

Report on non-residential market indicators for the European Commission's Digital Scoreboard

8 December, 2017

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Executive Summary

The current availability of statistical information on the non-residential market, at the European level, is relatively limited and therefore does not allow for a robust assessment of the evolution of this market. The lack of indicators/data is also problematic when it comes to defining the characteristics of the non-residential market, and to analysing the level of competition prevailing in the market. Although initially the project reference was to the business market, further internal discussion led to a change in terminology to the non-residential market, in order to take into account not just businesses, but also entrepreneurs/self-employed individuals, non-governmental organisations, and public/state sector bodies.

It was agreed by BEREC that it would be very beneficial to have a more precise overview of the non-residential market at the European level, which is often very different from the residential market in terms of revenues, usage and equipment. The goal of this BEREC report was to propose to the European Commission a set of indicators which could be included in the questionnaire that is used for the Digital Scoreboard.

In June 2017, a questionnaire was circulated to all National Regulatory Authorities (NRAs), in order to gather information for non-residential fixed and mobile market indicators currently collected across Europe. The intention of this initiative was, by proposing to the European Commission a common set of such indicators which can be benchmarked, to estimate the size of the non-residential market in Europe, going forward.

The questionnaire¹ covered access, traffic, and revenue indicators across both the fixed and mobile sectors. Additionally, NRAs were asked how they define the non-residential market, and how often they collect such data, as well as whether or not the data is published. Questions on the confidentiality of operator data were also asked. Responses were received from 31 NRAs. Of those who responded, 27 NRAs indicated that they collect some information (non-survey based) from operators on the non-residential market.

In addition, the responses to the questionnaire showed a variation among NRAs when it came to how the non-residential market is defined. In order to somehow move towards an eventual harmonisation of definitions among NRAs, BEREC has proposed the following definition (as well as an elaboration on guidance with respect to the definition) for what NRAs and operators could consider as a non-residential customer, which can potentially assist with that harmonisation:

A non-residential customer primarily uses an electronic communication service(s) for performing economic activities. Non-residential customers include businesses, entrepreneurs/self-employed individuals, non-governmental organisations, and public/state sector bodies.

Through discussion between BEREC and the European Commission, it was agreed that the proposed set of indicators should reflect the non-residential market in the coming years and should be useful for measuring the initiative set out in the Commission's Gigabit Society. The Commission's requirement with respect to this BEREC exercise is twofold; on the one hand

¹ See Annex 1.

the indicators that are of most interest to the Commission can contribute to its reporting on connectivity targets going forward towards 2025, and on the other hand, the Commission has placed a clear importance on not just consumers (i.e. the residential market) but also on businesses (i.e. the non-residential market), whereby they state in their objectives that vastly improved connection speeds for businesses, all schools, transport hubs and main providers of public services is a target for 2025.

While it is clear that the first round(s) of the data collection may produce a less than complete dataset, this can certainly improve, through a periodical, collaborative review process between the European Commission and BEREC. These indicators are as follows:

- Total number of non-residential broadband internet access
- Number of non-residential broadband internet access <30Mbps
- Number of non-residential superfast broadband internet access \geq 30Mbps
- Revenues from non-residential broadband internet access
- Number of non-residential M2M SIM cards²
- Number of active non-residential mobile broadband (at least 3G) users
- Non-residential mobile data volumes
- Total non-residential mobile revenues (calls, SMS/MMS, data, roaming out)³

One of the Commission's motivations for favouring these indicators is that they are very relevant with respect to the Gigabit Society initiative. Given the Commission's strategic connectivity targets for 2025, indicators that can be used to support and report on the policy initiative, i.e. the Gigabit Society, are of importance. For BEREC, one of the early motivations for this project was to try and estimate the size and value of the non-residential market in Europe. This motivation and ambition still stands.

Because of this, BEREC has proposed a second internal phase of this work to be conducted in 2018, whereby BEREC will conduct its own benchmarking exercise, separate to the European Commission's, which will focus on, what might be considered more traditional indicators. It is foreseen that this exercise will provide an estimation of the non-residential market of the 'here and now', while it could be said that the indicators proposed to the Commission are more forward looking; for the non-residential market as it will be in 3-5 years. This report also sets out an additional eight indicators for BEREC to benchmark internally in 2018.

² With a distinction between M2M SIM cards and other SIM cards (i.e. SIM cards with at least one voice service and data-only SIM cards).

³ Excluding M2M revenue.

1. Introduction

An underlying objective of BEREC is to develop and improve the benchmarking of national data that can be useful for the monitoring of the evolution and harmonisation of electronic communication markets, both at retail and wholesale level. Thus, BEREC is committed to enhancing the quality of statistical and census data produced by NRAs by closely following market developments. In this sense, the non-residential⁴ market is of interest to national authorities as it represents an important segment of telecommunications services in some countries.

However, the current availability of statistical information on the non-residential market, at the European level, is relatively limited and therefore does not allow for a robust assessment of the evolution of this market. The lack of indicators/data is also problematic when it comes to defining the characteristics of the non-residential market, and to analysing the level of competition prevailing in the market. Much of the currently available data comes from surveys carried out by operators and/or NRAs. ComReg, for example, most recently published a survey on SMEs (small and medium-sized enterprises) in 2015, with some of its results illustrated below in Figure 1.

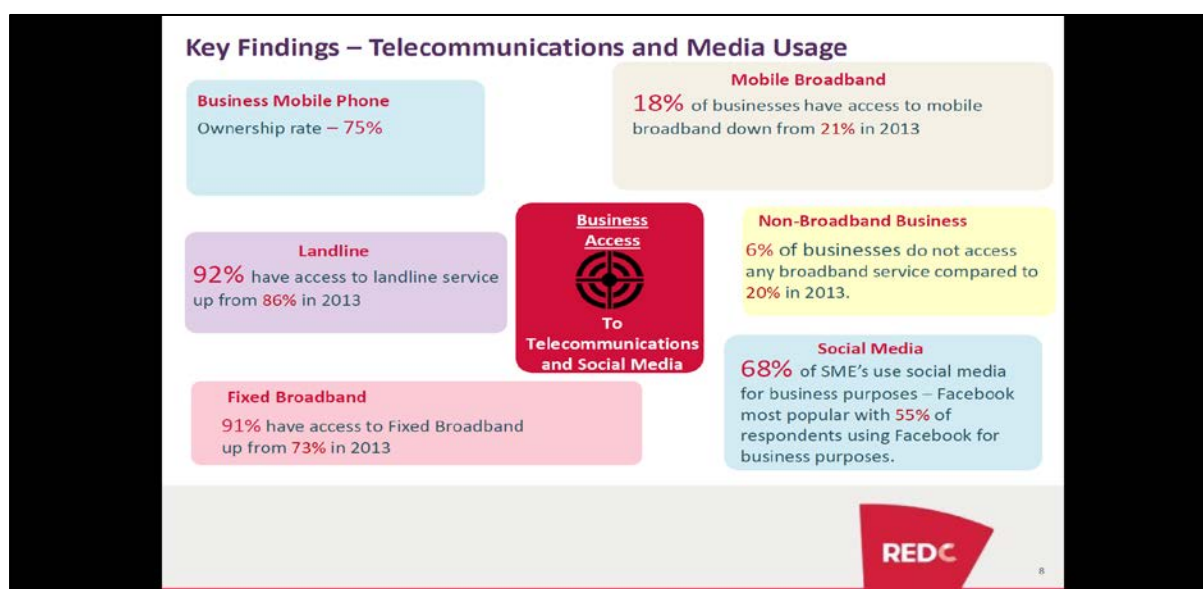


Figure 1: ComReg ICT Business Survey (SME Market), 2015. Source, ComReg.

In addition, each year Eurostat circulates a questionnaire to those companies that employ at least 10 people, which focuses on the internet usage of those companies. This information is useful but it provides no indication about the evolution of the business market, its characteristics, and/or its level of competition. For example, Figure 2 illustrates data from Eurostat to compare social media usage by enterprises across the EU28 in 2013 and 2015.

⁴ When the project was initially developed, the reference was to the business market. However, further discussion led to a change in terminology to the non-residential market, in order to include all uses of electronic communication service(s) for the performance of economic activities.

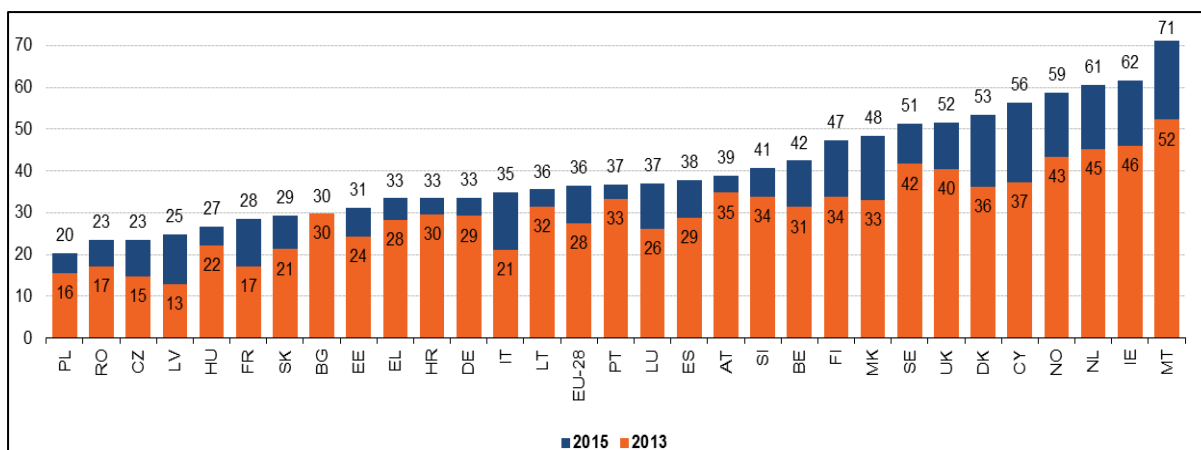


Figure 2: % of enterprises using social networks, 2013 & 2015. Source, Eurostat.

Given this lack of institutional data, it was agreed by BEREC that it would be very beneficial to have a more precise overview of the non-residential market at the European level, which is often very different from the residential market in terms of revenues, usage and equipment.

The goal of this BEREC report was to propose to the European Commission a set of indicators which could be included in the questionnaire that is used for the Digital Scoreboard. The project required an information gathering exercise, which requested details of the practices used by all NRAs regarding the following subjects⁵:

- Which definitions are used to characterize the non-residential market;
- What kind of non-residential telecommunication services are being monitored;
- What types of data are collected on both mobile and fixed market, in terms of volume, revenue and number of accesses/lines;
- For each type of data, what is the information gathering cycle (quarterly, annually, etc.);
- What set of data is finally published.

In June 2017 the questionnaire was circulated to all NRAs. In total, 31 NRAs provided a response to the questionnaire⁶. Discussion between BEREC and the European Commission surmised that the most relevant indicators, which could readily be incorporated into the Digital Scoreboard (through the annual questionnaire) were those that would further inform the European Commission's initiative '*Towards a Gigabit Society*'⁷. Given the Commission's strategic connectivity targets for 2025, indicators that can be used to support and report on the policy initiative, i.e. the Gigabit Society, are of importance. In addition, the Commission clearly states that its targets reflect not just the ever-increasing levels of internet traffic from consumers, but from businesses also.

⁵ The questionnaire circulated to all NRAs is included in Annex 1.

⁶ An illustration of the summary of the responses to the questionnaire is included in Annex 2.

⁷ Connectivity for a Competitive Digital Single Market - Towards a European Gigabit Society, 14 September 2016.

Therefore, the Commission's requirement with respect to this BEREC exercise is twofold; on the one hand the indicators that are of most interest to the Commission can contribute to its reporting on connectivity targets going forward towards 2025, and on the other hand, the Commission has placed a clear importance on not just consumers (i.e. the residential market) but also on businesses (i.e. the non-residential market), whereby they state in their objectives that vastly improved connection speeds for businesses, all schools, transport hubs and main providers of public services is a target for 2025.

This report presents the main findings regarding the types of data collected by NRAs, including a discussion on how NRAs define non-residential customers, as well as the difficulties faced by NRAs in this process (section 2). Section 3 of the report provides more detail on the cases where a significant amount of data is collected on the non-residential market (France and Slovenia). In contrast, section 4 of the report presents the situations of Cyprus and The Netherlands, where little or no data on the non-residential market is collected, and why. Section 5 of the report sets out the indicators which BEREC has proposed to the European Commission for the purpose of benchmarking, including a discussion on the pros and cons of these specific indicators. Finally, section 6 of the report presents the final conclusion of the assessment, and also discusses future work for BEREC in this area.

2. Availability of data

In June 2017, the Benchmarking Expert Working Group circulated a questionnaire to all National Regulatory Authorities (NRAs), in order to evaluate which non-residential (fixed and mobile) market indicators are currently being collected across Europe. The intention of this initiative was to estimate the size of the non-residential market in Europe by proposing, to the European Commission, a common set of such indicators which can be benchmarked, going forward, as part of the Digital Agenda Scoreboard.

The questionnaire⁸ covered access, traffic, and revenue indicators across both the fixed and mobile sectors. Additionally, NRAs were asked how they define the non-residential market or non-residential customers, and how often they collect such data, as well as whether or not the data is published. Questions on the confidentiality of operator data were also asked.

