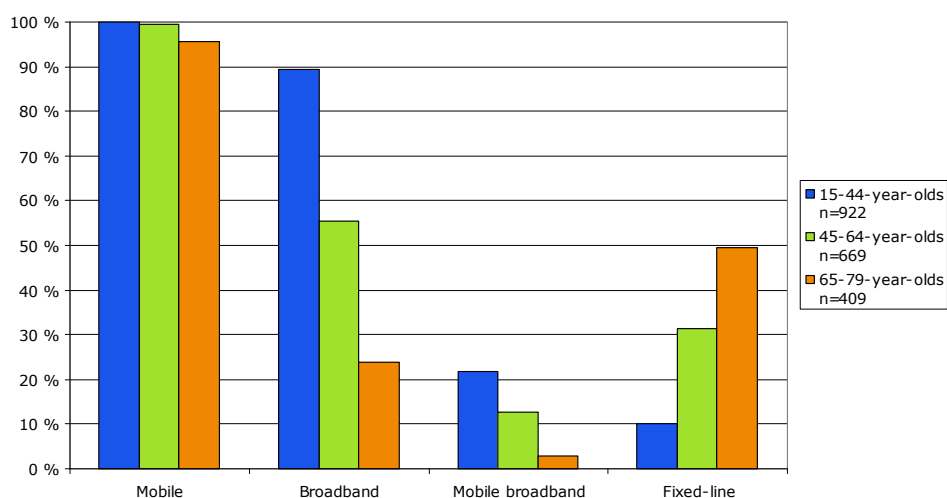


Figure 15: Penetration of telecom services. Source: Survey of the use of telecommunications services 2009.

Approximately 90 per cent of residential customers under 44 years had access to internet, whereas only 24 per cent of those over 65 years had internet access. Approximately 10 per cent of residential customers under 44 years had a fixed telephone, whereas nearly half of those over 65 years had it. Approximately 22 per cent of residential customers under 44 years had mobile broadband, whereas only roughly three per cent of those over 65 years had mobile broadband. In all, approximately 15 per cent of residential

customers aged 15-79 had mobile broadband.

As an exception to other telecom services, mobile telephone is used regardless of age. More than 99 per cent of residential customers aged under 65 and even 95 per cent of those over 65 had a mobile subscription. It can be stated that, in practice, nearly every Finn can be reached by the mobile phone.

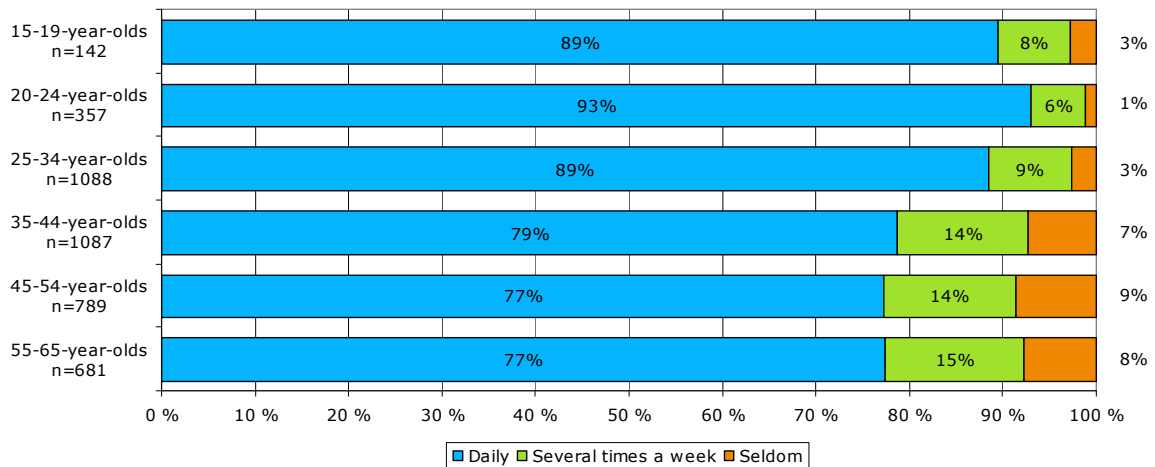


Figure 16: Use of internet services in spare time (% of age group). Source: Customer survey on audiovisual content services 2009.

### **Internet connection equalizes the use of communications services in spare time**

The question whether the consumer has an internet connection or not determines strongly their use of it in their spare time. The penetration of internet access varies greatly from age group to age group.

Whereas nearly everyone aged under 45 had an internet connection, only a fourth aged more than 65 had it. On the other hand, if users have access to internet in their spare time, more than 90 per cent of them, regardless of age group, use internet services at least several times a week.

