

Potential value of processing of telecom metadata for the European economy

If the processing of telecom metadata were authorized under the E-privacy Regulation in the same conditions than the processing of personal data under the General Data Protection Regulation, it could generate:

- In 2020 from €8.3 up to €17 billion of total value added to the European economy, representing from 0.05% up to 0.11% of European GDP. In 2025, this additional value added should range from €12.4 up to €62.3 billion representing from 0.07% up to 0.36% of EU28 GDP.
- In 2020 from €1.5 up to €2.7 billion of direct revenues to the telecom sector in the European Union, representing from 0.9% up to 1.6% of European telecom sector's value added. In 2025, this additional direct revenue for the telecom sector would range from €1.9 up to €6.8 billion, representing from 1.2% up to 4.1% of European telecom sector's value added in 2025.

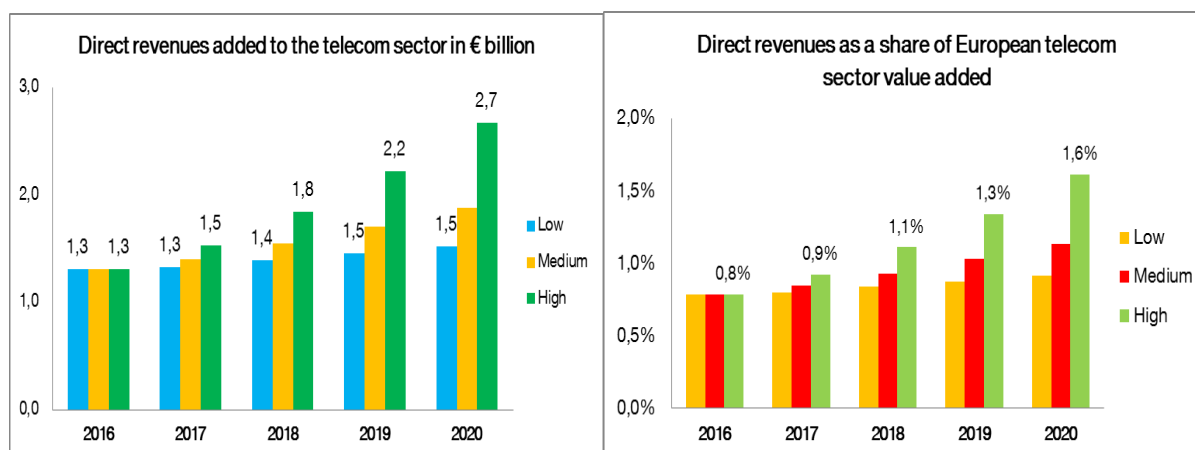
This opportunity would be missed under the discriminatory conditions proposed for such processing under the draft e-privacy text proposed by the European Commission and supported by the European Parliament.

After describing the sources used to build our estimates, our general hypothesis and general methodology are explained, and then the results of forecasted direct and full economic value resulting from telecom data processing are presented for each time horizon, 2020 and 2025.

1) Expected direct revenues from telecom data processing over 2016-2020

The report from IDC (2017) finds that the sum of sectors' direct revenues would amount from €74, €92 up to €131 billion by 2020 (which represents from 0.5%, 0.6% up to 0.8% of EU28 GDP in 2020), according to alternative scenarios. IDC considers low, medium and high growth rates for data value. They relate to slow adoption of data-related innovation due to less favorable policy framework and less favorable macroeconomic context (low), a continuation of sector and macroeconomic trends (medium), and fast and wider adoption due to favorable market and policy conditions (high). Under slow (resp. medium, high) adoption rate, the annual average growth rate of direct aggregate data value is fixed by IDC at 4.7%, (resp. 10.4% and 20.6%). Our estimation indicates that the direct revenues brought to the European economy by data processed from the European telecom sector could reach from €1.5, €1.9, up to €2.7 billion in 2020 according to low, medium and high growth path. The estimated direct revenues would represent respectively 0.9%, 1.1% and 1.6% of European telecom sector value added in 2020. Results of estimations in current billions of euros for each year from 2016 to 2020 and results as a share of European telecom sector value added are presented in figure 1.