Responses were received from 31 NRAs. Of those who responded, 27 NRAs indicated that they collect some information (non-survey based) from operators on the non-residential market. BEREC has summarised⁹ the responses to the questionnaire and the remainder of this section of the report assesses the responses, and presents the main findings by looking at issues relating to the collection of data by NRAs (2.1), the definitions used by NRAs regarding the various indicators (2.2), an analysis of the data collected with respect to the fixed indicators (2.3), an analysis of the data collected with respect to the mobile indicators (2.4), and finally a discussion on the difficulties faced by NRAs in collecting information on the non-residential market (2.5).

2.1. Collection of data by NRAs

The questionnaire circulated to the NRAs by BEREC was divided into two sections. The first section of the questionnaire focused on general questions regarding the collection of non-residential data, how the NRA defined non-residential subscriptions/customers, and confidentiality. The second, more detailed section of the questionnaire focused on various indicators across the mobile and fixed sectors, the periodicity of data collection, and to what extent NRAs publish this information.

Table 1 below illustrates the specific responses from all 31 NRAs. Only Cyprus, Latvia, Switzerland, and Liechtenstein indicated that they do not collect any data on the non-residential market. In total, 87% of those NRAs that responded to the questionnaire collect some data on the non-residential market.

<i>Does your NRA collect any information (non-survey based) from operators on the non-residential market?</i>	
Yes (27)	No (4)

⁸ See Annex 1.

⁹ See Annex 2.

BE, BG, CZ, DK, EE, IE, EL, ES, FR, HU, LU, MT, PT, RO, SI, SK, SE, NO, RS, NL, IS, AT, HR, FI, PL, UK, IT	CY, LV, CH, LI
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Table 1: Summary of responses to the question: Does your NRA collect any information (non-survey based) from operators on the non-residential market? Source, BEREC.

Of the 27 NRAs that do collect any data on the non-residential mobile market, 15 NRAs (56% of those NRAs that collect) said that they collect a basic metric of access, i.e. the total number of non-residential SIM cards (including M2M). For the fixed sector, of the 27 NRAs that do collect any data on the non-residential market, 24 NRAs (89% of those NRAs that collect) said that they collect a basic metric of access, i.e. the total number of non-residential fixed telephony subscriptions.

Tables 2 and 3 below illustrate the specific responses from the 27 NRAs that indicated some level of non-residential data collection. More detailed analysis on the fixed and mobile indicators specifically can be found in sections 2.3 and 2.4 below.

<i>Which indicators does your NRA collect and/or publish on the non-residential mobile market: total number of SIM cards (including M2M)</i>	
Yes (15)	No (12)
BE, CZ, IE, EL, ES, FR, SI, SE, NO, IS, AT, HR, FI, UK, IT	BG, DK, EE, LU, HU, MT, PT, RO, SK, RS, NL, PL

Table 2: Summary of responses to the question: Which indicators does your NRA collect / publish on the mobile non-residential market: total number of SIM cards (including M2M). Source, BEREC.

<i>Which indicators does your NRA collect and/or publish on the non-residential fixed market: total number of business fixed telephony subscriptions</i>	
Yes (25)	No (2)
BE, BG, CZ, EE, IE, ES, FR, LU, HU, MT, PT, RO, SI, SE, SK, NO, RS, NL, IS, AT, HR, FI, PL, UK, IT	DK, EL

Table 3: Summary of responses to the question: Which indicators does your NRA collect/publish on the non-residential fixed market: total number of business fixed telephony subscriptions. Source, BEREC.

NRAs primarily collect data using two formats; 13 NRAs gather information using Excel spreadsheets, while 14 NRAs use a link to a secure website for uploading data. In total, 22 NRAs have provided links to examples of data collection in their country. With respect to the confidentiality of data (across both the fixed and mobile sectors), 17 NRAs responded to say

that there are confidentiality issues regarding some of the data they collect, while 13 NRAs do not have any confidentiality issues regarding the non-residential market indicators¹⁰. Finally, with regard to the periodicity of data collection, all but one NRA collects the data at least on an annual basis, while one NRA collects data for the purposes of market analysis only.

2.2. Definitions

As part of the questionnaire circulated by BEREC, NRAs were asked how they define a non-residential customer. Among groups of countries that split information between non-residential and residential, 18 NRAs have a specific definition for the non-residential segment. However, there are clear differences between NRAs. 5 NRAs do not specifically define the non-residential market (or what could be considered a non-residential customer), but consider a generic definition instead.

Definitions provided in the questionnaire are based on three main criteria:

- The status of the consumer
- The nature of the plan offered by the operator
- The type of use (personal versus non-personal)

Table 4 below provides an overview of the criteria used, with respect to definitions in each country¹¹.

Nature of consumer: Legal vs private persons		Type of use: personal versus work/business	Business plan
VAT number or equivalent	Other		
CZ, DK, ES, FI, FR, IT, LU, NO, PT*, SE	BG, EE, EL, HU, IS, NL, PL, RO, SI, SK	BE ¹² , PT ¹³ , HR	IE (Mobile), UK, AT ¹⁴

Table 4: Definition of non-residential segment. Source, BEREC.

¹⁰ As this assessment covers both the fixed and mobile sector, the number of NRAs who say they have no confidentiality issues (17) and the number of NRAs who say they have confidentiality issues (13) does not sum to the 27 NRAs that collect non-residential data.

¹¹ Note that several NRAs mention that they provide no definition to operators in collecting data, but they describe what is as considered "business" in responding to this question. In the current analysis we focus on the types of definitions provided, whether it is official or not.

¹² This definition is only valid for the data collected through the CoCom broadband form as it was introduced by the BIPT to comply with the definition prepared by CoCom in the past: Consumer lines are household connections for personal use. Connections for any other purpose (work, education, government, etc.) are considered "business". When CoCom removed the RES/BUS segmentation (from 2012 on) from the broadband form, the BIPT continued to apply the market segmentation and corresponding definition. For the annual enquiry of the BIPT however, all operators mentioned in the past that the segmentation is based on the VAT number.

¹³ PT: the classification should be made based on the use of the service but operators can also may resort to tax numbers or other criteria accepted by the regulator.

¹⁴ Mobile Broadband and fixed telephony subscriptions: by customer, fixed broadband: by business plan.

The first group of NRAs define “non-residential subscriptions” as all legal persons or entities; most of them identified by an identification number (VAT or equivalent). Others define “non-residential subscriptions” as legal persons or corporations registered under their national law.

3 NRAs consider that the criteria should be the type of use of the service: for business or private use, i.e. if the customer mainly uses the service for business purposes. 2 NRAs consider that business should reflect the use of a service, based on specific tariffs, i.e. non-residential subscribers as “customers with a current business plan subscription”.

However, the responses range from those that leave no room for the operator on how to classify information to those that leave some room for the operator on how to classify information:

- 9 NRAs (CZ, DK, ES, FI, FR, IT, LU, NO, SE) indicated that the only criteria is the customer tax or business identification number;
- 8 NRAs (AT, BG, EL, IS, NL, RO, SI, SK) define “non-residential subscriptions” as legal persons but some sort of legal definition is needed at the national level;
- 2 NRAs (IE, UK) indicated that business customers should be defined based on tariff plans;
- 3 NRAs (HU, PL, EL) refer to consumers that are not residential or similar but with no guidelines on how operators should sort them;
- 2 NRAs (PT, BE) consider that the classification should be made based on the use of the service but they also may resort to tax numbers or other criteria accepted by the regulator (in the specific case of PT);
- 4 NRAs (EE, MT, NL, UK) consider that it is up to the operator to decide on how to classify data.

2.2.1. Difficulties and limitations with current definitions

Between residential and non-residential, there is a grey-zone where there are customers for which it is difficult to say if they fall into one category or the other. The concept of business/non-residential does not have well-defined boundaries and NRAs point out difficulties on identifying these customers, and therefore there could be difficulties for comparison. Some of the difficulties mentioned by NRAs include:

- The tax or business identification number (for example, the VAT number) as a proxy has limitations, especially related to self-employed/individual entrepreneurs and small business with a different number.
- Most NRAs also include public entities, government and administrations, non-profit organization, etc. other than simply businesses.

- Many small and micro-enterprises use residential plans. For some operators, it is impossible to identify which residential packages are used for non-residential purposes.
- Lack of harmonisation on definition may lead to an issue with comparability of any data collected.

Based on the definitions which different NRAs have put in place, and considering the above limitations, we identify as the major problem of comparability the difference between the definitions based on the nature of the residential and the non-residential plan (for example business tax payers who use residential plans). There are additional problems, such as how operators can classify data, but they may not be insurmountable if operators are using converging criteria.

2.2.2. Business versus non-residential

The term “non-residential subscriber” encapsulates both businesses and public sector bodies and, as such, is better suited for the type of information that NRAs would like to compare. “Non-residential” is a broader term and reflects what most NRAs consider as a “business” subscriber. 21 NRAs clearly includes all these entities in their “business” definition while only 4 NRAs considers business subscribers in the very narrow sense. 2 of the NRAs that collect this type of data do not define specifically with respect to business or non-residential

Non-Residential (21)	Business (4)	Not defined (2)
BE (work, education, government) BG (sole trader and a civil association) CZ (including small business and self-employed) EL, DK, EE, ES, FI, FR, HU, IS, IT, LU, NL, NO, PL, PT, RO, SE, SI, SK	AT, HR, IE (Mobile), UK	RS, MT

Table 5: Split of NRAs who collect data for this market, by definition; either Non-Residential or Business. Source, BEREC.

For the purpose of this report, and for future reference with respect to this benchmarking process, non-residential is used, given that it is what is used by the vast majority of NRAs, and should also cover the business definition.

2.2.3. BEREC non-residential definition

In light of the preceding discussion, and the fact that there are multiple and varying definitions used across all NRAs, BEREC considers it essential to, at least, begin moving towards a harmonised definition for non-residential customers, in order to minimise the difficulties set out

above. For the purpose of a data collection by the European Commission, BEREC proposes the following definition:

A non-residential customer primarily uses an electronic communication service(s) for performing economic activities. Non-residential customers include businesses, entrepreneurs/self-employed individuals, non-governmental organisations, and public/state sector bodies.

Given that varying definitions that NRAs currently use, BEREC considers it necessary to provide some guidance on the usage of the above definition. Therefore, NRAs may consider allowing operators to use criteria equivalent to the definition and should settle, in their own terms, on how to check these criteria. Where possible, residential connections used for business purposes, even in the case of entrepreneurs/self-employed individuals, should be counted as non-residential, as such connections are used for the purpose of performing economic activity. One possible approach is to consider that the non-residential customers are identified by the operator using a tax identification number for legal persons and entities.

2.3. Fixed indicators

In the questionnaire circulated by BEREC, NRAs were asked whether or not they collect data on 14 individual fixed indicators. Figure 3 below summarizes the responses of all NRAs by providing the percentage of NRAs that answered yes/no/not applicable for each indicator. An additional illustration of the NRAs' responses across both the fixed and mobile sectors of the non-residential market is provided in Annex 2.

The fixed indicators that have the most NRAs currently collecting data are 'total number of broadband internet access' and 'total number of fixed telephony subscriptions', where 77% of NRAs responded that they do collect data on those two indicators. 61% of NRAs responded that they do collect data on the two indicators 'revenues from broadband internet accesses' and 'revenues from fixed telephony'.

It was found that the indicators on 'fixed data volumes' and 'revenues from leased lines and VPN-IP access' had the least percentage of NRAs collecting data; 29% and 45% respectively. In general, about half of all NRAs collect data for the remaining 8 indicators.

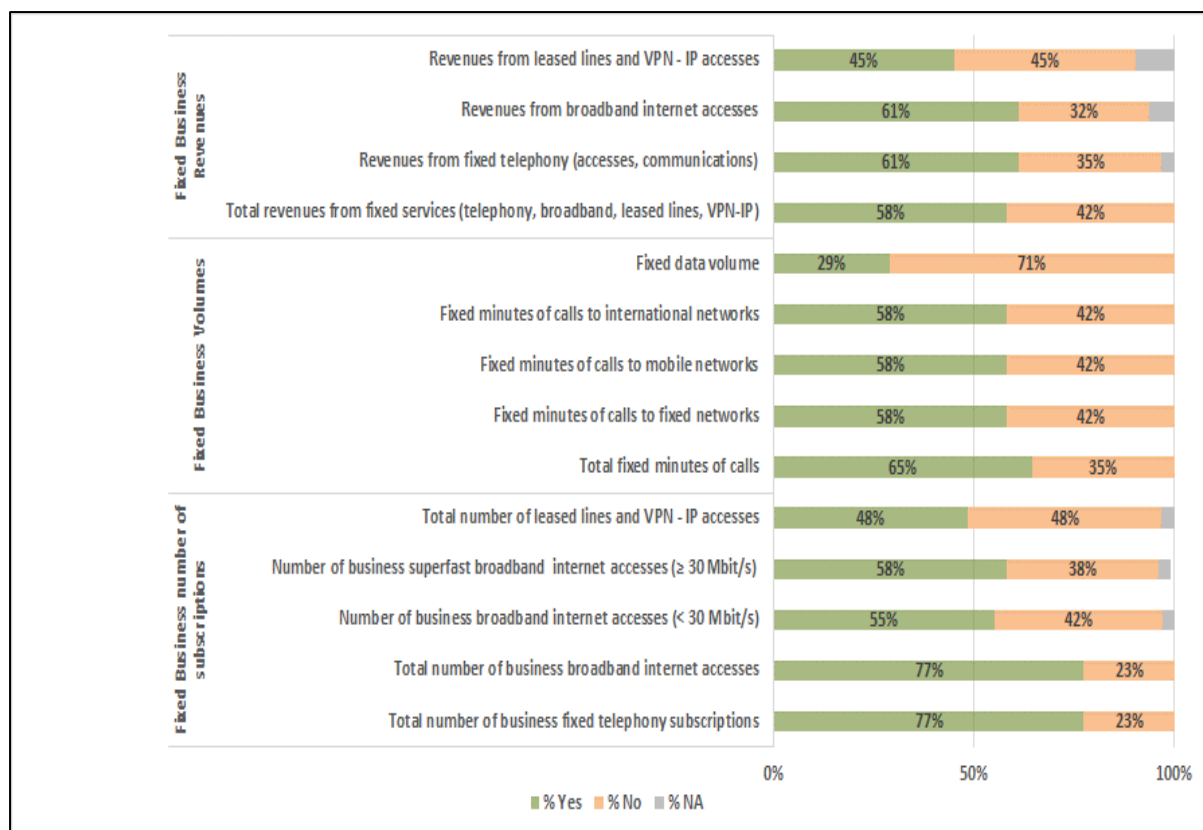


Figure 3: % split of NRA answers to the fixed section of the questionnaire. Source, BEREC.