The most frequent users of the internet are found within the youngest age groups, especially among those aged 20-24, but nearly as often within those aged 15-19 and 25-34. The use of internet in one's spare time decreases among those younger than 35, but still every three out of four use internet services daily.

### Use of communications devices for different purposes

The use of internet connection within different age groups does not much differ

from one another in information search and use of electronic services. In all age groups, approximately 80 per cent of the respondents told that they use internet to access these services. Nearly 90 per cent of under 30 year-olds and more than 60 per cent of those under 50 use internet for communications. More than half of under 30s and more than a fifth of those older than 50 listen to music or watch television programmes via internet.

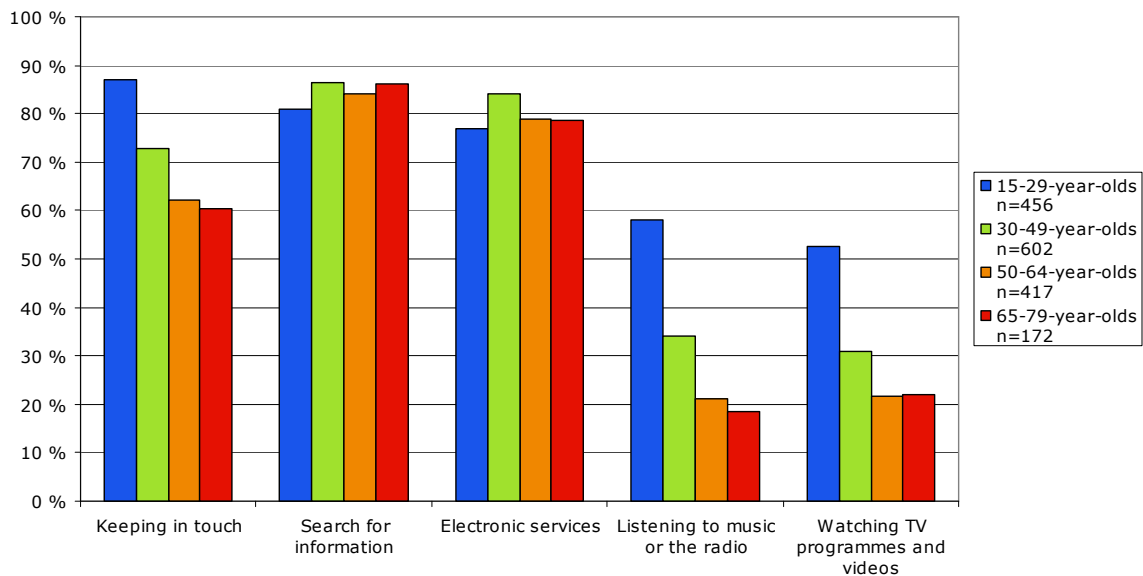


Figure 17: Purpose of use of internet connection. Source: Finns as consumers of communications services 2009

Users aged more than 50 follow topical news on the television and in the newspapers nearly as often. Television is the most important medium for watching news for 30-49s, whereas internet is the

most important for those under 30. Regardless of age group, topical news are listened to on the radio more often when there is no access to internet.

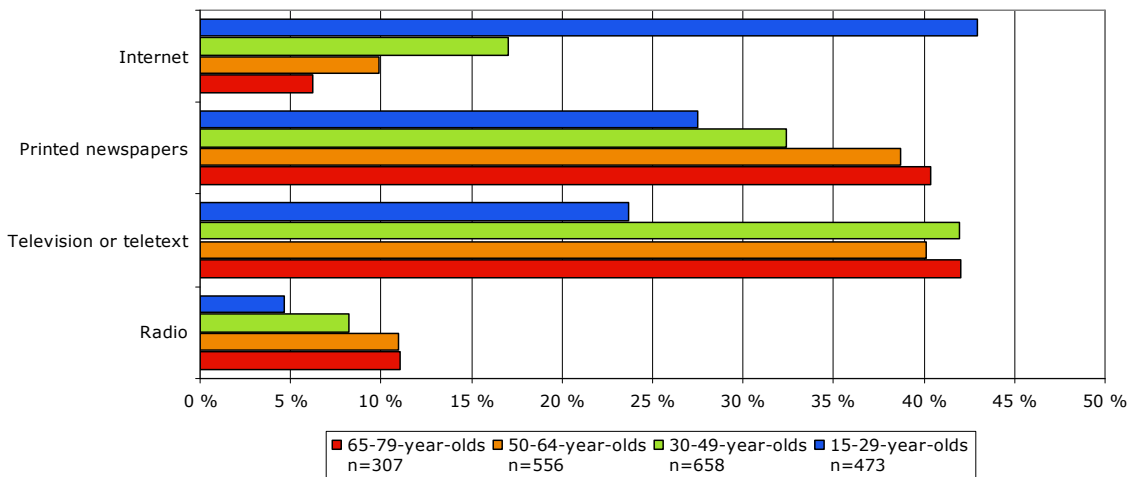


Figure 18: Users' choice of medium for topical news Source: Finns as consumers of communications services 2009