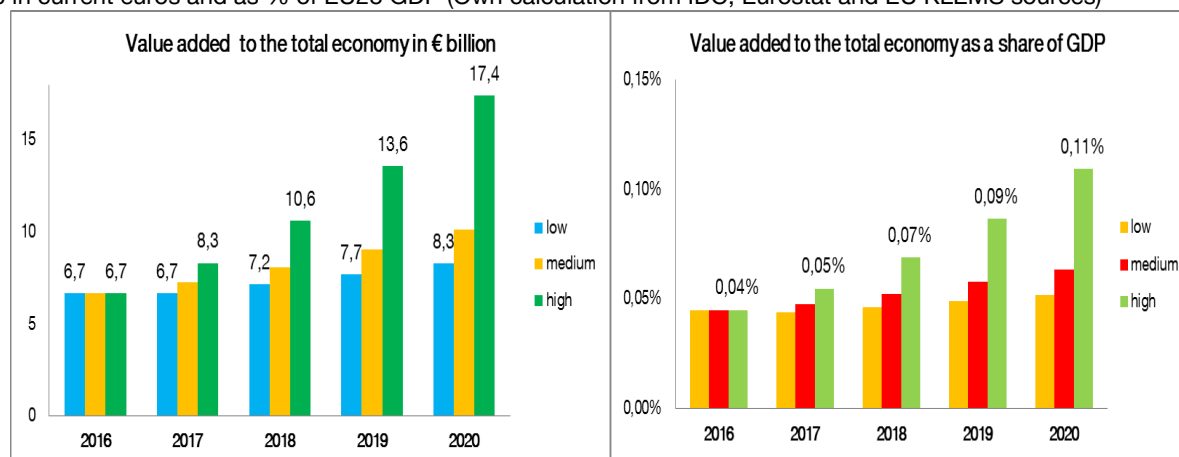
Figure 1: Direct revenues brought to the EU telecom sector from data processing over 2016-2020 in € and as % of EU telecom value added (Own calculation from IDC, Eurostat and EU KLEMS sources)



2) Expected total economic value from telecom data processing over 2016-2020

According to IDC (2017), the total economic value brought to the European economy from data processing by all sectors would reach from €361, €430, up to €739 billion by 2020 (which represents from 2.3%, 2.7% up to 4.6% of EU28 GDP in 2020), according to alternative scenarios. Under slow (resp. medium, high) adoption rate, the annual average growth rate of direct aggregate data value is fixed by IDC at 4.8%, (resp. 9.5% and 25.4%). Our estimations indicate that the direct value brought to the European economy by data processed from telecom sector would reach from €8.3, €10.1, up to €17.4 billion in 2020 according to low, medium and high growth path. The estimated total economic value brought to the European Union economy would then represent respectively 0.05%, 0.06% and 0.11% of the European GDP in 2020. Results of estimations in current billions of euros and as a share of the European GDP for each year from 2016 to 2020 are presented in figure 2.

Figure 2: Full economic value brought to the European economy from data processing by telecom sector over 2016-2020 in current euros and as % of EU28 GDP (Own calculation from IDC, Eurostat and EU KLEMS sources)

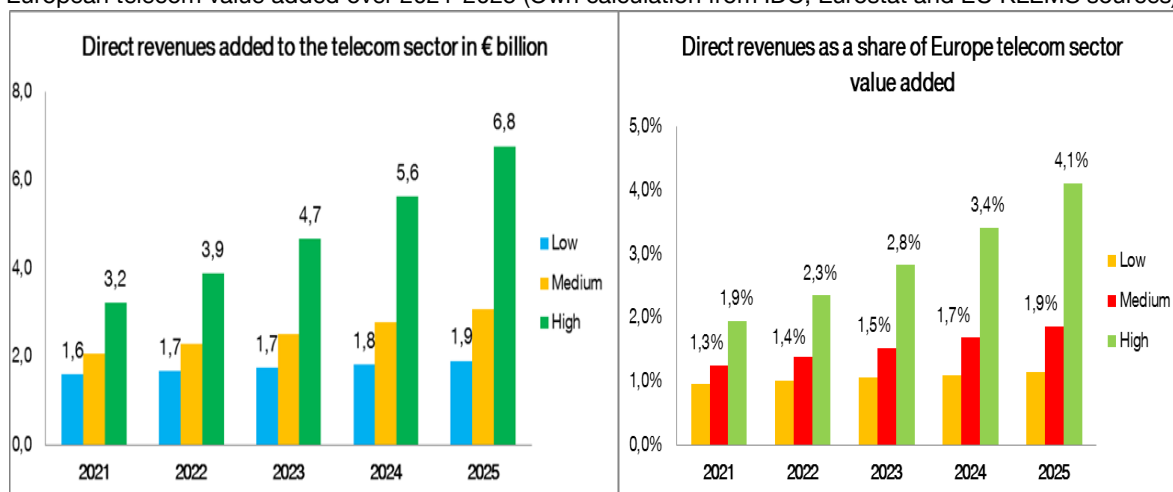


3) Expected direct revenues from telecom data processing over 2021-2025

On the basis of the growth rates used by IDC (2017) to forecast aggregate direct revenues to 2020, we find that the aggregate direct revenues brought to the European economy from data processing by all sectors would reach from €93, €151 up to €333 billion by 2025 (which represents from 0.5%, 0.9% up to 1.9% of EU28 GDP in 2025), according to each of the alternative scenarios. In order to compute forecasts to 2025, we use the annual average growth rate of direct aggregate data value fixed by IDC for slow (resp. medium, high) adoption rate at 2020, hence 4.7%, (resp. 10.4% and 20.6%). Our estimations indicate that the direct

revenues brought to the European telecom sector by data processing from telecom sector could reach from €1.9, €3.1, up to €6.8 billion in 2025 according to low, medium and high growth path. The estimated direct revenues would represent respectively 1.2%, 1.9% and 4.1% of European telecom sector value added in 2025. Results of estimations in current billions of euros and as a share of European telecom value added for each year from 2021 to 2025 are presented in figure 3.

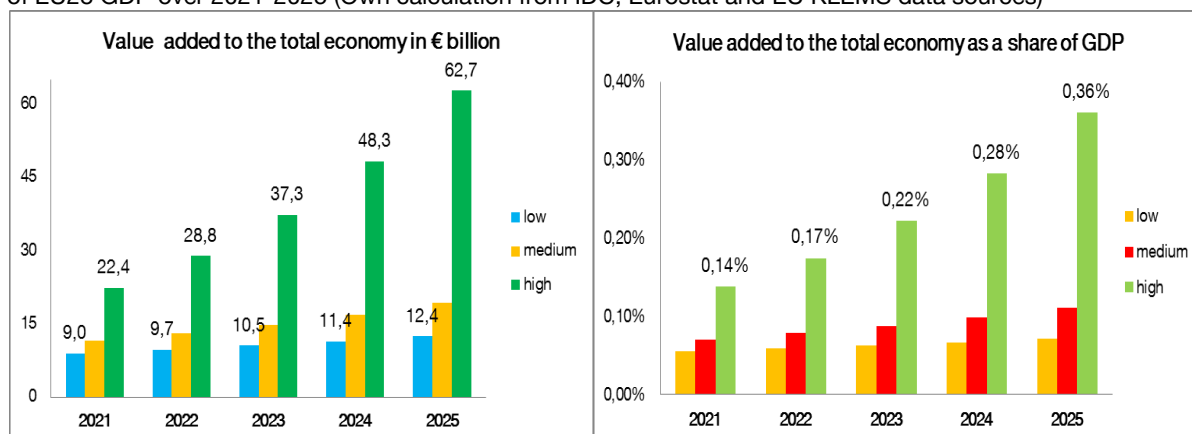
Figure 3: Direct revenues brought to the telecom sector value added from data processing by telecom sector and as a % of European telecom value added over 2021-2025 (Own calculation from IDC, Eurostat and EU KLEMS sources)



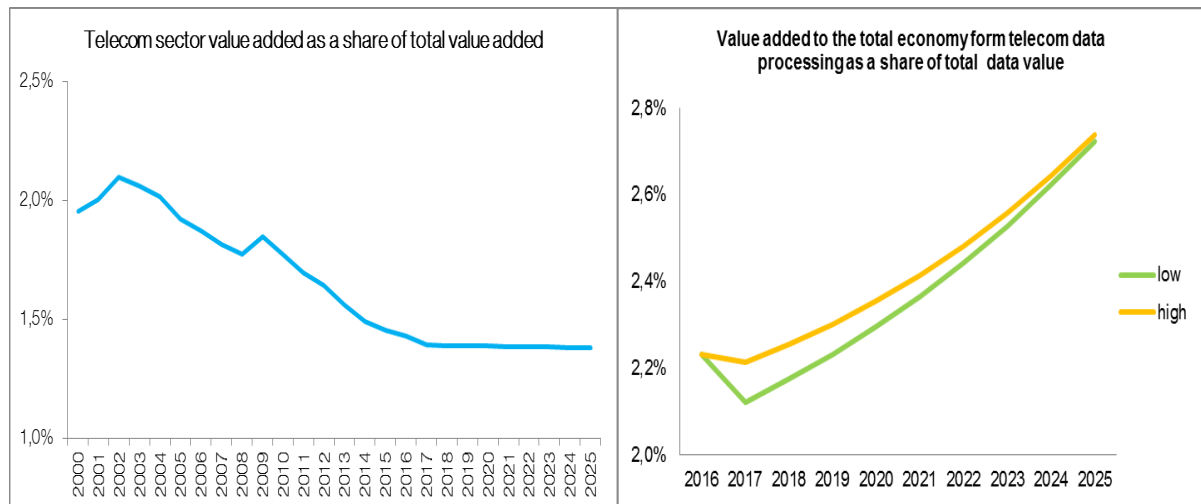
4) Expected total economic value from telecom data processing over 2021-2025

On the basis of growth rates used by IDC (2017) to forecast direct value to 2020, we find that the aggregate total economic value brought to the European economy from data processing by all sectors would reach from €456, €706 up to €2290 billion by 2025 (which represents from 2.6%, 4.1% up to 13.2% of EU28 GDP in 2025), according to alternative scenarios. In order to compute forecasts to 2025, we use the annual average growth rate of direct aggregate data value fixed by IDC under slow (resp. medium, high) adoption rate, the annual average growth rate of aggregate data economic value is fixed by IDC at 4.7%, (resp. 10.4% and 25.4%). Our estimations indicate that the full economic value brought to the European economy by data processing from telecom sector could reach from €12.4, €19.3, up to €62.7 billion in 2025 according to low, medium and high growth path. The estimated direct value would represent respectively 0.07%, 0.11% and 0.36% of European GDP in 2025. Results of estimations in current euros and as share of European GDP for each year from 2021 to 2025 are presented in figure 4.

Figure 4: Direct economic value brought to the telecom sector value added from data processing by telecom sector and a % of EU28 GDP over 2021-2025 (Own calculation from IDC, Eurostat and EU KLEMS data sources)



Under high growth path of IDC aggregate data value, we find that the economic value that could be added to the European economy is significant, as it could reach 0.11 % of EU28 GDP in 2020 and 0.36% of EU28 GDP in 2025. Moreover, the contribution of telecom sector to the global data economy is higher than the share of telecom in European aggregate value added, as shown by the share of telecom sector in the total economic value of data (2.7% in 2025), compared to the share of telecom in aggregate European value added (1.4%).



5) Main sources used for computing data value estimations

According to the European Commission, the total value of data economy amounted to €285 billion in 2015, (1.9% of EU28 GDP), and could reach €739 billion by 2020 (4% of EU28 GDP) if efficient public policies were applied¹. The estimates cited by the European Commission are derived from a recent report from IDC (2017)². On the basis of IDC report and annual national accounts, it is possible to measure the expected value that data processing from telecom sector could add to the economy of the European Union over 2016-2020 and over 2021-2025. In IDC (2017), two estimates are considered. The first estimate is the cross-sector sum of direct revenues generated from the production and trade of data-based products by each sector. It refers to direct revenues derived from data-based intermediary goods and services adoption³. The second estimate includes indirect revenues from increased data-intensity in the productive system, such as productivity and efficiency gains achieved by firms from adopting data-based assets, and refers to the total economic value generated by data-based intermediary goods and services adoption. The IDC (2017) calculation of direct and total data value are derived for years 2013 to 2016 and forecasted from 2017 to 2020. In this study, the direct and total economic values in 2020 are forecasted to 2025 according to the same growth rates used by IDC to build forecast over the 2017-2020 period, under the hypothesis that these growth rates remains stable between 2021 and 2025.

¹See <https://ec.europa.eu/digital-single-market/en/towards-thriving-data-driven-economy>.

²The full IDC (2017) report containing all intermediate data and results is available at: <https://ec.europa.eu/digital-single-market/en/news/final-results-european-data-market-study-measuring-size-and-trends-eu-data-economy>.

³The direct value, "data market value" in IDC (2017) report, is roughly equivalent to the revenues generated by companies using data as a main productive asset. The total value includes indirect impacts of data, and refers to the value of "data economy" in IDC.

6) Methodology for deriving and forecasting estimates for data value related to the telecom sector

Our estimates of value that could be added to the European economy by data processing from the telecom sector are based upon IDC aggregate estimates for direct and total economic value from data processing. Our general hypothesis is that the economic value derived from the processing of data by a sector is proportional to the amount of data produced by the sector, which is turn proportional to the ICT fixed assets used by the sector⁴.

a) Weighting methodology based on ICT fixed assets of sectors

Our methodology supposes that the direct revenue from telecom data processing is proportional to the telecom share in total economy output, weighed by the share of ICT fixed assets in the total fixed assets of the telecom sector in ICT assets. The estimate for total economic value includes the indirect effects of data processing, and the share of telecom in aggregate European Value Added is weighted by the share of ICT fixed assets of the telecom sector. This allows accounting for the contribution of the telecom sector to the digitalization of the economy. The weights are calculated by computing the mean of national shares of ICT fixed assets (both by sectors and by types of fixed capital) for 15 European countries.

b) Calculation of direct and total value estimates

The estimate for direct revenue is obtained by multiplying IDC estimate of direct data revenue by telecom share in total value added of European economy, weighted by the share of ICT assets in total assets of telecom sector⁵. The estimate for total value is computed in a similar way, while the weights are given by the mean share of telecom sector in the total ICT fixed assets of the European economy, which notably allows accounting for big data analytics adoption, hence the rise in data-intensive productive assets.

c) Macroeconomic consistency

In IDC (2017), the aggregate European direct revenue is the sum of revenues from 11 sectors in each Member State⁶. IDC does consider Information and Communication sector. However, it does not consider the telecommunications sector. Our methodology allows including the specific sector of telecommunications services, while also applying to the 11 sectors considered in IDC (2017), in order to ensure that the sum of each sector's data value does not exceed the aggregate data value for the European economy. Our estimates for telecom sector are thus consistent in a macroeconomic frame with 11 other sectors, where data value is splitted between sectors according to their share in aggregate value added and their intensity in ICT assets. Our methodology applies on a sample of 15 Member States of the European Union⁷. Our results are relevant on a EU28 aggregate⁸. Results for direct revenues and total value are obtained after two

⁴ The ICT fixed assets refer to IT, communication equipment, and software and database real gross fixed capital stock. Real fixed capital stocks by sector and country are available from Eurostat annual accounts and the 2017 version of EU KLEMS database.

⁵ ICT assets refer to gross fixed capital stock in IT, communication equipment, and database & software.

⁶ The sectors considered are: manufacturing, energy supply, construction, wholesale and retail trade, transport and storage, information and communication, financial and insurance activities, business services, public administration services, education, health and social work. In our estimation, we derive direct and full value attributable to the sector of telecommunications services.

⁷ The 15 European countries are: Belgium, Czech Republic, Denmark, Greece, France, Italy, Luxembourg, Netherlands, Austria, Finland, Sweden, UK, Germany, Spain, and Sweden. Data for Spain, Germany and Sweden is derived from EU KLEMS database, all other country information is obtained from Eurostat annual accounts.

⁸ Our results based on the EU15 are relevant for the EU28 aggregate because the 15 countries sample is used to compute the mean shares of ICT capital stocks constitute a good approximation for the whole European Union.

iterations, after which the sum of each direct and total value from each sector equals the aggregate direct and total value for the EU28 obtained by IDC (2017).

d) Macroeconomic and indicators of data value forecasts

The shares in value added and the weights are then forecasted from 2016 to 2020 and from 2020 to 2025 according to OECD macroeconomic previsions and recent trends. The weighting methodology accounts for the fact that a higher usage of ICTs in the production of goods and services should result in larger amount of data with enclosed potential value. A first range of estimates is derived for the period 2016-2020, based on the estimation from IDC (2017) for direct and total value. Then estimates for direct and total value are derived for the period 2021-2025.