2.4. Mobile indicators

In the questionnaire circulated by BEREC, NRAs were asked whether or not they collect data on 20 individual mobile indicators. Figure 4 below summarizes the responses of all NRAs by providing the percentage of NRAs that answered yes/no/not applicable for each indicator. An additional illustration of the NRAs' responses across both the fixed and mobile sectors of the non-residential market is provided in Annex 2.

The mobile indicator that has the most NRAs currently collecting data is 'total mobile minutes of calls' with 52% of NRAs, followed by the indicators on 'total mobile revenues', 'number of SMS/MMS', and 'total number of SIM cards', all with 48% of NRAs collecting data.

It was found that the indicator on 'mobile roaming data volumes' was the least collected by NRAs, with only 19% of NRAs collecting data on that indicator. In general, about one third of NRAs collect data for the remaining 14 mobile indicators.

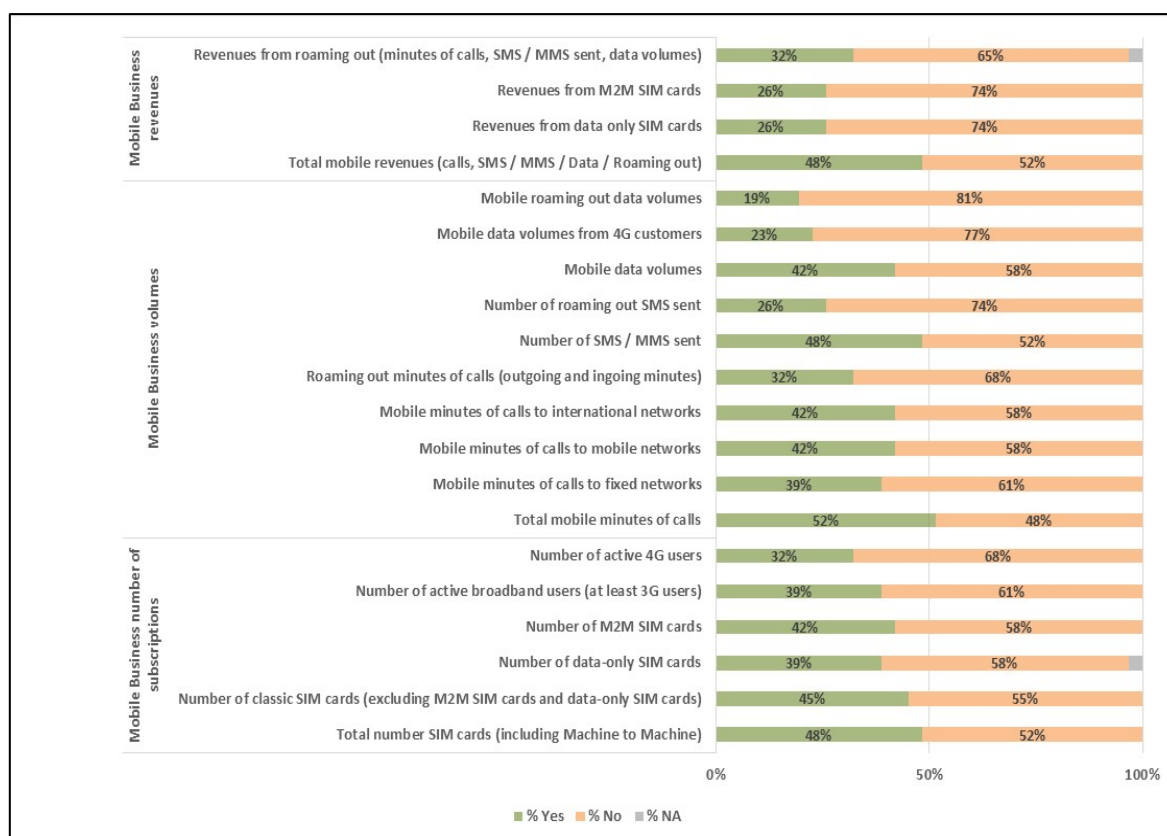


Figure 4: % split of NRA answers to the mobile section of the questionnaire. Source, BEREC.

2.5. Difficulties with data collection

Based on some of the experience of NRAs recounted to BEREC in the responses to the questionnaire, it could be reasonably surmised that some of the difficulties faced in collecting data on the non-residential market may initially begin at the operator-customer relationship level, for example in terms of how a customer identifies themselves to the operators providing the service. There are clearly problems of confidentiality faced by some NRAs, and therefore one potential solution is that only aggregated data across Europe, or perhaps market shares, could be published.

Such an issue may more readily be resolved in the fixed market, though there are clearly still some issues in that sector too, for example, with respect to small home offices. However, this type of situation wouldn't necessarily be so significant across Europe that it could lead to a distortion in trying to value the size of the non-residential fixed market.

In the mobile sector, the blurring of lines (or the grey-zone, as one NRA put it, in their response to the questionnaire) between residential and non-residential creates more of a difficulty for NRAs to try and (a) capture this data, and (b) estimate the size of the market. Given the seemingly unending growth to the value of the mobile sector, it is more problematic when there is a lack of ability on behalf of the operators to identify non-residential users, and therefore their usage and revenues, and thus a difficulty for NRAs to capture the relevant data.

BEREC issued the questionnaire to all European NRAs. While 31 provided a response, only 27 NRAs stated that they collect any kind of data on the non-residential market. Therefore, the first difficulty to recognise is that there are 4 NRAs that simply do not collect any information on this market; Cyprus, Latvia, Switzerland and Liechtenstein. The case of Cyprus is elaborated in section 4.1 of this report.

On the mobile side, of the 27 NRAs providing data, 14 NRAs collect less than 10 (i.e. less than 50%) of the indicators set out in the questionnaire. The responses from NRAs suggest, in general, that in the non-residential mobile sector there are clear difficulties in terms of definitions as well as a lack of clarity for operators in terms of which subscribers are residential and which subscribers could be considered to be non-residential. Finally, on the fixed side, of the 27 NRAs providing data, 7 NRAs collect less than 7 (i.e. less than 50%) of the indicators set out in the questionnaire.

3. Case studies of countries with detailed collection of non-residential market data

This section presents case studies on the situations in France and Slovenia with respect to the collection of data on the non-residential market. In France, a customer is regarded as part of the non-residential market if a SIRET number (national identification number for companies) can be provided when subscribing to a telecommunication offer. In Slovenia, non-residential users are legal entities including sole proprietorship, which use publicly available electronic communications services.

The questionnaire circulated by BEREC covered 20 mobile indicators and 14 fixed indicators, covering access, volumes and revenues. For France, 16 of the mobile indicators are collected and 13 of the fixed indicators are collected. For Slovenia, 13 of the mobile indicators are collected and 9 of the fixed indicators are collected. Section 3.1 below provides more detail on the French case, while section 3.2 below provides more detail on the Slovenian case.

3.1. France

In France, the non-residential market differs from the residential market in many aspects (prices, evolution of the market, market shares, etc.), and represents a significant part (30%) of the retail total revenue of electronic communications services. It is therefore important for France to have an economic overview of the business telecommunications market in Europe, in order to benchmark performance in France against other European countries.

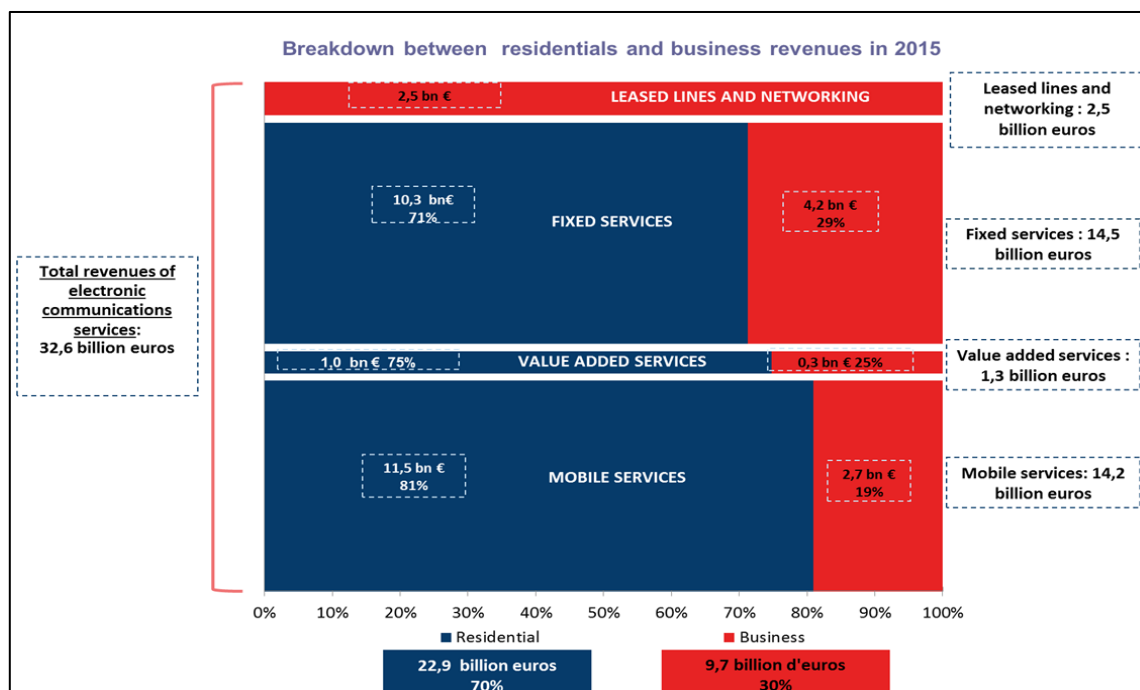


Figure 5: Comparison of the value of the non-residential and residential markets in France, 2015. Source, Arcep.

3.1.1. Non-residential fixed market

Even though a lot of indicators are collected in the fixed market, some of them are currently more relevant for regulatory purposes. These indicators could certainly contribute to the European Commission's proposals for the Gigabit Society.

For example, for the number of broadband and ultrafast broadband lines, a distinction is made between internet access subscriptions mostly subscribed by small and medium-size (SME) companies and leased lines and networking accesses used by medium and large companies. Compared to 2014, the numbers of these subscriptions have stayed relatively stable through 2015.

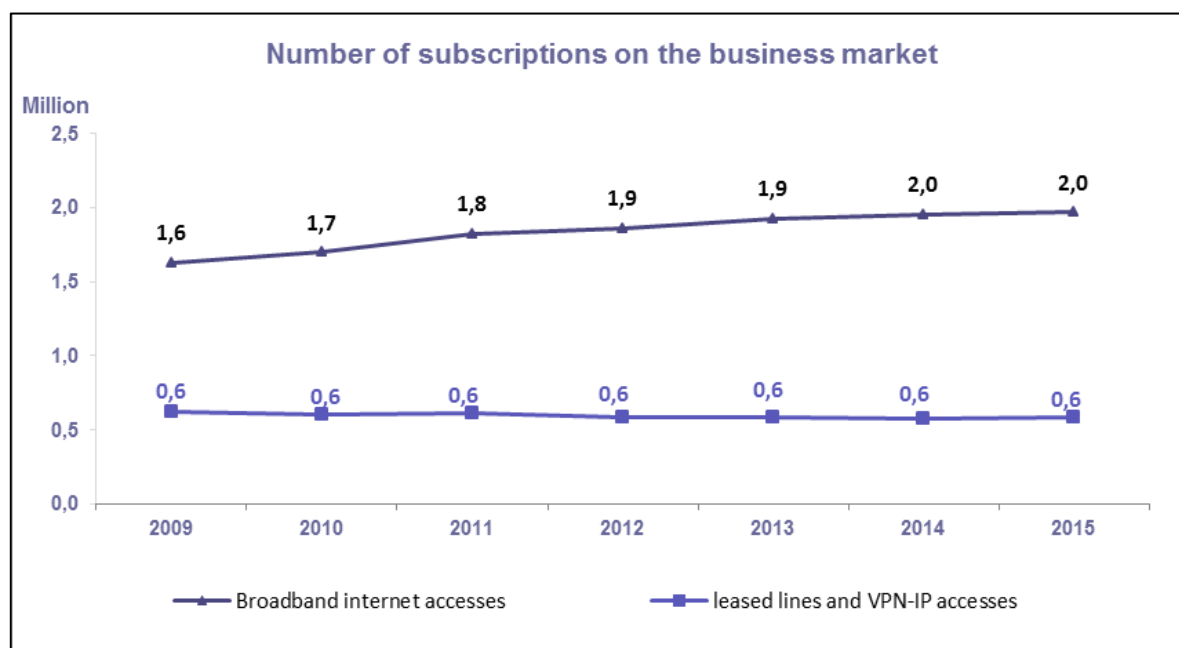


Figure 6: Number of business market broadband and leased lines/VPN-IP subscriptions, 2009-2015 in France. Source, Arcep.