The use of different services via mobile phone varies greatly within age groups. For example, roughly more than a third of those aged under 45 browse web pages via mobile internet connection whereas only one per cent of those more than 65

years do so. Roughly more than a half of those more than 65 years use their mobile phone solely for talking, whereas only five per cent of those under 45 years use their mobile phones for talking only.

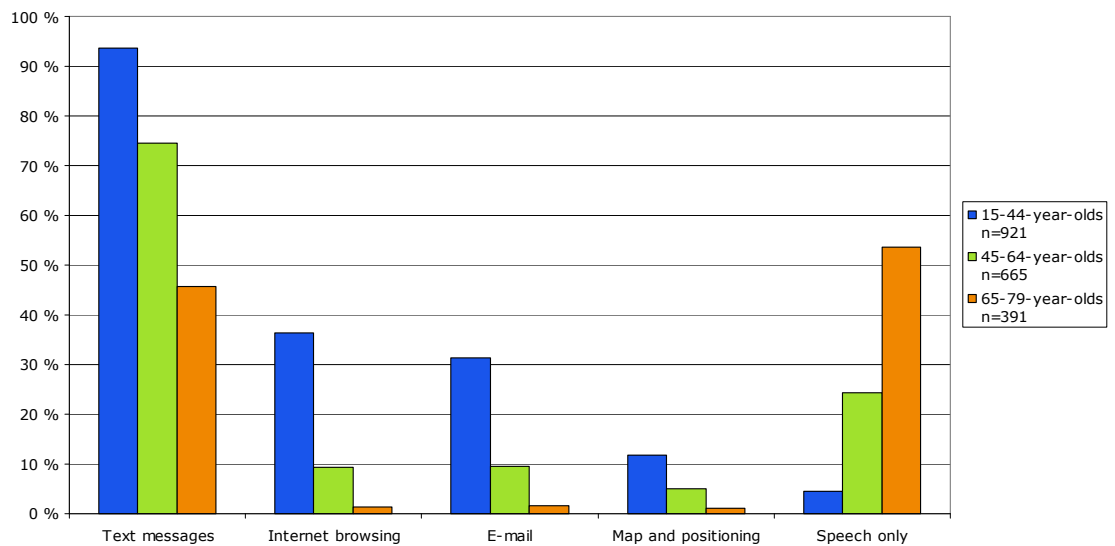


Figure 19: Services accessed via mobile connection. Source: FICORA's survey on the use of telecommunications services 2009.

## Most important ways of communicating

When the most important communications methods are examined by age group (the first and second most important methods of communicating), it can be stated that talking rises as the most important method of communicating in all age groups. Text messages are the second most important communications method. There is much variation in the order of importance regarding other communications methods by age group. For under

30s, instant messaging was the third most important communications method. Also, internet forums and e-mail were very important communications methods for this age group. E-mail is the third most important communications method for 30-49s and 50-64s. Letter is as important a communications method as text messages for those over 65 who do not use internet. If a person over 65 uses the internet, the significance of letter is clearly smaller than that of talking, text messages and e-mail.