The French NRA, Arcep, also makes a distinction between internet broadband access (<30 Mbit/s) and internet superfast broadband access (≥ 30 Mbit/s). Finally, one indicator useful for regulatory purposes is the proportion of subscriptions based on fibre technology (FttH and FttO¹⁵, FttLA¹⁶ technologies) compared to the proportion of residential subscriptions that use these technologies. Figure 7 below shows that the proportion of fibre access, and more generally superfast access, is less important in the business market than in the residential one especially for small and medium-size (SME) companies.

¹⁵ Fibre to the Office.

¹⁶ Fibre to the Last Amplifier.

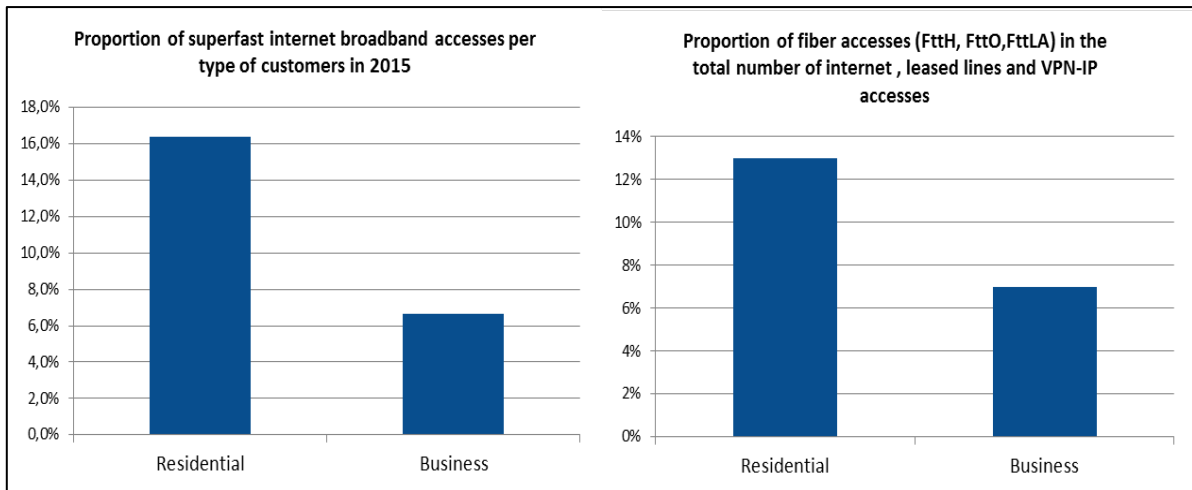


Figure 7: Comparison of residential and non-residential access to superfast internet and fibre in France (2015). Source, Arcep.

Arcep also collects some important fixed market indicators. In terms of revenues, it is essential from Arcep's point of view to know how revenues evolve from one year to another. It also gives information on the increase or decrease of the expense per access in the fixed market. Figure 8 below shows that the total expense per leased line or VPN-IP access is around €350 per access per month and has tended to be stable between 2010 and 2015. Offers which are subscribed most generally by small and medium-size (SME) companies cost on average around €90 per access and were relatively stable between 2012 and 2015.

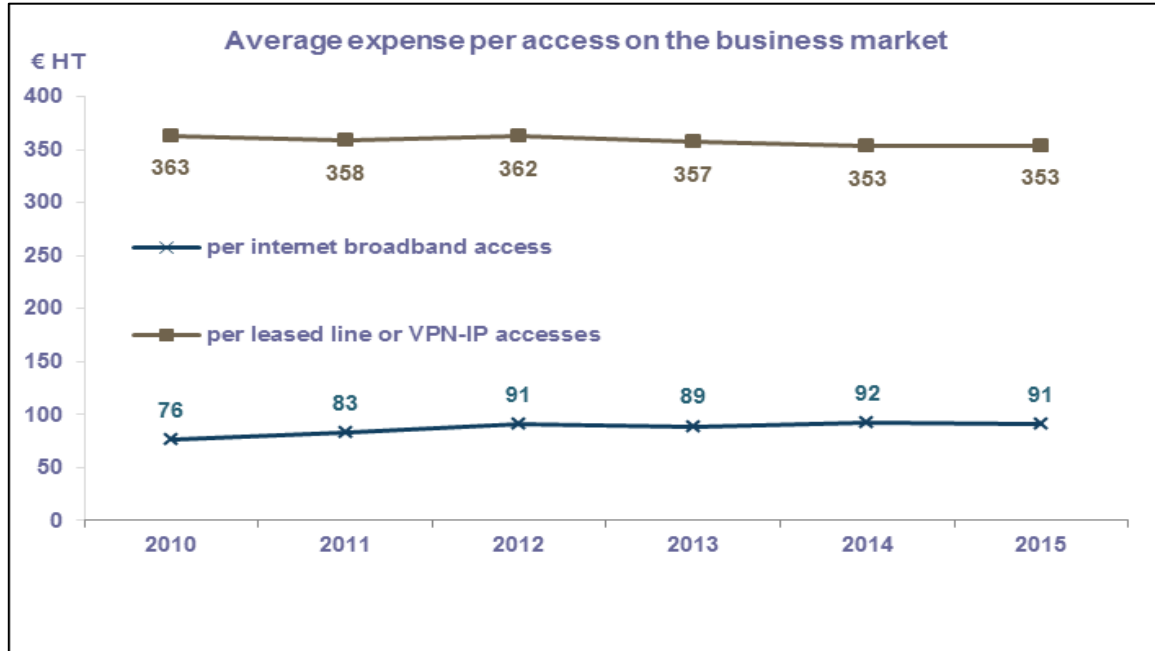


Figure 8: Average expense per non-residential broadband subscription in France, 2010-2015. Source, Arcep.

3.1.2. Non-residential mobile market

In the mobile market, Arcep collects and publishes the following indicators with respect to the non-residential market:

- Revenues
- Number of traditional SIM cards
- Number of Machine to Machine (M2M) SIM cards
- Volumes of minutes
- SMS
- Data and revenue from mobile services with a distinction between M2M revenue and classic mobile revenue

The main goal of collecting these indicators, for Arcep, is to have an economic overview of the evolving non-residential mobile market. At the European level, Arcep is particularly interested in having a general view of the expense per line, which constitutes, in a certain way, a useful indicator on the level of competition in the mobile market. Figures 9 and 10 below show the evolution of the non-residential mobile market in France in terms of number of subscriptions, usage in data consumption and monthly average expense per year.

In France, the number of classic mobile lines reached 7 million at the end of 2015, with a higher annual growth for non-residential (+3%) than the residential market (+0.7%). The number of data only SIM cards hasn't changed significantly for three years. In contrast, the number of M2M SIM cards has increased quickly, year on year, for several years and by the end of 2015 stood at 10.6 million.

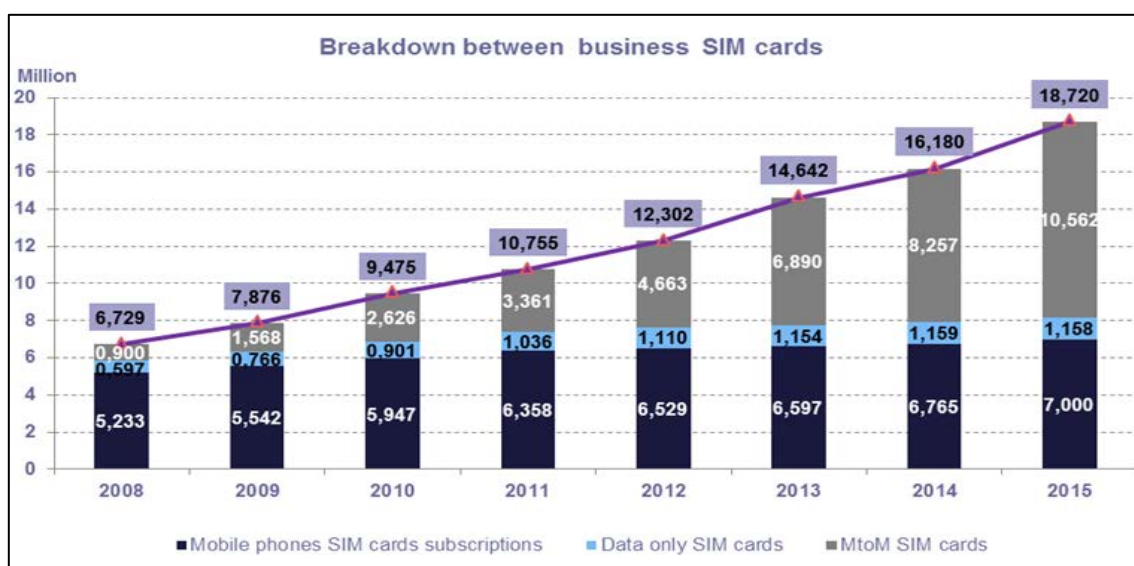


Figure 9: Type of non-residential SIM cards in France, 2008-2015. Source, Arcep.

The total volume of data in the non-residential market has almost doubled between 2014 and 2015, which corresponds to the annual growth in the residential market. However, the average

usage per line is much lower in the non-residential market (550MB per month per line in 2015) than in the residential market (865MB per month per line in 2015)

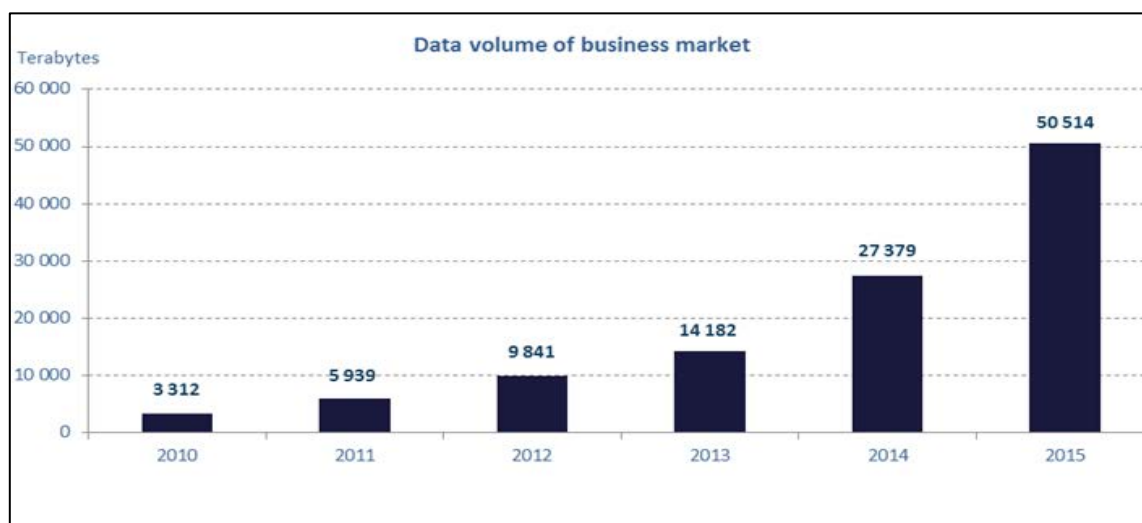


Figure 10: Non-residential market data usage in France, 2010-2015. Source, Arcep.

Total revenue (excluding M2M) has decreased since 2012, which has had a significant impact on the monthly expense per line, as evidence in Figure 11 below. This decrease is indirectly due to the arrival of the fourth mobile operator in the residential market in 2012, causing a decrease in tariffs both in the residential market and in the non-residential market.

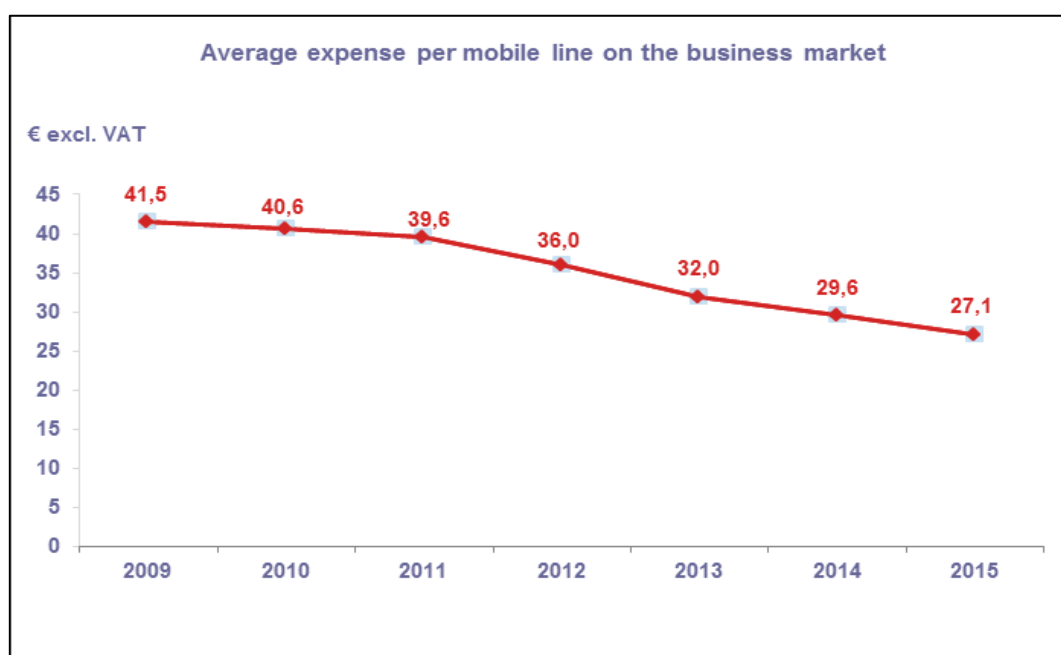


Figure 11: Average cost per non-residential mobile subscription in France, 2009-2015. Source, Arcep.

3.2. Slovenia

3.2.1. Legal and confidentiality issues

The Agency for Communication Networks and Services of the Republic of Slovenia (AKOS) collects data based on Article 201 of the Electronic communication act (Official Gazette RS, no. 109/12, 110/13, 40/14 - ZIN-B, 54/14 - Odl. US and 81/15; *ZEKom-1*) and General act on the collection, use and provision of data concerning the development of the electronic communications market (Official Gazette RS, no 77/16; hereinafter: General act).

AKOS does not publish data on the non-residential market, due to the commercial sensitivity of the operators. AKOS presents data on the non-residential market occasionally for the periodic analyses of relevant markets, as well as for its annual meeting with the European Commission, i.e. contribution to the European Digital Progress Report. When supplying and using confidential data and information, AKOS must ensure that the level of confidentiality is maintained. AKOS may only use confidential data and information for the purpose for which it was requested.

In general, aggregated absolute numbers and absolute numbers of individual operators are not published, except in the case of certain institutions determined in *ZEKom-1* and the General Act¹⁷. When supplying and using confidential data and information AKOS must ensure that the level of confidentiality is maintained for all data, which are marked as confidential by operators according to the General act (Article 3, forth paragraphs of Article 5 and Article 6).

Finally, in Slovenia, non-residential users are considered legal entities including self-employed people, which use publicly available electronic communications services. There is no difference between small and big companies. In addition, there is no difference between the fixed and mobile non-residential market definitions.

3.2.2. AKOS' experience of non-residential data collection

AKOS' quarterly questionnaire has six sections. In each section, the Slovenian NRA collects data separately on residential and non-residential users. There are only a few exceptions where the data does not separate between residential and non-residential users.

	Number of	Amount of	Revenues of
Fixed telephony	connections by technology	telephone traffic by networks and technologies	access and subscriptions by technologies
	subscribers by technology	telephone calls by networks and technologies	telephone traffic by networks and technologies
Mobile services	users (prepaid and postpaid)	telephone traffic by networks	access and subscriptions
	users of data services by networks	data traffic	telephone traffic by networks

¹⁷ Fifth and sixth paragraphs of Article 201 of *ZEKom-1* and in the first and second paragraphs of Article 5 of the General Act.

	M2M SIM cards (pre and post)	Mobile B'band traffic	data services (SMS, MMS, mobile TV)
	mobile broadband internet users of 3G and higher speed mobile technologies by networks	calls from mobile broadband internet users by networks	data traffic
	data services (SMS, MMS, mobile TV)		
Narrowband & broadband internet access	narrowband internet connections		narrowband internet connections
	broadband internet connections		broadband internet connections
	broadband internet connections by speed per technologies		
Transmission infrastructure	leased transmission infrastructure by networks (own/leased)		leased transmission infrastructure by networks (own/leased)
Television	connections by technologies		by technologies
Broadband access	Broadband connections by technologies	fixed broadband traffic	by technologies
	bundled offers		
	standalone services		

Table 6: Elaboration of AKOS' quarterly data collection for non-residential market. Source, AKOS.

AKOS has no inconvenience with the data collection of either non-residential or residential users. All active operators report data, which are requested in the quarterly questionnaires for the services they provide. Operators who do not have separated data on non-residential and residential users have adjusted their information system accordingly. However, AKOS assumes there are some instances where self-employed people subscribe to residential offers but the operator has no way of knowing that this subscriber is actually non-residential. These subscribers don't actually need the services on a level normally associated with business.

AKOS has been collecting separated data for non-residential and residential users for several years. Data was needed for previous market analyses such as the market for 'access to the public telephone network at a fixed location for residential customers' (retail market), the market for 'access to the public telephone network at a fixed location for non-residential customers' (retail market), the market for 'publicly available local and/or national telephone services provided at a fixed location for non-residential customers' (retail market) etc.

Furthermore, data on residential users is needed to designate one or more universal service providers. In addition, this separate reporting of non-residential and residential users is important for internal decision-making purposes, for preparing strategies, monitoring of the electronic communications market development (e.g. association with the Slovenian Statistical Office), and reporting on the implementation of AKOS' regulatory competences (e.g. the annual meeting with the European Commission as contribution to the European Digital Progress Report).

3.2.3. Non-residential fixed market

AKOS publishes data in such a way to protect the confidentiality of information provided by the operators. Therefore, most of AKOS' published data is presented as market shares. For example, Figure 12 below presents a comparison of the non-residential and residential market shares for the overall fixed broadband market in Slovenia.

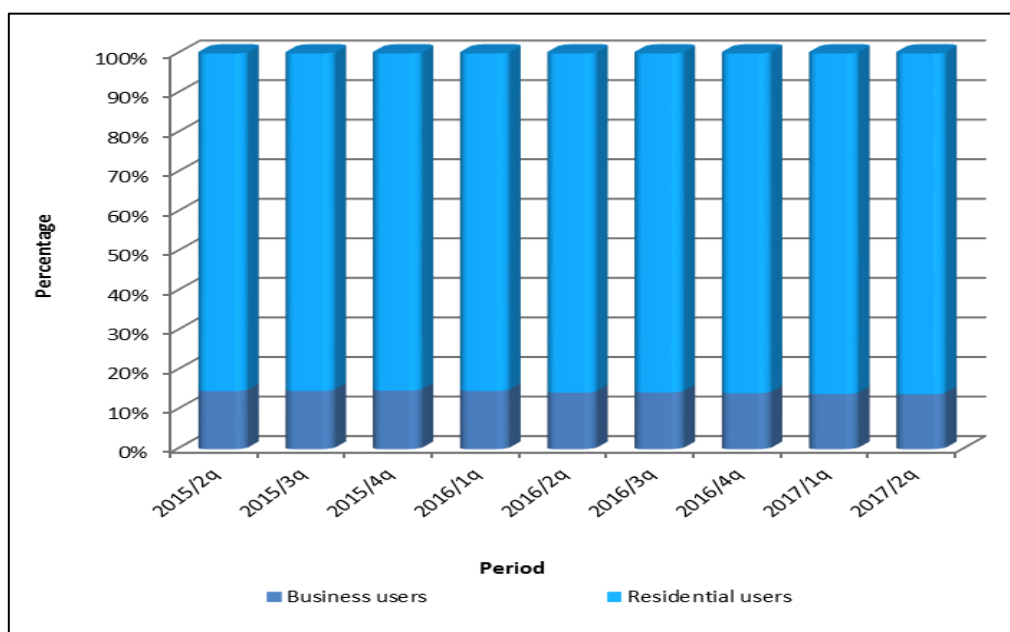


Figure 12: Market shares of fixed broadband connections for Slovenian non-residential and residential customers, 2015-2017. Source, AKOS.

Figure 13 illustrates the growth of non-residential NGA subscriptions in Slovenia over the last two years (as well as the growth in residential NGA subscriptions). According to the data, approximately 9% of all broadband connections in Slovenia are non-residential NGA, as of Q2 2017.

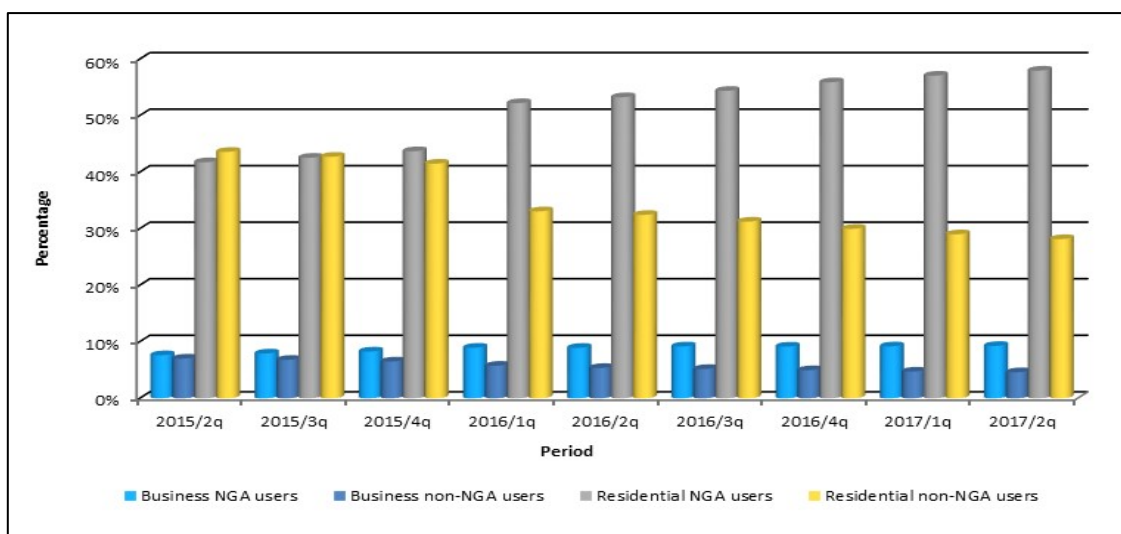


Figure 13: Market shares of NGA and non-NGA connections in Slovenia for non-residential and residential subscriptions, 2015-2017. Source, AKOS.

The data collected by AKOS can also be used to highlight the changing nature of broadband speeds in Slovenia. For example, Figure 14 captures the shift in speeds in both the non-residential and residential markets over the last two years.

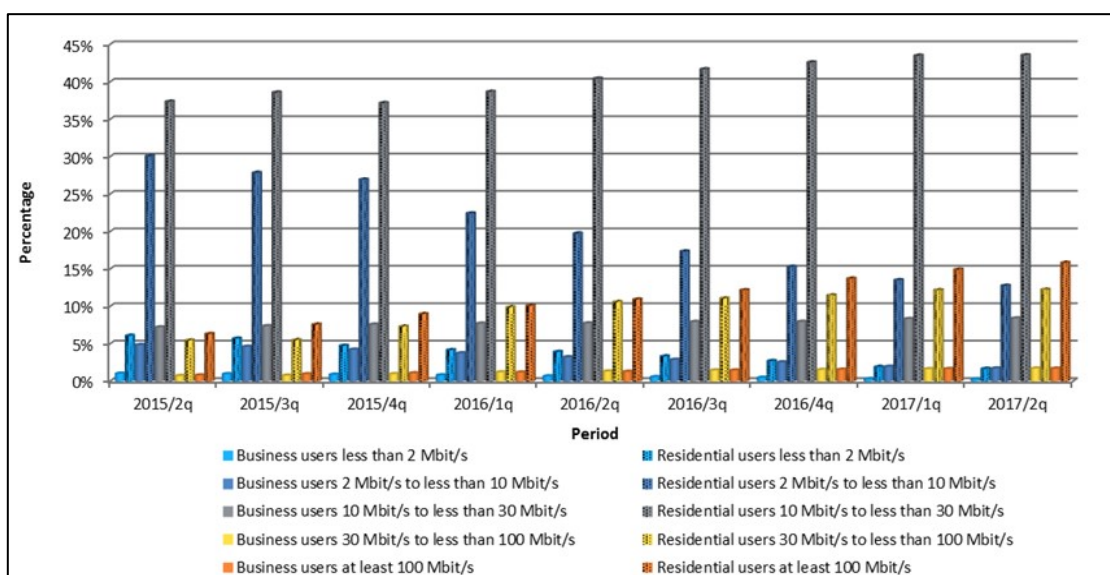


Figure 14: Market shares of NGA and non-NGA connections in Slovenia based on speeds for non-residential and residential subscriptions, 2015-2017. Source, AKOS.

3.2.4. Non-residential mobile market

For the non-residential mobile market, AKOS collects 13 of the indicators requested in the BEREC questionnaire. Similarly to the fixed non-residential data, Figure 15 below shows the split of mobile telephony users in Slovenia between non-residential and residential users.