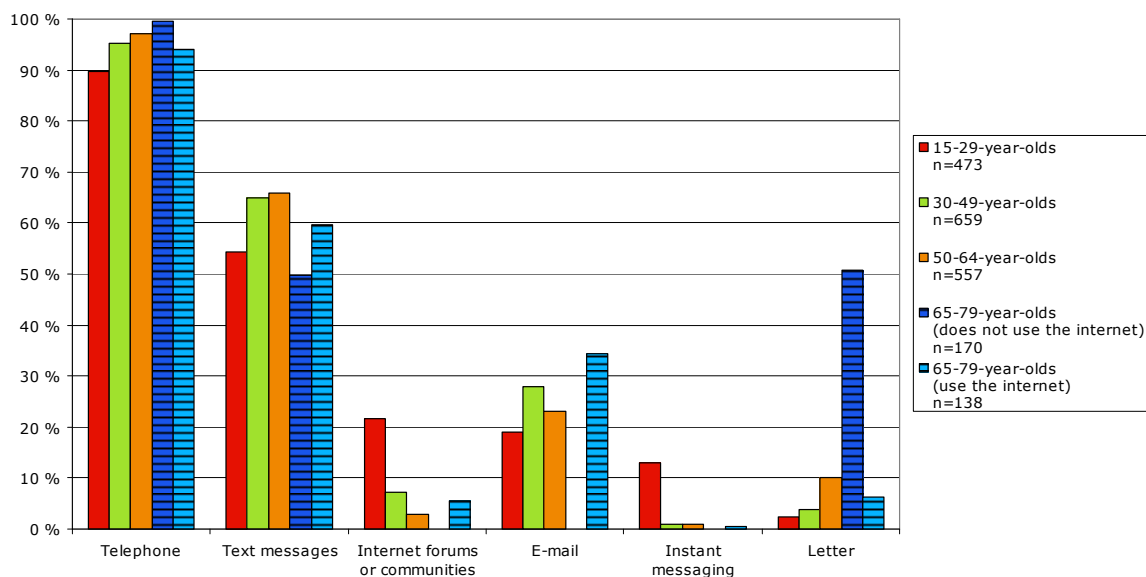


Figure 20: Most important communications methods. Source: Finns as consumers of communications services 2009

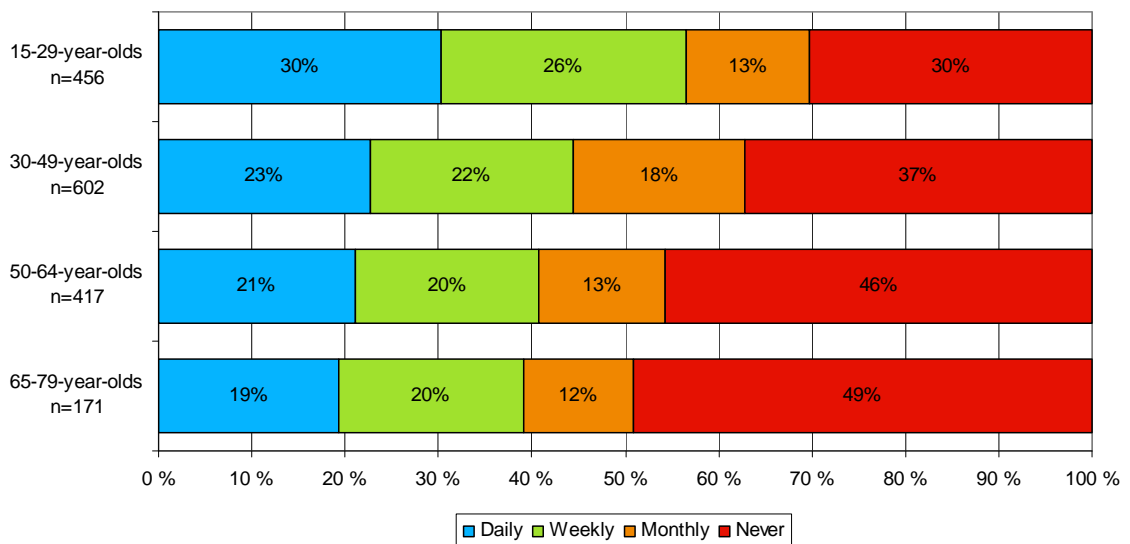


Figure 21: Reading free electronic newspapers. Source: Finns as consumers of communications services 2009.

### "Free of charge"

Approximately every two in three using the internet read free-of-charge electronic newspapers. Reading free electronic newspapers is slightly more common among the younger age groups. Approximately 70 per cent of under 30s and every two in three within the group of 30-49s read free newspapers at least occasionally. Slightly more than half of over 50s read electronic newspapers at least sometimes.

Based on the Finns as consumers of communications services survey, it cannot be

stated that it would be less common for those reading free electronic newspapers to read printed newspapers that cost. Especially in the age groups of 15-29 and 50-64s, reading electronic, free-of-charge newspapers did not seem to decrease the reading of printed newspapers subject to a fee. In other age groups, the reading of printed newspapers subject to a charge is slightly less common among those who read electronic, free-of-charge newspapers compared to those who do not read these newspapers.

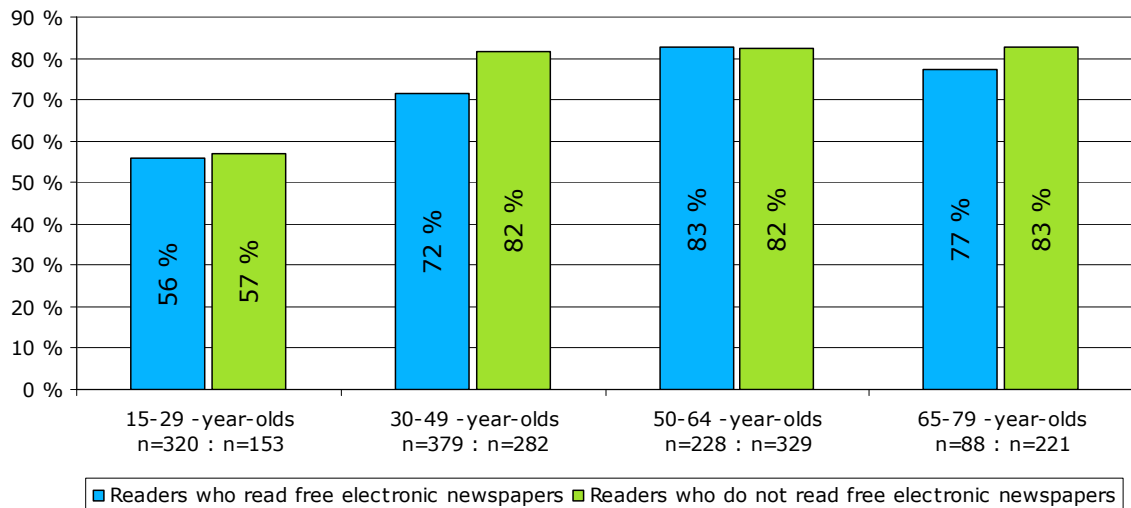


Figure 22: Reading printed newspapers subject to a charge. Source: Finns as consumers of communications services 2009

### Watching audiovisual content

Although television programmes are still, for the most part, watched in a traditional manner during broadcasting i.e. live, the differences in the ways of watching among age groups are clear.

Live watching of television varies the least in different age groups, when the watching takes place at least sometimes. However, it is the most prevalent among 35-54s. Also, watching television programmes afterwards as a recording or so-called time shift viewing was the most prevalent in this age group, but its prevalence increased already in the age group of 25-30s.

Watching short video clips was the most prevalent for viewers up to 34 years,

whereas watching videos similar to actual television programmes on the internet (Video on Demand, VoD) was the most prevalent among those under 25. External recordings (e.g. DVD) are watched rather evenly in various age groups except for those who are over 55. Nearly half of those over 55 tell they watch audiovisual content from external recordings.

Watching audiovisual content on mobile phone is still unusual in all age groups. Only two per cent of 15-65s tell that they use their mobile phones to watch audiovisual content at least sometimes in their spare time.

|   | Percentual share of respondents: Computer in household, n=4144 |                   |                    |                    |                   |                   |           |
|---|--|-------------------|--------------------|--------------------|-------------------|-------------------|-----------|
|   | 15-19 yrs., n=142  | 20-24 yrs., n=357 | 25-34 yrs., n=1088 | 35-44 yrs., n=1087 | 45-54 yrs., n=789 | 55-65 yrs., n=681 |           |
| During broadcasting on television                     | 86   | 83                | 81                 | 84                 | <b>89</b>         | <b>88</b>         | 84        |
| External recordings, such as video and/or DVD         | 69   | 73                | 79                 | 79                 | 76                | 62                | <b>45</b> |
| Short video clips via the internet                    | 68   | <b>76</b>         | <b>74</b>          | <b>78</b>          | 69                | 60                | 53        |
| Time shift watching from television                   | 57   | 46                | 43                 | 56                 | <b>67</b>         | 59                | 51        |
| Video clips similar to TV programmes via the internet | 41   | <b>56</b>         | <b>57</b>          | 51                 | 39                | 31                | 28        |
| Mobile phone i.e. mobile broadcasting                 | 2  | 4                 | 1                  | 3                  | 3                 | 2                 | 1         |
| Does not watch at all                                 | 2  | 1                 | 1                  | 2                  | 1                 | 3                 | 5         |

Table 11: Watching audiovisual content.

Also, judged by the time spent, watching programmes live is most prevalent. The respondents estimated that they had used an average of more than nine hours for live watching the week preceding the survey. Those aged more than 45 years estimated that they spend the most time on live watching. Timeshift viewing is the second most prevalent with more than four hours spent on it by the respondents. This way of watching is the most prevalent among 20-44s.

Otherwise, increasingly less time is spent on watching audiovisual content via other

means than the television. The differences between age groups are clear in this respect, too. Especially the behaviour of 15-19s, but also those aged 20-24 differ from other age groups. They watch the most VoD's and short video clips on the internet, and the youngest in this age group watch audiovisual content also on their mobile phone. Also, this age group spends on average more time on watching external recordings than other age groups.

|   | Weekly time spent on watching (h:min): Watches AV contents, n=4045 |                   |                    |                    |                   |                   |              |
|---|--|-------------------|--------------------|--------------------|-------------------|-------------------|--------------|
|   | 15-19 yrs., n=140  | 20-24 yrs., n=352 | 25-34 yrs., n=1071 | 35-44 yrs., n=1072 | 45-54 yrs., n=765 | 55-65 yrs., n=645 |              |
| During TV broadcasting                                | <b>9:04</b>  | 6:33              | 7:21               | 8:30               | 8:19              | <b>9:42</b>       | <b>11:54</b> |
| TV recording  | <b>4:10</b>  | 3:28              | <b>4:36</b>        | <b>4:28</b>        | 4:13              | 3:49              | 3:58         |
| Video clips similar to TV programmes via the internet | <b>1:48</b>  | <b>2:24</b>       | <b>2:30</b>        | 2:11               | 1:26              | 1:16              | 1:21         |
| Short video clips via the internet                    | <b>0:59</b>  | <b>1:39</b>       | 1:16               | 1:06               | 0:50              | 0:46              | 0:48         |
| Mobile TV, i.e. mobile phone                          | <b>1:03</b>  | <b>1:54</b>       | 1:00               | 1:01               | 0:37              | 1:30              | 1:21         |
| External recordings, such as video and/or DVD         | <b>2:46</b>  | <b>3:33</b>       | <b>4:06</b>        | 2:58               | 2:27              | 2:09              | 2:04         |

Table 12: Time spent on watching audiovisual content (computer in the household, n = 4,144)

### **Mutual significance of platforms**

Of the ways of watching audiovisual content, the respondents maintain that by far the most important way of watching is still live watching. Sixty-seven per cent of 15-65s think that live watching of television is the most important way for them, whereas 18 per cent in the same age group think that time shift viewing is the most important way of watching. Approximately six per cent say that watching external recordings is the most important for them, five per cent state that watching VoD's is the most important for them and three per cent maintain that watching video clips is the most important for them.

A deeper look into the first and second most important ways of watching reveals that differences by age group are still clear. The importance of watching during broadcasting is accentuated among those aged more than 35, whereas, of all age groups, watching external recordings, and television programmes and video clips via the internet is the most prevalent among viewers under 25-years old. The latter group appraises the importance of external recordings as the second most important factor leaving time shift viewing as third. The importance of time shift viewing is highlighted among 35-54s.

|   | Percentual share of respondents: Watches AV contents, n=4045 |                   |                    |                    |                   |                   |
|---|--|-------------------|--------------------|--------------------|-------------------|-------------------|
|   | 15-19 yrs., n=140  | 20-24 yrs., n=352 | 25-34 yrs., n=1071 | 35-44 yrs., n=1072 | 45-54 yrs., n=765 | 55-65 yrs., n=645 |
| During TV broadcasting                                | 86   | 75                | 72                 | 78                 | 90                | 94                |
| TV recording  | 49   | 34                | 32                 | 48                 | 56                | 47                |
| External recordings, such as video and/or DVD         | 25   | 38                | 40                 | 29                 | 24                | 18                |
| Short video clips via the internet                    | 18   | 23                | 23                 | 21                 | 14                | 17                |
| Video clips similar to TV programmes via the internet | 17   | 25                | 29                 | 21                 | 12                | 16                |
| Mobile TV, i.e. mobile phone                          | 0  | 1                 | 0                  | 0                  | 0                 | 0                 |


Table 13: The first and second most important ways of watching AV content

### **Watching programme types on various platforms**

Also, regular watching of different programme types differs in the youngest age group i.e. 15-19s compared to other age groups. Although the young watch real-time news on television, of total watching, the top three for them are entertainment,

series and movies, i.e. lighter content. Among the 20-24s, the third place after entertainment and series is taken by news, whereas the rare time shift watching of films drops the total watching devoted to this programme type.

Entertainment programmes form the most common programme type in live watching



for up to 24s. After this, news and series are the most watched programme types. The next turning point is at 35 years, after which there is a steep rise in the live watching of news. Respectively, there is a drop in the live watching of series and entertainment in the older age groups. In all age groups, series was the most common type of programme in the time shift watching category. It is most common for 20-34-year olds to watch them and those over 55 watch them the least. The importance of time shift viewing of entertainment is accentuated among 20-44s.

Of television programmes watched via the internet, the entertainment category is

the strongest divider between different age groups. Whereas nearly three out of four 15-19s watch entertainment on the internet weekly, only one in seven in the age group of 55-65s do so. The youngest favour series and films more than other age groups. Sports is equally often watched in this age group as in the oldest surveyed age group. With news placing second among the youngest, those aged 20-34 watch less news, but there is an increase in the older age groups. Watching the news on the internet is the most common among the age group of 55-65s.

| Percentual share of respondents: Watches TV during broadcasting, n=3555 |           |                      |                      |                      |                      |                      |                      |
|---|-----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|   |           | 15-19 yrs.,<br>n=118 | 20-24 yrs.,<br>n=290 | 25-34 yrs.,<br>n=912 | 35-44 yrs.,<br>n=969 | 45-54 yrs.,<br>n=695 | 55-65 yrs.,<br>n=571 |
| News  | <b>90</b> | 79                   | 73                   | 84                   | <b>95</b>            | <b>97</b>            | <b>99</b>            |
| Sports  | <b>43</b> | 33                   | 24                   | 33                   | 44                   | <b>50</b>            | <b>57</b>            |
| Movies  | <b>54</b> | <b>62</b>            | 47                   | 46                   | 55                   | <b>61</b>            | <b>60</b>            |
| Series  | <b>79</b> | <b>86</b>            | 84                   | 83                   | 82                   | 77                   | <b>73</b>            |
| Entertainment - net *)  | <b>73</b> | <b>93</b>            | <b>86</b>            | 77                   | 72                   | 68                   | 64                   |

| Percentual share of respondents: Time shift watching, watches recordings, n=2370 |           |                     |                      |                      |                      |                      |                      |
|--|-----------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|  |           | 15-19 yrs.,<br>n=65 | 20-24 yrs.,<br>n=153 | 25-34 yrs.,<br>n=612 | 35-44 yrs.,<br>n=725 | 45-54 yrs.,<br>n=468 | 55-65 yrs.,<br>n=347 |
| News   | <b>6</b>  | 2                   | 4                    | 3                    | 5                    | 5                    | <b>9</b>             |
| Sports   | <b>6</b>  | 3                   | 2                    | 4                    | 7                    | 6                    | <b>12</b>            |
| Movies   | <b>32</b> | <b>39</b>           | <b>25</b>            | 29                   | 33                   | 33                   | 32                   |
| Series   | <b>61</b> | 60                  | <b>69</b>            | <b>71</b>            | 64                   | 52                   | <b>47</b>            |
| Entertainment - net *)   | <b>24</b> | 17                  | <b>27</b>            | <b>27</b>            | <b>26</b>            | 18                   | 18                   |

| Percentual share of respondents: Watches programmes similar to TV programmes via the internet, n=1694 |           |                     |                      |                      |                      |                      |                      |
|---|-----------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|   |           | 15-19 yrs.,<br>n=80 | 20-24 yrs.,<br>n=202 | 25-34 yrs.,<br>n=553 | 35-44 yrs.,<br>n=424 | 45-54 yrs.,<br>n=243 | 55-65 yrs.,<br>n=192 |
| News  | <b>32</b> | 34                  | 22                   | 28                   | 34                   | 35                   | <b>43</b>            |
| Sports  | <b>14</b> | <b>20</b>           | 12                   | 14                   | 12                   | <b>18</b>            | <b>20</b>            |
| Movies  | <b>9</b>  | <b>22</b>           | 12                   | 11                   | 6                    | 6                    | 4                    |
| Series  | <b>19</b> | <b>32</b>           | <b>36</b>            | 23                   | 13                   | 9                    | 8                    |
| Entertainment - net *)  | <b>32</b> | <b>62</b>           | <b>48</b>            | 38                   | 27                   | 23                   | 15                   |

\*) Watches music programmes or videos, contests and quizzes or other entertainment programmes or other entertainment programmes at least once a week (e.g. sketch shows, talk shows, reality TV)

Table 14: Weekly share of time spent on watching different programme types

## Changes to watching audiovisual content

In the consumers' view, their ways of watching television have changed over the year preceding the interview. The figure depicting the change in the ways of watching shows that live watching has decreased among the young, in particular.

On the other hand, watching audiovisual content via the internet has increased strongly and concerns all age groups.

The expectable changes to the live watching of television do not seem to be great, as opposed to viewing via the internet. Especially those aged over 35 estimate that they will watch more via the internet.

|   | Balance figure*: Watches AV content on TV and internet, n=1565 |                  |                   |                   |                   |                   |                   |
|---|--|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|   |  | 15-19 yrs., n=72 | 20-24 yrs., n=175 | 25-34 yrs., n=495 | 35-44 yrs., n=404 | 45-54 yrs., n=236 | 55-65 yrs., n=183 |
| Watching TV - past year                     | -24  | -37              | -29               | -27               | -30               | -16               | -4                |
| Watching TV - next year                     | -13  | -11              | -15               | -19               | -12               | -10               | -4                |
| AV content watched via internet - past year | 49   | 42               | 46                | 48                | 52                | 48                | 53                |
| AV content watched via internet - next year | 34   | 22               | 30                | 30                | 36                | 40                | 38                |

\*The balance figure is reached by subtracting the estimated decrease in viewing from the estimated increase in viewing. For example, the figure -24 in the column on the left side refers to that the time spent on watching television over the past year has diminished this much more than the time spent on watching has increased.

Table 15: AV barometer: changes to the ways of watching content.

### Barriers to online and mobile watching

The respondents say that the most common reasons for not watching audiovisual content on the internet are related to the troublesome use of it, low interest in the services, small computer screen or weak voice quality. Also, the users name the following reasons rather often: the computer is located in an uncomfortable place or the internet connection is too slow.

The young mentioned that the barriers to the use were the low attractiveness, watching the computer in an uncomfortable place and too low an internet connection speed. The uncomfortable placement of a computer was also a barrier for 25-44s for watching via the internet. The respondents in the oldest age groups were more likely to think that it is too troublesome to watch via the internet. Also, they used internet so little that they did not feel like using it for watching AV content.

|                                     | Percentual share of respondents: Does not watch AV content via the internet, n=2586 |                  |                   |                   |                   |                   |                   |
|-------------------------------------|---|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|                                     |   | 15-19 yrs., n=64 | 20-24 yrs., n=159 | 25-34 yrs., n=562 | 35-44 yrs., n=698 | 45-54 yrs., n=585 | 55-65 yrs., n=518 |
| Too much trouble                    | 37  | 33               | 35                | 36                | 37                | 36                | 40                |
| Not interested                      | 34  | 42               | 45                | 39                | 33                | 31                | 28                |
| Too small screen/poor voice quality | 30  | 25               | 24                | 31                | 31                | 31                | 31                |
| Computer in uncomfortable place     | 28  | 31               | 26                | 31                | 31                | 27                | 20                |
| Slow internet connection            | 20  | 34               | 27                | 20                | 21                | 17                | 18                |
| Does not know how to watch          | 7   | 8                | 6                 | 6                 | 7                 | 6                 | 6                 |
| Uses internet rarely                | 6   | 2                | 6                 | 4                 | 7                 | 6                 | 8                 |

Table 16: Barriers to watching AV content on the internet.

The factors that the young, in particular, experience as barriers to using their mobile phones for watching, are not felt as disturbing by the older age groups. Espe-

cially the costs of the service cut the number of young viewers, but older people do not regards costs as a barrier. In the younger age groups, the low attrac-

tiveness, too small screens or poor voice quality is experienced as barriers to use. Also, the young have a phone that does not allow one to watch TV content in their use more often than on the average.

Those in age groups 20-24 and 55-65 mention that they use their mobile phones for basic functions such as for making phone calls and sending text messages.

| Percentual share of respondents: Does not watch AV content on mobile phone, n=4245 |    |                     |                     |                      |                      |                     |                     |
|--|----|---------------------|---------------------|----------------------|----------------------|---------------------|---------------------|
|  |    | 15-19 yrs,<br>n=143 | 20-24 yrs,<br>n=363 | 25-34 yrs,<br>n=1101 | 35-44 yrs,<br>n=1105 | 45-54 yrs,<br>n=823 | 55-65 yrs,<br>n=710 |
| Does not want to pay extra   | 48 | 78                  | 64                  | 53                   | 46                   | 42                  | 35                  |
| Not interested   | 47 | 52                  | 61                  | 51                   | 47                   | 41                  | 38                  |
| Too small screen/poor voice quality  | 45 | 55                  | 53                  | 49                   | 45                   | 44                  | 37                  |
| Uses mobile phone for calling/sending text messages                                | 44 | 45                  | 52                  | 41                   | 42                   | 44                  | 47                  |
| Cannot use mobile phone for watching TV  | 34 | 52                  | 49                  | 38                   | 29                   | 27                  | 32                  |
| Too much trouble   | 20 | 36                  | 31                  | 24                   | 19                   | 16                  | 13                  |
| Does not know how to watch   | 9  | 18                  | 15                  | 11                   | 7                    | 7                   | 6                   |
| Not aware of the possibility   | 3  | 8                   | 5                   | 3                    | 3                    | 3                   | 2                   |

Table 17: Barriers to mobile use.





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