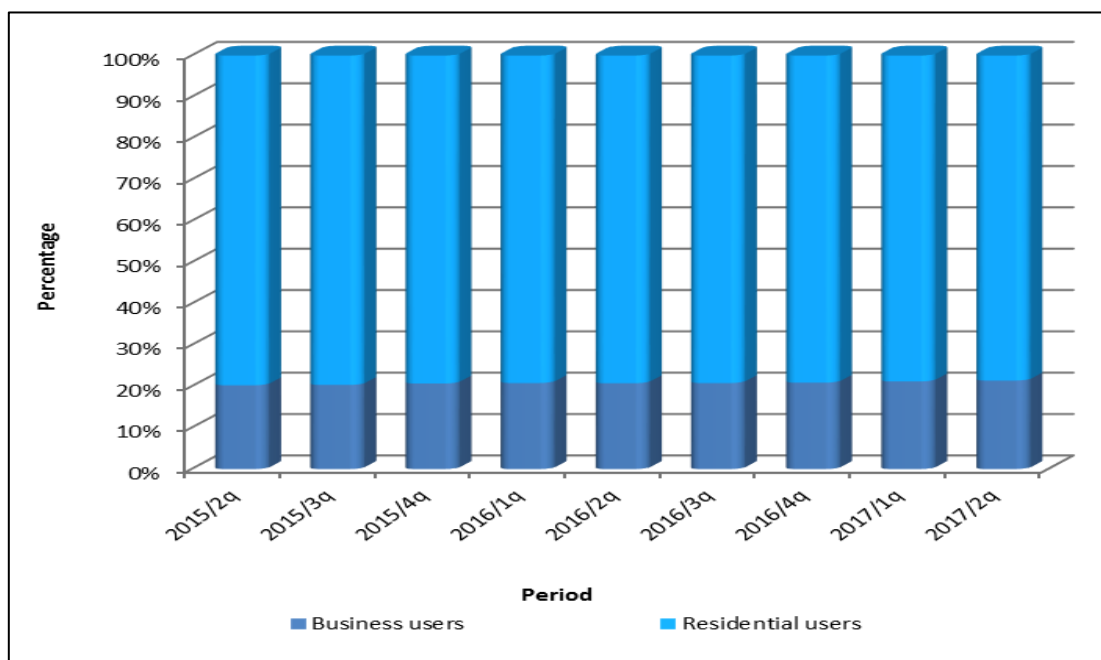


Figure 15: Shares of non-residential and residential mobile users in Slovenia, 2015-2017. Source, AKOS.

Finally, Figure 16 below illustrates the situation in the mobile broadband sector, in terms of the split between non-residential and residential users in Slovenia.

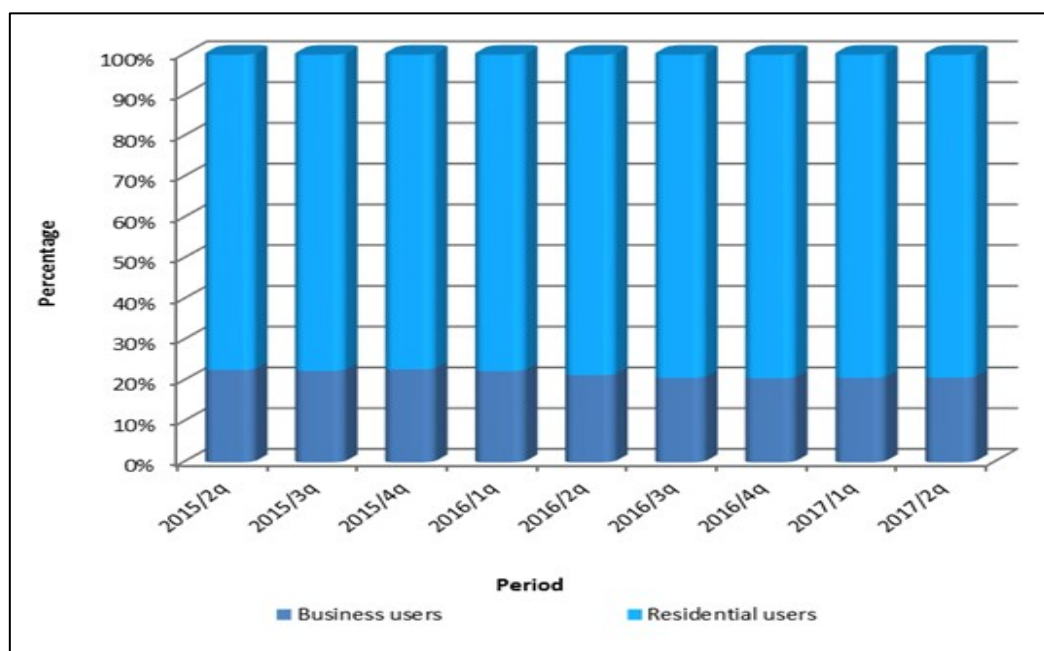


Figure 16: Shares of non-residential and residential mobile broadband users in Slovenia, 2015-2017. Source, AKOS.

4. Case studies of countries with limited collection of non-residential market data

As discussed in section 2.5, based on the responses to the questionnaire circulated by BEREC, some NRAs face difficulties when it comes to collecting data on the non-residential market. Furthermore, according to some NRAs, the relative significance (or benefit to their policy decisions) for monitoring many of the proposed non-residential market indicators is limited. In this respect, this section of the report focuses on the situation in two countries whose NRAs collect a very limited dataset on the non-residential market, The Netherlands, or do not collect data on the non-residential market, Cyprus.

In Cyprus and in The Netherlands the difficulties faced by the NRAs in collecting this type of data lead to the practical impossibility of data collection, and currently neither NRA sees a significant need for monitoring the proposed non-residential indicators set out in the BEREC questionnaire.

4.1. Cyprus

As already highlighted in this report, usually the dimension of businesses follows a sort of *power-law* distribution: this means that the vast majority of businesses have a small number of employees (i.e. small and medium-size enterprises (SMEs)), while few of them encompass a huge number of employees (i.e. large enterprises). According to the European Commission (which considers 250 employees as cut-off between small and medium-size enterprises and large enterprises, SMEs represent 99% of all businesses in the European Union¹⁸, as also illustrated in Figure 17 below.

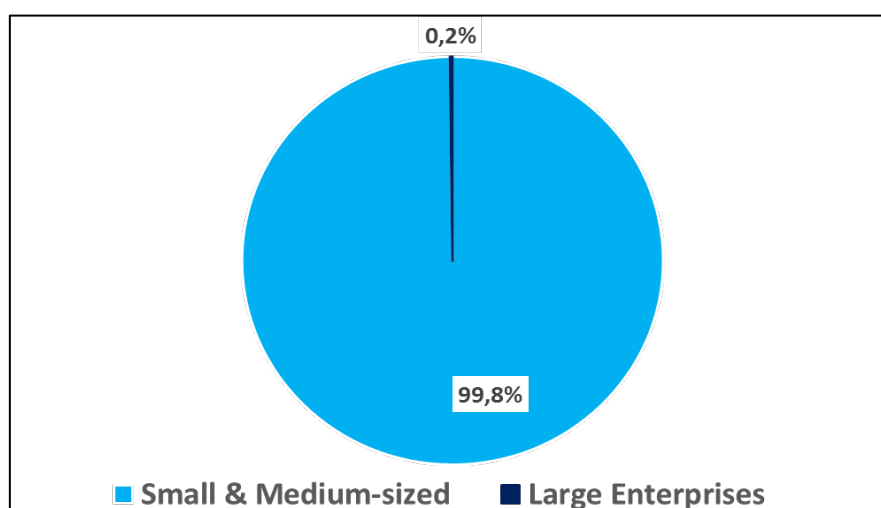


Figure 17: Enterprises in the non-financial business sector in the EU28 by size, 2015. Source, European Commission annual report on European SMEs.

¹⁸ <http://ec.europa.eu/growth/smes/business-friendly-environment>

Focusing on SMEs highlights the fact that such enterprises are essentially micro-enterprises, i.e. enterprises with less than 10 employees. In Figure 18 below, the incidence of micro-enterprises on overall enterprises is reported for 28 European countries (not specifically the EU28). According to this structure of enterprises, it is reasonable to expect that most micro-enterprises adopt a residential plan just for business purposes (for example, a home office). This phenomenon could lead to an underestimation of business/non-residential contracts.

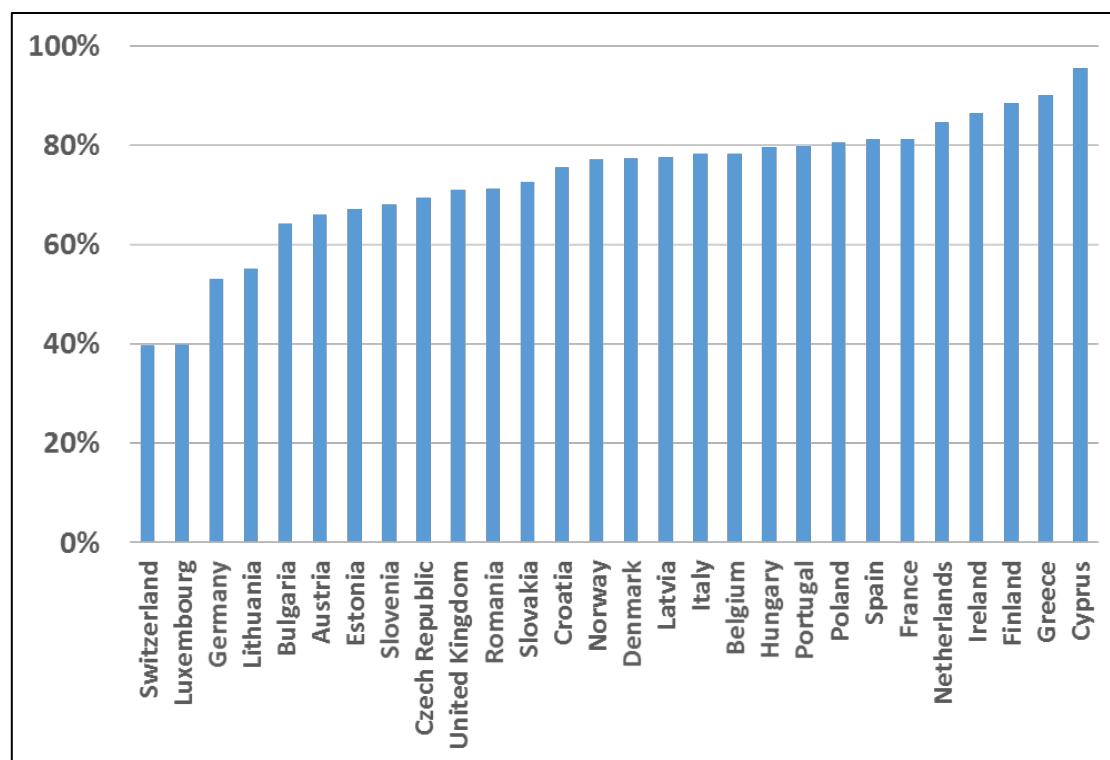


Figure 18: Percentage of micro-enterprises with respect to overall number of enterprises in the specific country, 2015. Source, Eurostat.

This is the case in Cyprus, where 96% of business have less than 10 employees¹⁹, thus the majority of these small enterprises usually opt for residential packages. As a result, collecting data for the business/non-residential packages would not give a fair representation of the market.

Moreover, as highlighted in the questionnaire circulated by BEREC, when Cypriot telecommunications operators were asked in the past whether they are able to distinguish which of the residential packages are used for business purposes, they said that this is a practically impossible task. This means that OCECPR (the regulatory authority of the Republic of Cyprus) is not in a position to provide any reliable information regarding non-residential indicators in telecom markets.

¹⁹ <http://www.cystat.gov.cy/mof/cystat/statistics.nsf>

4.2. The Netherlands

Similarly to Cyprus, and as represented in Figure 18 above, the vast majority of enterprises in the Netherlands are actually SMEs. It is therefore potentially the case that these enterprises will opt for residential lines, which suit their purposes sufficiently. This means that it would be difficult for the ACM (the regulatory authority of the Netherlands) to provide reliable information across the whole non-residential market, without underestimating those small and medium-size enterprises which actually opt for residential lines when subscribing to a telecommunication offer.

Besides this potential issue, according to the ACM, the significance for monitoring many of the proposed non-residential indicators is also relatively limited, especially regarding the mobile market. In the opinion of the ACM, there are no significant or real differences between a residential and a non-residential mobile subscription, since there is no real differentiation in quality, performance and service level agreement in The Netherlands.

Operators have also indicated to the ACM that it would be very difficult for them to make a distinction between these types of subscriptions. This would further diminish the reliability and usefulness of the collected data. The only non-residential mobile indicator that is useful to monitor according to the ACM is M2M SIM cards, as these solely constitute a business service. Other than that, the ACM sees no need for monitoring the proposed non-residential indicators for the mobile market, as set out in the questionnaire circulated by BEREC.

Regarding the fixed market, there are some indicators, mainly “Market 4”²⁰ services, which the ACM believes would be useful to monitor; for example, leased lines, dense wavelength division multiplexing (DWDM), dark fibre, and Ethernet over copper lines, etc. However, in the ACM’s point of view, the significance of many of the other proposed business indicators concerning Internet access is limited.

In the experience of the ACM, most business/non-residential end users are interested in specific (customised) low capacity (<10Mbit/s) broadband connections, for example fixed telephony. Furthermore, most enterprises with multiple locations only use one broadband connection (often from their data centre to an Internet exchange) for connecting all their locations to the Internet.

Therefore, in The Netherlands internet speeds is considered to be a real consumer service and not considered to be specifically an enterprise service, and according to the ACM there is no real need for monitoring this service from a business/non-residential perspective.

²⁰ Wholesale high-quality access at a fixed location; Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC.

5. Proposed set of indicators

This section of the report sets out the considerations taken by BEREC based on the responses to the questionnaire, subsequent discussions internally and further dialogue with the European Commission. Based on those conversations with the European Commission, it became clear to the drafters of the report that the Commission's interest was primarily concentrated on how the non-residential indicators could directly contribute to the Commission's initiative on the Gigabit Society, and the benchmarking of the relevant indicators within that process. Further internal discussion led to the consideration of BEREC conducting further work independent from the European Commission's work, which would broaden the scope of the indicators to be benchmarked.

The detail of this work and dialogue is set out in this section of the report, initially focusing on an overview of the proposed set of indicators (5.1), weighing up the pros and cons of the proposed set of indicators (5.2), providing a justification, which NRAs who do not currently collect the indicators could perhaps utilise as a motivation to collect such data in future (5.3), and finally providing a rationale for future work to be conducted using some of the other indicators set out in the original questionnaire circulated by BEREC, which are not, of relevance to the European Commission's purpose.

5.1. Overview of the proposed set of indicators

The main goal of this report is to propose a set of non-residential indicators to the European Commission for the primary purpose of benchmarking European countries with respect to the non-residential market, but which could also be used for additional economic and regulatory purposes. Through further discussion between BEREC and the European Commission, it was agreed that the proposed set of indicators should reflect the non-residential market in the coming years and should be useful for measuring the initiative set out in the Commission's Gigabit Society. The Commission's requirement with respect to this BEREC exercise is twofold; on the one hand the indicators that are of most interest to the Commission can contribute to its reporting on connectivity targets going forward towards 2025, and on the other hand, the Commission has placed a clear importance on not just consumers (i.e. the residential market) but also on businesses (i.e. the non-residential market), whereby they state in their objectives that vastly improved connection speeds for businesses, all schools, transport hubs and main providers of public services is a target for 2025.

5.1.1. Fixed indicators

Among the indicators listed in section 2 of this report, BEREC proposes that the fixed indicators which are (a) the most relevant to the Gigabit Society initiative and (b) already collected by a significant cohort of NRAs are as follows:

- Total number of non-residential broadband internet access
- Number of non-residential broadband internet access <30Mbps
- Number of non-residential superfast broadband internet access \geq 30Mbps

- Revenues from non-residential broadband internet access

Based on the responses to the questionnaire circulated by BEREC to all NRAs, of the 31 NRAs that responded, currently 24 NRAs collect data on the total number of non-residential broadband subscriptions. Regarding the number of non-residential broadband subscriptions <30Mbps, 17 NRAs are currently collecting data, while 18 NRAs collect data for the number of subscriptions ≥30Mbps. Finally, 19 NRAs also collect data for the revenues indicator.

These four indicators would allow the European Commission (and NRAs) to track and follow the development of superfast broadband in the non-residential fixed market and, in some way, the level of competition through the average broadband expense per access per month.

5.1.2. Mobile indicators

Among the indicators listed in section 2 of this report, BEREC proposes that the non-residential mobile indicators which are (a) the most relevant to the Gigabit Society initiative and (b) already collected by a significant cohort of NRAs are as follows.

- Number of non-residential M2M SIM cards²¹
- Number of active non-residential mobile broadband (at least 3G) users
- Non-residential mobile data volumes
- Total non-residential mobile revenues (calls, SMS/MMS, data, roaming out)²²

Based on the responses to the questionnaire circulated by BEREC to all NRAs, of the 31 NRAs that responded, currently 14 NRAs collect data on the total number of non-residential M2M SIM cards. Regarding the number of non-residential mobile broadband (at least 3G) subscriptions, 12 NRAs are currently collecting data, while 13 NRAs collect information on mobile data volumes. Finally, 15 NRAs collect data for the non-residential mobile revenues indicator.

Similarly to the fixed market, these four indicators should give a good overview of the non-residential mobile market, in addition to a reasonable indication of how mobile broadband will evolve in the coming years, and finally these indicators can also help the European Commission (and NRAs) to assess the level of competition in this market.

This short set of non-residential mobile indicators could be bolstered in the coming years by adding the indicator on the total number of active 4G users, for which currently only 10 NRAs are collecting data. This lends to the point of a periodical review by the European Commission in collaboration, perhaps, with BEREC of the indicators currently proposed. In addition, the Commission has indicated that one potential outcome of such a review may require an

²¹ With a distinction between M2M SIM cards and other SIM cards (i.e. SIM cards with at least one voice service and data-only SIM cards).

²² Excluding M2M revenue.

extension of the indicators to better capture the developments in Very High Capacity broadband services.

5.2. Pros and cons of the proposed set of indicators

As well as dialogue between BEREC and the European Commission, one key aspect that was taken into consideration when evaluating the relevance of the particular indicators set out above, is an understanding of the benefits and the drawbacks for those NRAs who either already collect or could start collecting such information.

In general, data collection and monitoring is beneficial for the internal decision-making purposes of NRAs. By continuing to collect, or newly collecting, non-residential market data, NRAs can further explain and justify their regulatory decisions, as well as monitoring the development of the electronic communications market in more detail and taking timely and appropriate actions.

The aim of this section of the report is to attempt to assess those benefits and drawbacks, with respect to the set of indicators proposed, and hence come to some conclusions on the actual merit of the indicators. Table 7 below sets out the pros and cons of the proposed non-residential mobile indicators, while Table 8 below sets out the pros and cons of the proposed non-residential fixed indicators.

Mobile Indicator	Pros	Cons
Number of M2M SIM cards	Given the ongoing market dynamics and developments, it is becoming more important to obtain more detail on the non-residential market. Hence one of the figures that is required is the collection of M2M since it is growing especially with the development of Internet of Things (IOT).	
	<p>The M2M market is still developing so capturing such information now is far more beneficial than later since it is in its initial stages and hence the understanding of the market dynamics can be captured with the market development.</p> <p>One of the advantages of this indicator is that up till now, in the majority of the EU countries, the M2M is mainly linked to the non-residential sector so evaluating this indicator between residential and non-residential should not be a problem. The benefit of this is that for the operators the</p>	

	figures reported should automatically reflect the non-residential market.	
	As per the questionnaire, the majority of the NRAs pointed out that they can provide such information and hence it will be easier to collect and monitor.	
Number of active Broadband Users (at least 3G)	One of the main aspects of the broadband era is to understand the development of the mobile broadband users. This indicator is already collected from the residential perspective so it is of relevance that such an indicator is also collected from the non-residential perspective. This data collection shall provide more insight on the market dynamics and at the same time an indirect knowledge of the operators' broadband strategy.	To identify broadband users specifically by their network (3G, 4G or 5G) is either not always possible or else too cumbersome. Therefore to extract such information as residential and non-residential can result in a big burden since it is not always possible to draw the line between the two.
	Another perspective that is of relevance for this indicator is the roaming aspect. Roaming has become an important factor especially with the current developments. Therefore monitoring broadband from the residential and non-residential is of relevance.	It is not always easy to identify whether a subscriber is a business/non-residential subscriber or a residential subscriber. This can only be possible if there is a form of identifier than separates the two.
		Currently the Commission collects information regarding broadband via dedicated services or standard mobile. As things stand now, some operators find it difficult to extract mobile broadband split accordingly. Hence, there could be further difficulty for operators to provide this information also split as residential and non-residential.
Mobile Data Volumes	The future of ECS is mainly focused on the broadband services (fixed and mobile). Regarding the ongoing development of the OTT and IOT services, it is becoming of more relevance to capture the volumes that are utilised. The relevance of this data is to monitor the growth of the usage. So far, the Commission focuses on the residential aspect but it is of relevance to also capture similar information from the	The mobile telephony service is not always clear whether the end user is a residential or a non-residential one. Hence, unless there is a form of identifier that can provide such a split, it will impact the reality and relevance of the data captured. That is, with no identifier it will be difficult to extract the residential and non-residential information separately.

	<p>non-residential aspect since this portrays further understanding of mobile data usage. In addition, it provides trends and knowledge of the take-up which indirectly provides a relation of the plans offered versus the data usage.</p>	
	<p>Mobile data is a growth area and its economic impact is significant. One aspect of this is from the roaming perspective where further granularity can assist the analysis.</p>	<p>Apart from the data identification matter, it also can be a cumbersome exercise for the operators to extract such granular information.</p>
Total Mobile Revenues (Calls, SMS, MMS, Data, Roaming out)	<p>Market dynamics are of relevance to understand the evolution and performance of the relevant electronic communication service. So far, the majority of NRAs and EU studies focused on the residential aspect.</p> <p>Hence, it is of importance to also capture the non-residential market since it is a market on its own which requires to be monitored and evaluated separately.</p>	<p>Confidentiality matters can influence on the quality of the data provided.</p>
	<p>The NRAs collect information to evaluate the market performance, identify trends and monitoring of developments such as the Average Revenue per User and other elements.</p> <p>Obtaining this information, split as residential and non-residential, provides further knowledge of the market elements and also the dynamics of the various markets. One of these dynamics is to provide an indirect picture of how the operators are adopting their strategies to the various markets.</p>	<p>The more that granularity of data is requested, the more cumbersome it can be for the operators to extract such information. Also there can be cases where the operator is not able to distinguish between residential and non-residential markets.</p>
	<p>From the roaming perspective, assessing the level of revenues generated can improve the regulatory decision making process.</p>	<p>Convergent offers, i.e. bundled with fixed services, create obvious difficulties in identifying these revenues.</p>

Table 7: Pros and cons of the proposed set of mobile indicators. Source, BEREC.

Fixed Indicator	Pros	Cons
Total number of Business BB internet access	<p>Similar to the mobile broadband data, obtaining the dedicated non-residential information will improve the quality of the market analysis and at the same time further knowledge of the market dynamics. For example, helping to answer questions like, is FTTH take-up more related to the residential or the non-residential sector?</p>	<p>Unless there is a form of identifier that the operators adopt to identify a residential and a non-residential connection, then it would not always be possible to extract such granular information.</p>
	<p>The Commission is focusing a lot on the Broadband market development. So such information provides further insight that works in tandem with the Commission targets.</p>	<p>Enterprises tend to have a specific service/setup; there is uncertainty as to whether these will be captured?</p>
Number of Business BB internet access (<30Mbit/s) & (≥30Mbit/s)	<p>Market information detail provides knowledge of the market requirements. Such information provides an understanding of where the non-residential market is placed in terms of speeds and also its evolution.</p>	<p>This requirement can be a burden for the operators since to extract by residential and non-residential is not always feasible.</p>
	<p>The more detailed the information, the more it is possible to compare the residential and non-residential aspects and see the shifting market dynamics.</p>	<p>Requesting 'internet access' speeds may not be intuitive. Businesses have different demands than those of consumers.</p>
	<p>This information and knowledge will assist the NRAs to evaluate the Gigabit Society targets both from the residential and non-residential markets.</p>	
Revenues for BB internet access	<p>More knowledge provides more insight of the market. In this case the value of the non-residential broadband sector.</p>	<p>Confidentiality of such data can limit the accuracy of the information.</p>
	<p>Fine tuning of this data allows for better comparability between residential and non-residential sectors.</p> <p>With such data available, it is possible to capture the market revenue performance or the average revenue per subscriber of the residential and non-residential sector. Hence, we can understand the difference between</p>	<p>Operators are not always able to disaggregate/desegregate the data between non-residential and residential, so this may prove difficult for some NRAs. Hence, a lack of such granularity can result in a lack of understanding of the market dynamics and comparability.</p>

	both and what is the additional value of one market versus the other.	
	<p>Provide insight of the average market price. Evaluating the average price per connection, it is possible that each NRA can understand what each operator is capturing.</p> <ul style="list-style-type: none"> • Are there differences in the average rate between residential and non-residential? • What is the average speed take-up and what is the related average revenue? 	<p>On the other hand such rich information can lead to an ongoing exercise on the integrity and validity of the data provided especially when disparities across operators and countries crop up.</p> <p>Convergent offers, i.e. bundled with mobile services, create difficulties in identifying these revenues.</p>

Table 8: Pros and cons of the proposed set of fixed indicators. Source, BEREC.

The drawbacks, which BEREC can readily identify, related to these mobile and fixed indicators can be summarised by stating that operators may find it difficult or burdensome to provide to NRAs the granularity of data required. However, the burden faced by operators (and subsequently by NRAs, in terms of verifying any data provided) can be outweighed by the benefits presented in Tables 7 and 8 above.

In summary, the benefits of these specific indicators, across the mobile and fixed markets, are related to a deeper understanding of non-residential market dynamics. In addition, it can't be denied that it is certainly a benefit, with respect to these indicators that the European Commission itself is supportive of the proposal by BEREC, as the indicators can assist with the Commission's Gigabit Society initiative. Given the Commission's strategic connectivity targets for 2025, indicators that can be used to support and report on the policy initiative, i.e. the Gigabit Society, are of importance. In addition, the Commission clearly states that its targets reflect not just the ever-increasing levels of internet traffic from consumers, but from businesses also.

In general, the pros and cons (and the fact that the benefits outweigh the drawbacks) set out in Tables 7 and 8 above should be sufficient justification for those NRAs who don't currently collect the proposed set of indicators, to at least review and consider the potential for collecting this information. However, it is also worthwhile to consider one of the primary motivators in developing this report, which was to attempt to value the size of the non-residential market (from an access, volumes and revenues perspective).

Clearly, based on the responses to the questionnaire (or in some cases, the lack of response to the questionnaire), as well as the detail expressed in section 4, some NRAs find it difficult or don't see the merit in capturing the size of the non-residential market. However, it is equally (and perhaps more so) clear that a significant cohort of NRAs does see the merit in monitoring the non-residential market.

While the eight indicators proposed in this section are not collected by all NRAs and only capture a share (albeit a growing and important, with respect to the opinion of the European Commission, one) of the non-residential market, it can be reasonably stated that this initiative is a first step. BEREC is aware that a collection and benchmarking of data based on these indicators will not, by any means, fully illustrate the size of the non-residential market across Europe. However, it is the start of a process, which can help to inform both the European Commission and BEREC.

In order to make effective use of the proposed list of indicators (i.e. in order to benchmark those indicators), BEREC will continue to work with the European Commission, with respect to closer harmonisation of definitions and methodology for these indicators.

5.3. Future work on broader set of indicators by BEREC

As previously explained, the rationale for proposing the indicators set out in this section of the report is based on a sufficient cohort of NRAs collecting data already on those indicators, that there is a justification for other NRAs to collect this data in future, and that the European Commission highlighted the particular relevance of these indicators to the Gigabit Society (and are prepared to collect and benchmark these indicators through the annual questionnaire).

However, during discussion for this report within the BEREC drafting team it was also agreed that in order to attempt to provide a further estimation on the dynamics and the size of the non-residential market, it would be worthwhile considering further internal work for BEREC, looking at some of the more traditional indicators which, while not as forward-looking as those proposed to the European Commission, could help to estimate the size and value of the non-residential market as it currently exists.

Based on this discussion, and on the summary of responses to the questionnaire, it may be worthwhile for BEREC to consider an internal benchmark using some or all of the following indicators, which won't be included in the work of the Commission²³. The non-residential fixed indicators which BEREC could consider (including the number of NRAs currently collecting []) are:

- Total number of non-residential fixed telephony subscriptions [24]
- Total number of leased lines and VPN-IP access [14]
- Total fixed minutes of calls [20]
- Total revenues from fixed services (telephony, broadband, leased lines, VPN-IP) [18]

²³ However, as mentioned already in this report, the indicator on the 'Number of active 4G users' could potentially be added to the Commission's benchmarking in future, when a more substantial number of NRAs are collecting the data. Additionally, it may be worthwhile to add the indicator on the 'Number of leased lines and VPN-IP access' to the Commission's benchmarking.

The non-residential mobile indicators which BEREC could consider (including the number of NRAs currently collecting []) are:

- Total number non-residential SIM cards (including Machine to Machine, (M2M)) [15]
- Number of active non-residential 4G users [10]
- Total non-residential mobile minutes of calls [16]
- Number of non-residential SMS/MMS sent [15]

6. Conclusions

In June 2017, BEREC circulated a questionnaire on non-residential market indicators to all NRAs. In total, 31 NRAs provided a response to the questionnaire. Of those 31 responses, it can be summarised that 27 NRAs collect any supply-side data (i.e. non-survey based) from operators on their non-residential markets. In general, NRAs collect more data on the non-residential fixed market than on the non-residential mobile market.

The responses to the questionnaire showed a variation among NRAs when it came to how the non-residential market is defined. In order to somehow move towards an eventual harmonisation of definitions among NRAs, BEREC has proposed the following definition (as well as an elaboration on guidance with respect to the definition) for what NRAs and operators could consider as a non-residential customer, which can potentially assist with that harmonisation:

A non-residential customer primarily uses an electronic communication service(s) for performing economic activities. Non-residential customers include businesses, entrepreneurs/self-employed individuals, non-governmental organisations, and public/state sector bodies.

Given that varying definitions that NRAs currently use, BEREC considers it necessary to provide some guidance on the usage of the above definition. Therefore, NRAs may consider allowing operators to use criteria equivalent to the definition and should settle, in their own terms, on how to check these criteria. Where possible, residential connections used for business purposes, even in the case of entrepreneurs/self-employed individuals, should be counted as non-residential, as such connections are used for the purpose of performing economic activity. One possible approach is to consider that the non-residential customers are identified by the operator using a tax identification number for legal persons and entities.

Based on a fruitful engagement with the European Commission, to discuss the results of the NRA survey and understand their perspective with respect to monitoring this market, it was agreed that there is a sufficient basis (in terms of the number of NRAs collecting data, as well as a motivation for those NRAs that don't collect information on this market to potentially collect in future) to move forward, and for the Commission to begin benchmarking the set of eight indicators that BEREC proposes, which cover both the fixed and the mobile non-residential sector.

It was discussed and agreed with the European Commission that these indicators start to be collected through the annual questionnaire, in order to feed into the Digital Scoreboard. While it is clear that the first round(s) of the data collection may produce a less than complete dataset, this can certainly improve, through a periodical, collaborative review process between the European Commission and BEREC. These indicators are as follows:

- Total number of non-residential broadband internet access
- Number of non-residential broadband internet access <30Mbps
- Number of non-residential superfast broadband internet access ≥30Mbps

- Revenues from non-residential broadband internet access
- Number of non-residential M2M SIM cards²⁴
- Number of active non-residential mobile broadband (at least 3G) users
- Non-residential mobile data volumes
- Total non-residential mobile revenues (calls, SMS/MMS, data, roaming out)²⁵

One of the Commission's motivations for favouring these indicators is that they are very relevant with respect to the Gigabit Society initiative. The Commission's requirement with respect to this BEREC exercise is twofold; on the one hand the indicators that are of most interest to the Commission can contribute to its reporting on connectivity targets going forward towards 2025, and on the other hand, the Commission has placed a clear importance on not just consumers (i.e. the residential market) but also on businesses (i.e. the non-residential market), whereby they state in their objectives that vastly improved connection speeds for businesses, all schools, transport hubs and main providers of public services is a target for 2025. From the BEREC perspective, one of its early motivations for this project was to try and estimate the size and value of the non-residential market in Europe. This motivation and ambition still stands.

In light of this, BEREC has proposed a second, internal phase of this work to be conducted in 2018, whereby BEREC will conduct its own benchmarking, separate to the European Commission's. This benchmarking exercise will focus on what might be considered to be more traditional indicators, in order to provide an estimation of the contemporary non-residential market, while it could be said that the indicators proposed to the Commission are more forward looking; i.e. for the non-residential market as it will be in 3-5 years. The indicators that BEREC will look to internally benchmark as a second phase of this work are as follows:

- Total number of non-residential fixed telephony subscriptions
- Total number of leased lines and VPN-IP access
- Total fixed minutes of calls
- Total revenues from fixed services (telephony, broadband, leased lines, VPN-IP)
- Total number non-residential SIM cards (including Machine to Machine, (M2M))
- Number of active non-residential 4G users
- Total non-residential mobile minutes of calls

²⁴ With a distinction between M2M SIM cards and other SIM cards (i.e. SIM cards with at least one voice service and data-only SIM cards).

²⁵ Excluding M2M revenue.

- Number of non-residential SMS/MMS sent

By conducting this separate and additional benchmarking, using indicators which are, by and large, currently collected by more NRAs than those indicators proposed to the European Commission, BEREC will closely follow market developments in a market which, as set out in the Introduction to this report, represents an important segment of telecommunications services in Europe. To gather this data at the European level will allow for a robust assessment of the evolution of the non-residential market. The expectation is that this project will be completed by Plenary 2, 2018.

Annex 1

Questionnaire issued to all NRAs, June 2017.

QUESTIONNAIRE					
Benchmarking-EWG (BMK-EWG)					
PRD - Report on business market indicators for the European Commission's Digital scoreboard					
Complete pink cells					
Respondent Identification					
Country:					
Organisation:					
Name of the contact:					
Phone number:					
Fax number:					
e-mail address:					
1 - General questions on the business market					
1.a Does your NRA collect any information (non-survey based) from operators on the business market?					Answer
1.b If yes, how does your NRA define the business market?					Definitions / Comments
1.c If your NRA makes a distinction between fixed and mobile business market definition, can you explain the difference?					
1.d Do you have any additional comments to make on the definition of the business market?					
1.e Can you provide examples of the format of data collection; i.e. Excel spreadsheets or links to secure websites for operators to upload data, for example?					
1.f Can you provide examples of the format of data publication; i.e. PDFs, screenshots, or links to your NRA's publications website?					
1.g Can you provide definitions of indicators that your NRA collects on the business market i.e. PDFs, Word or Excel documents, screenshots, or links to your NRA's website?					
1.h Are there any confidentiality issues that you wish to comment on, in terms of the business market data that your NRA collects/publishes?					
1.i From your point of view, can you list which business market indicators would be useful to have at the European level?					
2 - Questions on indicators collected / published on the business market					
2.1 Which indicators does your NRA collect / publish on the mobile business market					
	Collected?	Periodicity of data collection	Published?	Periodicity of data publication	Comments / Definitions
Mobile Business number of subscriptions	a. Total number SIM cards (including Machine to Machine, (M2M))				
	b. Number of classic SIM cards (excluding M2M SIM cards and data-only SIM cards)				
	c. Number of data-only SIM cards				
	d. Number of M2M SIM cards				
Mobile Business volumes	e. Number of active broadband users (at least 3G users)				
	f. Number of active 4G users				
	g. Other 1 : please specify				
	h. Other 2 : please specify				
	i. Total mobile minutes of calls				
	j. Mobile minutes of calls to fixed networks				
	k. Mobile minutes of calls to mobile networks				
	l. Mobile minutes of calls to international networks				
	m. Roaming out minutes of calls (outgoing and ingoing minutes)				
	n. Number of SMS / MMS sent				
Mobile Business revenues	o. Number of roaming out SMS sent				
	p. Mobile data volumes				
	q. Mobile data volumes from 4G customers				
	r. Mobile roaming out data volumes				
	s. Other 1 : please specify				
	t. Other 2 : please specify				
	u. Total mobile revenues (calls, SMS / MMS / Data / Roaming out)				
	v. Revenues from data only SIM cards				
w. Revenues from M2M SIM cards					
x. Revenues from roaming out (minutes of calls, SMS / MMS sent, data volumes)					
y. Other 1 : please specify					
z. Other 2 : please specify					
2.2 Which indicators does your NRA collect / publish on the fixed business market?					
	Collected?	Periodicity of data collection	Published?	Periodicity of data publication	Comments / Definitions
Fixed Business number of subscriptions	a. Total number of business fixed telephony subscriptions				
	b. Total number of business broadband internet accesses				
	c. Number of business broadband internet accesses (< 30 Mbit/s)				
	d. Number of business superfast broadband internet accesses (≥ 30 Mbit/s)				
Fixed Business Volumes	e. Total number of leased lines and VPN - IP accesses				
	f. Other 1 : please specify				
	g. Other 2 : please specify				
	h. Total fixed minutes of calls				
	i. Fixed minutes of calls to fixed networks				
	j. Fixed minutes of calls to mobile networks				
Fixed Business Revenues	k. Fixed minutes of calls to international networks				
	l. Fixed data volume				
	m. Other 1 : please specify				
	n. Other 2 : please specify				
	o. Total revenues from fixed services (telephony, broadband, leased lines, VPN-IP)				
	p. Revenues from fixed telephony (accesses, communications)				
	q. Revenues from broadband internet accesses				
	r. Revenues from leased lines and VPN - IP accesses				
s. Other 1 : please specify					
t. Other 2 : please specify					

Annex 2

Illustration of summary of responses to questionnaire.

		IT	ES	FR	NO	SE	RO	HU	IS	SI	EL	UK	FI	LU	AT	BE	IE	BG	PL	HR	RS	MT	SK	CZ	EE	PT	NL	DK	CY	LI	LV	CH	
Mobile Business number of subscriptions	Total number SIM cards (including Machine to Machine)																																
	Number of classic SIM cards (excluding M2M SIM cards and data-only SIM cards)																																
	Number of data-only SIM cards																																
	Number of M2M SIM cards																																
	Number of active broadband users (at least 3G users)																																
Mobile Business volumes	Number of active 4G users																																
	Total mobile minutes of calls																																
	Mobile minutes of calls to fixed networks																																
	Mobile minutes of calls to mobile networks																																
	Mobile minutes of calls to international networks																																
	Roaming out minutes of calls (outgoing and ingoing minutes)																																
	Number of SMS / MMS sent																																
	Number of roaming out SMS sent																																
Mobile Business revenues	Mobile data volumes																																
	Mobile data volumes from 4G customers																																
	Mobile roaming out data volumes																																
	Total mobile revenues (calls, SMS / MMS / Data / Roaming out)																																
Fixed Business number of subscriptions	Revenues from data only SIM cards																																
	Revenues from M2M SIM cards																																
	Revenues from roaming out (minutes of calls, SMS / MMS sent, data volumes)																																
	Total number of business fixed telephony subscriptions																																
Fixed Business Volumes	Total number of business broadband internet accesses																																
	Number of business broadband internet accesses (< 30 Mbit/s)																																
	Number of business superfast broadband internet accesses (≥ 30 Mbit/s)																																
	Total number of leased lines and VPN - IP accesses																																
	Fixed data volume																																
Fixed Business Revenues	Total fixed minutes of calls																																
	Fixed minutes of calls to fixed networks																																
	Fixed minutes of calls to mobile networks																																
Fixed Business Revenues	Fixed minutes of calls to international networks																																
	Fixed data volume																																
	Total revenues from fixed services (telephony, broadband, leased lines, VPN-IP)																																
Fixed Business Revenues	Revenues from fixed telephony (accesses, communications)																																
	Revenues from broadband Internet accesses																																
	Revenues from leased lines and VPN - IP accesses																																

Annex 3

Abbreviations for countries.

Abbreviation	Country
AT	Austria
BE	Belgium
BG	Bulgaria
CH	Switzerland
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland

Abbreviation	Country
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
ME	Montenegro
MT	Malta
NL	Netherlands

Abbreviation	Country
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
RS	Serbia
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom