

BEREC
**Draft Report on harmonised definitions for
indicators regarding OTT services,
relevant to electronic communications
markets**

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1 Introduction

The general scope of this draft report is to identify and define harmonised metrics which are of interest to many European National Regulatory Authorities (NRAs) in the scope of fulfilling their regulatory tasks. This is data which is considered important for NRAs and BEREC to ensure conformity with the provisions of, or decisions or opinions adopted under the Directive (EU) 2018/1972 (“European Electronic Communications Code”, hereafter EECC) and Regulation (EU) 2018/1971 of the European Parliament and the Council) and which, at the same time, would not result in an undue burden for providers.

The opportunity for the draft report arises as Article 2 of the EECC provides a new definition for “interpersonal communications services” giving NRAs the legal power needed to collect data from providers of “number independent interpersonal communications services” (hereafter NI-ICS). Moreover, Article 20¹ provides the legal basis to request data from undertakings which are not active in the electronic communication services or networks but are still operating in closely related sectors, insofar these requests are substantiated and proportionate.

Since 2019, BEREC has been working to fulfil this objective, first by engaging with NRAs to understand what their needs are for new data and second, by maintaining an ongoing consultation with stakeholders to understand the efforts and difficulties they would face in providing the data.

BEREC issued a first provisional report in 2019², which, in the light of Articles 2 and 20 of the EECC, identified potential new data requirements of NRAs regarding OTT services in order to perform their legal obligations. Then, in 2020, BEREC issued an open questionnaire directed to stakeholders to find out about their views regarding a provisional list of indicators to be potentially supplied on request, which was finally discussed in an open virtual workshop on the matter on the 19th of November 2020³.

112 representatives of entities from public administration, academia, and, perhaps more importantly, from the private sector, including major market players attended the workshop⁴. Its major goal was to discuss the preliminary list of indicators and definitions included in the Workshop Invitation to enable BEREC to deliver on this draft report, which will be subject to public consultation at the beginning of 2021. A final report is foreseen by October 2021.

BEREC’s intention with this report is neither to impose on NRAs the obligation to collect data from OTT providers, nor to instruct NRAs on the scope, modalities and frequency of such data collections. Rather, the report provides harmonised definitions of a limited number of indicators that may be necessary for NRAs to collect in the framework of their regulatory mandate. The metric definitions included in this report need to be considered as for reference only since NRAs will ultimately decide which services to consider in the framework of their regulatory tasks, for example market analyses’ work and other investigations.

¹ The information collection powers under Article 20 are fundamental for this report, but are not limited to the indicators proposed by BEREC within. For example, Article 20 EECC potentially covers requests to software developers, hardware manufacturers or providers of operating systems.

² BoR (19) 244, BEREC Preliminary report on the harmonised collection of data from both Authorised Undertakings and OTT operators

³ Virtual Workshop on Harmonized Data Collection regarding Number Independent Interpersonal Communications Services and Video-streaming Services, 19 November, 2020.

⁴ See the list of workshop participants in Annex 3.

With the identification of these common indicators, BEREC expects to reduce the costs of providers for complying with the data requests of different authorities. In drafting this report, BEREC has taken into consideration the views of the stakeholders expressed during the Workshop and subsequent written submissions.

Yet, it should be noted that the final indicators included in this report may not cover all of NRAs' informational needs in the future, as national specificities may imply that some NRAs have extended requirements. In all cases, NRAs requesting the data should at all times justify the necessity of the data, consider the proportionality of the request and attend to any confidentiality-related issues.

In the future, BEREC will continue to evaluate the list of common indicators and may add, remove or adjust indicators to ensure a continued harmonisation of the data collected by NRAs.

2 Number-independent interpersonal communications services

As argued in the document numbered BoR (19) 244, NRAs have expressed their need for data on interpersonal communication services (ICS) over the public internet, in particular data concerning the NI-ICS.

2.1 Number-independent interpersonal communications services definition

Interpersonal communications services (ICS) are defined in the Article 2 of the EEC Directive (EU) 2018/1972 as “*services normally provided for remuneration that enable direct interpersonal and interactive exchange of information via electronic communications networks between a finite number of persons, whereby the persons initiating or participating in the communication determine its recipient(s) and does not include services which enable interpersonal and interactive communication merely as a minor ancillary feature that is intrinsically linked to another service*”.

ICS include two types:

- Number-based ICS (NB-ICS) which connect with the public telephone network;
- Number-independent ICS (NI-ICS) which do not connect to the public telephone network and are provided over the public internet, referred to in general as “over the top” (OTT).

This report will exclusively deal with NI-ICS services as NRAs already have experience in collecting information regarding NB-ICS, while most indicators regarding NB-ICS are harmonized at European and international level, due to the existing definitions used by the European Commission and ITU⁵.

NI-ICS are defined in Article 2 of the EEC Directive (EU) 2018/1972 as “*interpersonal communications services which do not connect with publicly assigned numbering resources, namely, a number or numbers in national or international numbering plans, or which do not enable communication with a number or numbers in national or international numbering plans.*” Furthermore, it is to be noted that the mere use of a number as an identifier should not be considered to be equivalent to the use of

⁵ International Telecommunication Union (ITU)

a number to connect with publicly assigned numbers and should therefore, in itself, not be considered to be sufficient to qualify a service as a number-based interpersonal communications service (see Recital 18 of the EECC).

Based on deliberations and research as presented in BoR (19) 244, this report takes particular consideration of the following services:

- Messaging Applications (including those embedded in social network applications)
- Internet- or Video-telephony Applications.

2.2 Number-independent interpersonal communications services metric definitions

The metrics that were presented for consideration and discussion at the workshop pertain to the registered and active users, usage of service, revenues generated by NI-ICS and pre-installations of NI-ICS on devices as set forth in the invitation for the Workshop⁶.

NI-ICS providers attending the workshop and/or who responded to the 2020 BEREC questionnaire stated that their services are offered on multifunctional global platforms, which are not necessarily addressed by country and service type in their internal business analytics. Additionally, it appears that some of the proposed metrics are not deemed appropriate and/or feasible to collect at this point for various reasons.

NI-ICS providers can only access data with respect to the duration of calls (volume/traffic) at the end-user devices' level. In some cases, while NI-ICS providers know if/when a call or message is originated, it is in most cases not known whether or not a call/message is (successfully) terminated.

At this stage, only "by country" metrics related to registered and active users as well as the number of originated calls/messages can already be defined with the objective to obtain such information from NI-ICS providers in a harmonized way. BEREC draws the attention to the fact that there are a number of caveats in relation to the collection of these data (see section 2.2.1.1. below), which however should not impede obtaining valuable information nonetheless.

Regarding revenue indicators for NI-ICS services, the providers argued that applications are offered free of charge to consumers and that they monetize the sales of services to third parties (e.g. advertisement income). Advertising may however only occur at the related social media component and not particularly in the NI-ICS. Certain NI-ICS form part of a so-called digital platform or ecosystem, where different functionalities are bundled together to provide value added to the end consumer.

However, **service revenue is an important indicator for regulators**, as it allows NRAs to determine the size of the market for services, assess the importance of different providers by evaluating their market shares and understand the average revenue per user. Moreover, Recital 16 of the EECC recognises that the concept of remuneration of an electronic communication services is wide, as services are often supplied to the end-user not only for money, but increasingly and in particular for the

⁶ See Annex 2.

provision of personal data or other data. In some cases, the services are funded by donations and grants or funds.

In view of the above, revenue information for NI-ICS services is currently not considered as a metric that can be easily collected in a harmonized way. Nevertheless, BEREC may engage in future workstreams in analysing the variety of business models applied by NI-ICS providers, in particular with respect to direct or indirect remuneration, as well as donations-based financing. This may help NRAs in assessing the proportionality of any type of data request and information provision obligations in this field⁷ and their relevance for competition analysis, with respect to consumers, as well as to business users.

Pre-installation can have a large impact on the usage of services. Consumers may use certain services, because they are readily available on the device. Several studies by NRAs⁸ demonstrate how pre-installations can have an impact on consumer choices, leading to a decreased number of consumers switching to other services, e.g. also by the impossibility for consumers to uninstall pre-installed apps. Information on pre-installations is hardly publicly available, but crucial in assessing the extent of its impact on the use of and competition between NI-ICS services, and consider the implications for ECS markets. Thus, some BEREC members would find it useful to collect information concerning the devices on which a NI-ICS is pre-installed – concerning pre-installations on devices of own brands and, when applicable, as well as pre-installations on the devices of other companies. The information may encompass characteristics of the devices on which a NI-ICS is pre-installed. In case the provider of NI-ICS is also manufacturing devices and performing pre-installations, the NI-ICS can provide a list of device models, on which those pre-installations are performed.

2.2.1 Indicators

2.2.1.1 Number of Active Users

Regulatory relevance

The collection of this metric will assist NRAs to:

- Assess if there is a legitimate reason to impose on those NI-ICS services the requirement to enable access to emergency services⁹ or to comply with any other obligation, taking into consideration the importance/size of NI-ICS services in terms of number of active users;
- Estimate the share of active users per country of the respective major players in the field of NI-ICS. Such information is necessary for NRAs to objectively assess the situation in the traditional ECS markets – for market definition purposes (to assess if NI-ICS could be considered as a

⁷ E.g. Art. 40, Art. 70, Art. 102, Art. 103, Art 104 EECC

⁸ ACM (2019): Market study into mobile app stores; ARCEP (2018): Devices, the weak link in achieving the open internet; RTR (2019): Report on the open internet: operating systems, apps and app stores.

⁹ The potential future requirement to introduce access to emergency services from NI-ICS is discussed within Art. 123 (1) (c) EECC. For NI-ICS to reach 'emergency services', this might require a non-number-based approach, as NI-ICS are *de facto* unable to connect with public numbering resources.

substitute for traditional ECS) or for market assessment (e.g. calculation of market shares, identification of significant market power, if and where necessary);

- Assess the economic relevance of certain NI-ICS to safeguard appropriate application of the regulation regarding NI-ICS on “Security of networks and services”¹⁰, “Obligations of non-discrimination”¹¹, “Information requirements for contracts”¹², “Transparency, comparison of offers and publication of information”¹³ and “Quality of service related to internet access services and publicly available interpersonal communications services”¹⁴;
- Assess the economic importance of certain NI-ICS for business users (e.g. advertisers or businesses using the service commercially to reach end users);
- Evaluate how and if NI-ICS offerings place a competitive constraint on traditional NB-ICS in consideration of their size/share; and
- Produce and maintain statistics, which will also be useful for international benchmarking.

So, finally, BEREC is proposing the following metrics:

- 1. Number of Monthly Active Users (MAU) who used the service in the last 30 days as of the date of measurement, by country of residence, by service.**
- 2. Number of Monthly Active Business Users¹⁵ who used the service in the last 30 days as of the date of measurement, by country of service deployment, by service.**

In order to have a view on the seasonality, BEREC recommends to NRAs that may collect this information to consider collecting the data at least twice a year, for the months as of 30 June and as of 31 December.

BEREC is aware of the possible **caveats** related to these indicators, which however should not impede obtaining the information:

- Country information provided upon registration would be the primary source of user location information. Country of residence information is however not always required upon registration and even if this is the case, it is not necessarily uniformly measured throughout different NI-ICS providers or even within a single company providing multiple NI-ICS. Furthermore, there is no verification process in place for this piece of information.

¹⁰ Art. 40 EEC concerns.

¹¹ Art. 70 EEC

¹² Art. 102 EEC

¹³ Art. 103 EEC

¹⁴ Art. 104 EEC

¹⁵ Note that this indicator has not been discussed at the workshop. According to Article 2 (1) Regulation (EU) 2019/1150 a business user “means any private individual acting in a commercial or professional capacity who, or any legal person which, through online intermediation services offers goods or services to consumers for purposes relating to its trade, business, craft or profession.” This definition includes for example businesses using a NI-ICS for advertising.

- Lacking the aforementioned piece of information, the mobile phone number or the payment information could be used as to proxy country of residence. NI-ICS providers point out that these proxies are not entirely reliable and commented that:
 - o Telephone number country codes may not be suitable because the user may be nomadic, and not reside at the location indicated by the country code;
 - o Payment information is not necessarily linked to the user's country of residence, as payment may be effected in a country other than the country of residence of the user;
 - o IP tracking could, in absence of information on telephone number country codes or payment information also be used as a source for the country of residence of active users. However, the originating IP address is neither geographically precise, nor reliable in all instances (e.g. when VPNs are used).
 - o IP-tracking - for which end user consent would anyway be required¹⁶ - is not commonly applied by NI-ICS providers.

- The MAU indicator on end-user will not provide insights on the underlying dynamics. For instance, when MAU statistics remain stable over a longer period, it is not possible to conclude whether this was caused by more or less an equal numbers of new subscriptions and customers cancelling the service. But, from an NRA's point of view, MAUs could be seen as an appropriate starting point to assess user engagement per service followed by further investigation and analysis.

BEREC recommends that NI-ICS providers inform the NRAs on the assumptions made when collecting data for these metrics.

2.2.1.2 Number of Registered Users

Regulatory relevance

The collection of this metric, which is complementary to the active users indicator, will enable NRAs to:

- Assess the adoption of NI-ICS services. By comparing the number of active and registered users, NRAs will be able to monitor the effective usage of NI-ICS. Nevertheless, BEREC is aware that a significant share of the registered users may never use the service after registration or may stop using it after the first trial following the registration.

So, finally, BEREC is proposing this metric:

3. Number of Registered Users, who registered with a specific NI-ICS service, by country of residence and by NI-ICS service, at a specific date

In order to have a view on the seasonality, BEREC recommends to NRAs that may collect this information to consider collecting the data at least twice a year, for the months as of 30 June and as of 31 December.

¹⁶ As explained by the stakeholders during the dedicated workshop.

BEREC is aware of the possible **caveats** related to this indicator, which however should not impede obtaining the information:

- Registration is not necessarily related to a specific service but rather to the general use of a platform (bundle of services). In such case, the NI-ICS provider will need to make assumptions in order to determine the number of registered users for a certain service (could e.g. be based on the portion of registered users that have used the service in question at least once). BEREC recommends that providers of NI-ICS services inform the NRAs on the assumptions made in this respect. Furthermore, it can not be excluded that some users may be associated to multiple accounts.

The same situation would occur in the case of pre-installed apps, for which registration is not specifically requested, but merely there is a general registration requirement, whereby, thereafter, all the pre-installed apps under the same “umbrella” may be used (for instance, Google account and Google apps, Samsung Account and Samsung apps etc.).

- The caveats with respect to the country of residence information and recommendations made by BEREC in section 2.2.1.1. are also valid for this metric.

2.2.1.3 Usage: Number and minutes of voice calls and video-calls and number of instant messages¹⁷

Regulatory relevance

The collection of this metric may be required, since it can enable NRAs to:

- Compare the actual usage of NI-ICS to the usage of NB-ICS (total number of minutes, total number of instant messages) and analyse whether those services are substitutes or not;
- Compute the market shares of NI-ICS providers (number of minutes over total number of minutes, for example);
- Gather information relevant to assess the need for the interoperability of services, particularly in the context of Article 61 (2)(c) of the EECC;
- Assess the economic relevance of certain NI-ICS to safeguard appropriate application of regulation regarding NI-ICS on “Security of networks and services”¹⁸, “Obligations of non-discrimination”¹⁹, “Information requirements for contracts”²⁰, “Transparency, comparison of offers and publication of information”²¹ and “Quality of service related to internet access services and publicly available interpersonal communications services”²²;

¹⁷ The term instant message includes any kind of asynchronous communication between users, therefore also the transmission of pictures, video and audio messages and files.

¹⁸ Art. 40 EECC

¹⁹ Art. 70 EECC

²⁰ Art. 102 EECC

²¹ Art. 103 EECC

²² Art. 104 EECC

- Facilitate and complement the analysis of any qualitative assessments carried out to gather insights on the purposes that users place on each kind of service.

So finally, BEREC is proposing the following metrics:

- 4. The total number and minutes of voice calls made by NI-ICS users towards other NI-ICS users, by country of residence of the caller, in a specific period**
- 5. The total number and minutes of video-calls made by NI-ICS users towards other NI-ICS users, by country of residence of the caller, in a specific period**
- 6. The total number of instant messages sent by NI-ICS users towards other NI-ICS users, by country of residence of the sender, in a specific period**

In order to have a view on the seasonality, BEREC recommends to NRAs that may collect this information to consider collecting the data at least twice a year, for the months as of 30 June and as of 31 December.

BEREC is aware of the possible **caveats** related to this indicator, which however should not impede obtaining the information:

- The total number of minutes is an important indication which enables some kind of comparability to NB-ICS and, thus, should be taken into account. However, as explained, some NI-ICS providers mention that they do not record the minutes of calls, for example some do not even record whether an initiated call has been terminated or not. In those cases, the number of minutes would need to be proxied, and BEREC recommends that the NRA requires that the NI-ICS provider informs about the assumptions made to proxy this indicator.

In any case, the number of calls (this is, calls that are initiated and terminated) should be collected (or if not available, proxied). This is a partial indicator to measure the usage of NI-ICS services and will assist NRAs in understanding the traffic information.

- Group calls and messages with multiple recipients require further consideration.
- Country information available through registration information or some other proxy may not always be accurate as already detailed in section 2.2.1.1. In any event, BEREC recommends that NI-ICS providers inform the NRAs on the assumptions made regarding the country of residence.

3 Video-streaming services

Article 20 in the EECR provides legal basis for NRAs to request data from services other than ECNs and ECS. Section 4 deals with the legal aspects related to these data requests, but it is important to note that this information can only be requested from providers of those services in case it cannot be obtained from providers of ECNs and ECSs and when it is clearly reasoned and proportionate to the NRAs' needs.

In 2019, in the context of the work leading to this report, 19 NRAs expressed that the information on video-streaming services was relevant to their tasks in the scope of electronic communication markets. The reasons why these NRAs expressed this view were very varied in nature and depended on national contexts, with many NRAs requiring the data to assess how video-streaming offers affected competition

in the fixed broadband markets, others arguing for the necessity to understand the demands that video-streaming services place on data traffic and a few explaining that data would be required in the context of the analysis of broadcasting markets.

Because of this, BEREC initiated a scoping exercise to identify harmonised definitions of some metrics that most video-streaming providers could technically deliver on and that NRAs may find useful to collect data for, whenever they conclude that such data requests are necessary, reasonable and proportionate. It should be noted that the list of indicators included in this report is not exhaustive, reflective of every NRAs' needs, and that each NRA can decide what are the most suitable metrics to cater for.

Therefore, the list of indicators and the video-streaming definition are indicative and would be subject to change in view of new insights and developments. The definition and list should be considered as a reference only since NRAs will ultimately decide which services to consider in the framework of their regulatory tasks, for example market analysis work and other investigations.

Finally, it is also BEREC's view that it is important that, whenever data needs are not of an urgent nature, the providers of video-streaming services can anticipate the data requests made by NRAs and moreover, that given that video-streaming services are not regulated under the EECC, BEREC would recommend that, in general, provision/reporting of video-streaming data should be considered confidential.

3.1 Video-streaming service definition

Streaming of audiovisual content refers to a broad category of services, including but not limited to video on demand services, video-sharing platforms, online gaming, social networks, as well as media and broadcasters' online offerings. Some of these services are provided in exchange for payment, while others not. Some of these services are commercialized as standalone, while others are offered in bundles or integrated with others.

For the purpose of this report, a video-streaming service is defined as streaming of video content over the public internet, including on-demand services (i.e. for the viewing of programmes at the moment chosen by the user and at his individual request on the basis of a catalogue of programmes) and/or linear content (i.e. for simultaneous viewing of programmes on the basis of a programme schedule), which is either:

1. exclusively offered to consumers who get access to content (movies, series, documentaries, sport's events etc.), typically in exchange of a fixed monthly (or other regular) payment (e.g. Netflix, Disney+, HBO Max, Apple TV);
2. offered from a catalogue at request of the consumer, in exchange of a fee per individual content or per transaction (e.g. Apple TV);
3. offered at no specific cost to consumers as such, but being part of a bundle of different services which are offered by the provider in exchange for payment (e.g. Amazon Prime Video).

It should be noted that some video-streaming platforms are "hybrid" in the sense that they combine features of type 1 and type 2 above such as Apple TV, which comprises both subscription and transactional services.

Video-streaming services (partly) compete with, but, in most cases, rather complement traditional pay TV services (IPTV and cable). Since the above-mentioned services are similar in terms of the provision to consumers and their features, common harmonised indicators can be determined for those.

Finally, the following services are not considered as video-streaming services (excluded from the analysis):

1. IPTV and cable TV services, i.e. video transmission that is not provided over the public internet and video content as an add-on to linear TV provided online or through an app (tablets or smartphones)²³.
2. Internet access services that merely convey video content that is being streamed on-demand by a subscriber.

3.2 Video-streaming metric definitions

This section includes video-streaming metrics and their definitions. All the metrics were defined taking into consideration the stakeholders' views expressed during the workshop with the industry, held in November 2020. BEREC's conclusions after the workshop, were that:

- i) there is no major technical issue that justifies why video-streaming providers could not report data according to almost all of the metrics identified in the workshop invitation;
- ii) given that Recital 57 of the EEC states that "It may, by way of exception, also be necessary to gather information from other undertakings active in sectors that are closely related to the electronic communications services sector, such as content providers, that hold information which could be necessary for them to exercise their tasks under Union law", it would not be suitable for BEREC to suggest specific dates for which data would need to be provided by video-streaming operators. Therefore, BEREC is providing a list of indicators, for which NRAs may collect data whenever they think this is adequate and proportionate and also for the periods of reference which best suit their needs;
- iii) The workshop also provided NRAs with the opportunity to learn from the current experience at NRA level with respect to the collection of data regarding video-streaming services. Some NRAs illustrated their data collection practices regarding subscription video on demand (SVOD) and transactional video on demand (TVOD) services (information on active users, registered users, revenues for both types of services).

²³ Note that the definition also excludes content that is viewed over the public internet, which is offered as an app complementary to a paid managed IPTV or cable TV service, where the content included in the main (IPTV/cable) TV service can be accessed online using devices such as tablets or smartphones. It is BEREC's view that the relevant information concerning these apps can be requested directly from the operators providing such services.

3.2.1 Indicators

3.2.1.1 Subscriber metrics for subscription video on demand (SVOD) services

The first proposed metric concerns the **number of registered users**, who subscribe to a specific SVOD, the service that allows the consumption of several audio-visual content for a pre-established period of time, for example a month, which is contracted once and then has an ongoing payment. The number of subscribers should be identified by the subscriber's country of residence.

As discussed in the workshop, BEREC understands that this information is generally available and that there are no major concerns identifying the country of residence of subscribers, although there are differences between services as far as the payment schemes and subscription models are concerned.

Since sometimes, one registration may support several simultaneous streams, **the number of "simultaneous streams"** that are marketed with "subscription" services by country is the second metric proposed. That is, if one registration only provides for 1 stream, it would count as 1, but if it provides 3 simultaneous streams, it would count as 3.

In summary BEREC defines two different metrics related to video-streaming subscription services:

1. **Number of registered users, who subscribed to a specific "subscription service" by country of residence at a specific date.**
2. **Number of "simultaneous streams" that are marketed with "subscription" services by country of residence at a specific date.**
If one registration only provides for 1 stream, it would count as 1, but if it provides 3 simultaneous streams, it would count as 3.

3.2.1.2 Number of content pieces and registered users - for transactional video on demand (TVOD) services

Transactional services are rented or sold on a "fee per content basis". The content is sold once for viewing or for viewing within a defined time window and is not subject to further recurrent payments. Therefore, these services include both form of purchase or rental of a content (so called EST – electronic sell-through and TVOD – Transactional video on demand).

The proposed metrics are **the number of content pieces sold** and, if available, **the number of registered users** by country of residence of the user.

Video-streaming providers need to be aware of the country of residence of the registered user in order to group these by country. After the workshop BEREC concluded that, in general, there are no major issues in providing this information or identifying country of residence for transactional services. However, it cannot be presumed that this is unproblematic in all cases, and for transactional services for which providers state that this is not possible, they should use proxies for "country of residence" - for example considering the country of reference for the payment (i.e. according to the debit/credit card information, bank information). Providers should inform the NRAs about any proxies used.

In summary, BEREC defines two different metrics related to transactional services (TVOD):

3. **Number of content pieces sold in a specific period, by country of residence of the user.**
4. **Number of registered users at a specific date, by country of residence of the registered user.**

3.2.1.3 Active User Metrics – for subscription video on demand (SVOD) services

Active users' metrics are particularly relevant in cases in which a video-streaming service is offered at no specific cost to consumers, but only bundled with other services offered by the provider in exchange for a single payment. In those cases, the number of subscribers may be much larger than the number of active users as some subscribers may not use the service or even be aware of it. This is less expected in the case of video-streaming subscription services, which subscribers pay specifically for. Therefore, the indicator applies also to cases where video-streaming services are offered to users bundled with other services in exchange of one price (a single fee per period, for example).

The proposed metric concerns only the subscription services and requires the number of users that have used the service at least once in the last 30 days as of the date of measurement:

- 5. Number of monthly active users at a specific date, who used the video-streaming service at least once in the last 30 days as of the date of measurement, by country of residence and by service. Applicable to subscription services (SVOD) only.**

3.2.1.4 Revenue Metrics

Revenue is generated by subscriptions (recurrent fees), by the sale of content (one-time purchases) and/or by other direct revenues sources, such as merchandising.

Given the NRAs' experience in collecting similar data from IPTV and cable TV providers and after discussing this metric with stakeholders in the workshop, BEREC concludes that there are no technical issues that would impede video-streaming providers to hand in data according to the following categories of revenues:

- 6. User-based revenue from video-streaming services²⁴, split by recurring fees (SVOD) and one-time purchases (TVOD), by country and service in a specific period.**

The revenues must have been generated in the country, in the period defined by the NRA.

- 7. Other direct user revenue sources, by country and service, in a specific period.**

This refers to other user-related revenues, for example merchandising revenues, generated in the country, in the period defined by the NRA.

Where country of residence is not available, providers should use proxies for "country of residence" with respect to these revenue metrics - for example considering the country of reference for the payment (i.e. according to the debit/credit card information, bank information). Providers should inform the NRAs about any proxies used.

²⁴ If the SVOD are provided in a bundle, please provide the revenue information for the whole bundle, with the corresponding explanation.

3.2.1.5 Data Traffic Metrics

Video-streaming services are known to be major drivers of demand for data traffic. Countries concerned about network congestion may want to assess the data traffic generated by these services, so as to evaluate the share of overall data traffic that is attributable to video-streaming services.

NRAs interested in this type of information may also address providers of other services which are known to be important generators of data demand, such as video-sharing platforms, social media or, in general, all sorts of online audio-visual services. Therefore, the ways to identify high traffic services and indicators on data traffic may be relevant and subject to further BEREC work.

When discussing this metric with providers of video-streaming services during the workshop, they argued that it is easier to measure data traffic per network rather than national market and that the information on the data generated per country should be requested to operators by tracing the origination of the data traffic. However, some video-streaming providers explained that they know the bandwidth at country level, but, in any case, they also agreed that the network operators were best positioned to provide these data. On the other hand, electronic communication networks and services providers may argue that reporting of such data is not possible for legal reasons, as it may require traffic inspection. Furthermore, in order to monitor network congestion, aggregate numbers of internet traffic at the level of ISPs might be sufficient and do not require providers to perform traffic inspection. Some internet exchange points already provide public information on the volume of aggregate traffic²⁵.

BEREC has not come to a decision regarding this metric and would like to hear from all stakeholders about the following aspects:

- i) Could an internet access provider or a provider of an internet exchange point identify data traffic from/to a certain Content Delivery Network (CDN) (in the same or another member state) at an aggregate level and provide this information to an NRA?*
- ii) Could a CDN identify data traffic from/to a certain internet access provider or a provider of an internet exchange point (in the same or another member state) at an aggregate level and provide this information to an NRA?*
- iii) Do video-streaming providers use CDNs exclusively so that CDNs only serve one video-streaming service and all the traffic directed to those can be attributed to that video-streaming service?*
- iv) What are the legal matters for internet access provider, providers of an internet exchange point and CDNs and video-streaming providers in getting access to this information and providing it to an NRA?*

²⁵ See for example vix.at/61.html?L=1 for statistics on the sum of incoming and, separately, outgoing bits per second to or from participants of an internet exchange point in Vienna, Austria.

4 Legal considerations

Section 2 in the document numbered BoR (19) 244 includes a detailed analysis of the legal considerations that frame the NRAs' ability to collect information from providers of different services stemming from the EECC and BEREC Regulation (EU) 2018/1971.

This section summarises BEREC's conclusions regarding data requests about NI-ICS and services other than electronic communication networks or services, such as video-streaming services. In all cases, requests need to be adequately reasoned, motivated and proportionate, not creating an undue burden on providers.

Overview of the legal basis on the possibilities to request data

Addressed entity →	NI-ICS	non-ECN/S
Requesting entity ↓		
NRAs and Competent Authorities	Yes, according to Article 20* of the EECC	Yes, but only when data provided by ECN/S was insufficient according to Article 20*(1) subparagraph 2 of the EECC
BEREC: Indirect requests of information via NRAs to inform tasks under Article 4 of the BEREC Regulation	Yes, according to Article 40 of the BEREC Regulation, Article 5(1) subparagraph 2 of the EECC	Yes, according to Article 40 of the BEREC Regulation
BEREC: Direct requests of information to providers to inform tasks under Article 4 of the BEREC Regulation	Yes, but only when information needed for fulfilling the purpose of Article 4 of the BEREC Regulation is not made available by NRAs in a timely manner according to Article 40(4) of the BEREC Regulation	No direct requests, as a conclusion from Article 40(4) of the BEREC Regulation

**Wherever Article 20 is the basis for a request for information the sharing mechanism of Article 20(1) subparagraph 2 applies (cross border information sharing mechanism)*

a) Who may request data?

Article 20 of the EECC explicitly attributes the power to request data to the NRAs and CAs and Article 29 of the EECC gives the power to impose penalties in case of non-compliance with a request for information to the NRAs and CAs only.

Article 5 (1), subparagraph 2, of the EECC and Article 40 of the BEREC Regulation state that "*For the purposes of contributing to BEREC's tasks, NRAs shall be entitled to collect necessary data and other information from market participants*". Therefore, NRAs may request data from the market participants when this is necessary for contributing to BEREC's task according to Article 4 of the BEREC Regulation. Paragraph one of Article 40 explains that BEREC may request the data from NRAs by a reasoned

request, provided that NRAs have legal access to the information, and that the information is necessary in relation to the nature of the tasks BEREC is carrying out. Article 40(4) introduces a condition under which BEREC is allowed to request data directly from relevant ECN/S undertakings:

“Where information is not made available by the NRAs in a timely manner, BEREC or the BEREC Office may address a reasoned request either to other NRAs and other competent authorities of the Member State concerned, or directly to the relevant undertakings providing electronic communications networks, services and associated facilities”.

Thus, BEREC can address undertakings providing ECN/S directly whenever a previous request of information to the NRAs has failed or has not been answered in a timely manner.

b) What data can be requested?

Article 20 of the EECC mentions the different types of data that may be required, which include any data necessary for NRAs, CAs and BEREC to ensure conformity with the provisions of, or decisions or opinions adopted in accordance with, the EECC and Regulation (EU) 2018/1971 of the European Parliament and of the Council.

All the information that BEREC may request from NRAs (or – in exceptional cases – directly from undertakings providing ECN/S) must be linked to the fulfilment of BEREC’s tasks as described in Article 4 of the BEREC Regulation (Article 5 (1), subparagraph 2, of the EECC and Article 40 of the BEREC Regulation).

c) From whom?

Article 20(1), subparagraph 1 allows data collection from “*undertakings providing electronic communications networks and services, associated facilities, or associated services*”. However, in exceptional cases, Article 20(1), subparagraph 2 allows the data collection from other undertakings²⁶, as well:

“Where the information collected in accordance with the first subparagraph is insufficient for national regulatory authorities, other competent authorities and BEREC to carry out their regulatory tasks under Union law, such information may be inquired from other relevant undertakings active in the electronic communications or closely related sectors.”

This is clarified by Recital 57:

“It may, by way of exception, also be necessary to gather information from other undertakings active in sectors that are closely related to the electronic communications services sector, such as content providers, that hold information which could be necessary for them to exercise their tasks under Union law. [...]”

Neither the EECC, nor the BEREC Regulation limit the targeted audience for BEREC’s indirect information requests as long as the information is needed for the fulfilment of BEREC’s tasks according

²⁶ Note that the definition of electronic communication service in Art 2 EECC explicitly excludes services providing, or exercising editorial control over, content transmitted using electronic communications networks and services. Therefore, video-streaming services are a category of services that can be included under the concept of “*other relevant undertakings active in the electronic communications or closely related sectors*”, as paragraph 57 in the EECC preamble suggests.

to Article 4 of the BEREC Regulation. Note that according to Article 40 of the BEREC Regulation (EU) 2018/1971, BEREC can request information from any NRA in Europe which is represented in the Board of Regulators, as well as the European Commission (EC).

However, with regard to direct information requests of BEREC, Article 40(4) of BEREC Regulation only refers to: “*relevant undertakings providing electronic communications networks, services and associated facilities*”, therefore excluding requests to “*other relevant undertakings active in the electronic communications or closely related sectors*” as mentioned in Article 20(1), subparagraph 2 of the EECC.

d) Cross-border information sharing

Article 20(2), subparagraph 2 of the EECC describes a cross-border sharing mechanism between Member States and BEREC and its prerequisites:

“Subject to the requirements of paragraph 3, Member States shall ensure that the information submitted to one authority can be made available to another such authority in the same or different Member State and to BEREC, after a substantiated request, where necessary to allow either authority, or BEREC, to fulfil its responsibilities under Union law.”

Article 20(3) of the EECC basically states that such a request for information cannot be denied due to confidentiality concerns as BEREC, NRAs and CAs shall ensure its confidentiality.

e) The geographical jurisdiction for video-streaming services

Video-streaming services are mainly regulated by the Audio-Visual Media Services Directive (hereinafter the AVMSD)²⁷. In particular, the provision of video-streaming services does not fall under the remit of the EECC; the definition of electronic communications services in Article 2 of the EECC clearly excludes “*services providing, or exercising editorial control over, content transmitted using electronic communications networks and services*”²⁸.

The application of the AVMSD provisions is subject to the Country of Origin principle (CoO), with the aim of promoting the free provision of audio-visual media services across Europe, in the pursuit of the Internal Market goal.

The latest review of the AVMSD has extended the CoO principle to on-demand audio-visual media services (previously reserved to traditional broadcasting services). According to the CoO principle, Article 2 of the AVMSD ensures that providers of broadcasting channels and video on-demand services based in one country are only subject to the set of rules and regulations established by that country (that is, the „Country of Origin“) even though its channels/services are offered in (and are targeting citizens from) another country (that is, the „Country of Destination“)²⁹.

²⁷ Directive 2010/13/EU of the European Parliament and of the Council of 10 March 2010 on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of Audio-Visual Media Services, as amended by Directive 2018/1808/EU of 14 November 2018.

²⁸ Recital 7 of the EECC further clarifies that its scope does not include content of services delivered over electronic communications networks using electronic communications services.

²⁹ “Article 2

However, **Article 2** circumscribes the CoO principle to the law applicable to audio-visual media services and for the purposes of the AVMSD³⁰, and does not extend its applicability to other separate purposes, for example, the EECC's.

As a matter of fact, the **EECC** relies on the **Country of Destination** principle; therefore, **NRAs' requests for data/information pursuant to Article 20 of the EECC can be targeted directly to the providers of services in closely related sectors, wherever those are established within the EU, in so far the requests are proportionate and well-motivated** (those should be made to ensure conformity with the EECC and/or the BEREC Regulation or any derived legislation). Such regime has to be considered as completely separate from the AVMSD regime.

In operational terms, in case the video-streaming provider is established in a different Member State than the one it is requested to provide info/data, NRAs should be aware that the enforcement of data/information requests to video-streaming services would be dependent on the cooperation of the (telecom) NRA in the Member State where the provider of the concerned service is established or has its residence. For example, if an NRA from Country A requests data/information from a provider established in Country B, and the provider declines the request, the NRA in Country A will need to cooperate with the NRA in Country B in order to oblige the provider to hand in the information requested (e.g. through enforcement measures).

5 Conclusions

This report provides a set of indicators on the basis of which, where necessary, NRAs can collect comparable data on OTT services (especially, NI-ICS and video streaming) within their regulatory mandate.

As far as NI-ICS services are concerned, only "by country" metrics related to registered and active users and the number of originated calls/messages can be defined with the objective to obtain such information in a harmonised way. The other proposed metrics are not deemed appropriate and/or feasible to collect at this point, for various reasons. Further analysis will be required regarding other indicators, for which definitions could be elaborated at a later stage.

With respect to the video-streaming metrics, there are no major technical issues and constraints for the provision of data concerning the majority of the initially proposed metrics.

The EECC explicitly attributes the power to request data to NRAs and Competent Authorities. Moreover, the BEREC Regulation implies that BEREC may request NRAs to provide available data from market

1. *Each Member State shall ensure that all audio-visual media services transmitted by media service providers under its jurisdiction comply with the rules of the system of law applicable to audio-visual media services intended for the public in that Member State.*

2. *For the purposes of this Directive, the media service providers under the jurisdiction of a Member State are any of the following:*

(a) those established in that Member State in accordance with paragraph 3;

(b) those to whom paragraph 4 applies."

³⁰ Recital 104 in Directive 2010/13/EU states that its objectives are: "*the creation of an area without internal frontiers for audio-visual media services whilst ensuring at the same time a high level of protection of objectives of general interest, in particular the protection of minors and human dignity as well as of minors and human dignity as well as promoting the rights of persons with disabilities*".

participants when this is necessary for contributing to BEREC's tasks. When information is not made available by the NRAs in a timely manner, BEREC may directly request information from the relevant undertakings providing electronic communications networks, services and associated facilities. There is also a legal basis for cross-border information sharing between Member States and BEREC and its prerequisites.

The country of origin principle as set forth in the AVMSD does not extend its applicability to other separate purposes, while the EEC does not include any principle "analogous" to the AVMSD's country of origin principle. Hence, NRAs' data requests can be targeted directly to the providers of services, wherever those are established, in so far those requests are proportionate and well-motivated.

Annex 1 - LIST OF INDICATORS

NI-ICS services

1. Number of Monthly Active Users (MAU) who used the service in the last 30 days as of the date of measurement, by country of residence, by service.
2. Number of Monthly Active Business Users who used the service in the last 30 days as of the date of measurement, by country of service deployment, by service.
3. Number of Registered users, who registered with a specific NI-ICS service, by country of residence and by NI-ICS service, at a specific date.
4. The total number and minutes of voice calls made by NI-ICS users towards other NI-ICS users, by country of residence of the caller, in a specific period.
5. The total number and minutes of video calls made by NI-ICS users towards other NI-ICS users, by country of residence of the caller, in a specific period.
6. The total number of instant messages sent by NI-ICS users towards other NI-ICS users, by country of residence of the sender, in a specific period.

In order to have a view on the seasonality, BEREC recommends to NRAs that may collect these information to consider collecting the data at least twice a year, for the months as of 30 June and as of 31 December.

Video-streaming services

1. Number of registered users at a specific date, who subscribed to a specific “subscription service” by country of residence, at a specific date
Only for subscription services (SVOD).
2. Number of “simultaneous streams” that are marketed with “subscription” services by country of residence at a specific date
Only for subscription services (SVOD). If one registration only provides for 1 stream, it would count as 1, but if it provides 3 simultaneous streams, it would count as 3.
3. Number of content pieces sold in a specific period, by country of residence of the user
Only for transactional services (TVOD).
4. Number of registered users at a specific date, by country of residence of the registered user
Only for transactional services (TVOD).
5. Number of monthly active users at a specific date, who used the video-streaming service at least once in the last 30 days as of the date of measurement, by country of residence and service
Only for subscription services (SVOD).
6. User-based revenue from video-streaming services split by recurring fees (SVOD) and one-time purchases (transactional services TVOD), by country and service in a specific period
7. Other direct user revenue sources, by country and service, in a specific period.

Annex 2 – WORKSHOP INVITATION INFORMATION REGARDING METRICS

Over-the-Top (OTT) services – like Social media, Instant Messaging, Video-conferencing and Video-streaming – are widely used by consumers and businesses in Europe. While these services are of great value to many, their impact in the rapidly evolving electronic communications market has never been quantified.

Yet, Article 2 in Directive (EU) 2018/1972 “the European Electronic Communications Code” (hereinafter EECC) provides a broad definition of interpersonal communications services giving NRAs and OCAs the legal power needed to collect data from providers of number independent interpersonal communications services (hereafter NI-ICS). Moreover, Article 20 provides the legal basis to request data from undertakings which are not active in the electronic communication services or networks but are still in closely related sectors, insofar these requests are substantiated and proportionate.

These new data collection powers apply to all National Regulatory Authorities (NRAs) and Other Competent Authorities (OCAs), increasing the need for the harmonisation of indicator definitions and metrics. Additionally, most of these services are provided on a European or global scale. Thus, harmonisation would facilitate the data collection for authorities, make it easier for the companies to provide data and allow for some international comparison.

In view of the above BEREC started by identifying unavailable data that NRAs may need in order to perform their tasks³¹ and concluded that the specific services of interest were: instant messaging, internet-telephony (comprising of voice- and video-calls), followed by tv streaming and subscription video-streaming services. NRAs also stated that the most important indicators were the penetration and number of active users of the aforementioned services, followed by information about revenues and fees (whether the service is offered freely to consumers and any prices for consumers).

According to NRAs, the main reasons for the data collection are the necessity of obtaining information for defining relevant markets, for assessing the impact of the identified services on electronic communication services and, generally, for the supervision of electronic communications markets. Additionally, that information would be necessary to safeguard the level playing field, and assess interoperability e.g. in the context of end-to-end connectivity and emergency services.

In 2019 BEREC has initiated a dialogue with the industry to identify and define indicators for which data would assist in performing NRAs tasks and could be collected.

The ultimate goal of the current BEREC's task and engagement with stakeholders is to produce a list of indicators that NRAs may consider to collect in the future, so that it is easier for the providers to hand in the data required (common standards) and also, there is some possibility of country comparison. This list may not be cover all of NRA informational needs in the future, as national specificities may imply that some NRAs have extended requirements. The list is being produced considering the indicators that many or most NRAs have identified as important and taking account of the information and opinions

³¹ BoR (19) 244.

provided by stakeholders. However, this list is not definitive and will be updated depending on the outcome of the discussion with stakeholders.

For all these reasons, this workshop is being organised as to enable BEREC to discuss the metrics proposed or possible alternatives and to allow BEREC to further judge the proportionality of the data requests.

BEREC expects to be able to finalize the list and the indicator definitions after the workshop, so that in 2021 a final report is proposed in the third BoR meeting in 2021 (expected publication in October 2021), after due consultation (expected publication in February 2021).

NI-ICS services

BEREC is proposing the following indicators to be collected from NI-ICS providers as defined in Article 2 of the EECC (Directive (EU) 2018/1972) and in particular, regarding the following NI-ICS:

- Messaging Applications (including those in social network applications);
- Internet and video telephony Applications.

1. Number of Registered users

number of registered users, who registered with a specific NI-ICS service, by country of residence and by NI-ICS service (at least twice a year, as of 30 June and as of 31 December)

- In case the registration is not related to a specific service but rather to the general use of a platform (membership, creation of an ID), the NI-ICS provider should make an assumption with respect to the portion of registered users that have used the service in question at least once and inform the NRAs about their assumption.
- Possible proxies to estimate the split by country are (1) the country code of the (mobile) phone number – if provided upon registration - or (2) the IP-address.

2. Number of Active Users

number of monthly active users, who used the service in the last 30 days as of the date of measurement, by country of residence, by service. In order to have a view on the seasonality, the data is to be provided at least twice a year, for the months as of 30 June and as of 31 December).

- Possible proxies to estimate the split by country are (1) the country code of the (mobile) phone number – if provided upon registration - or (2) the IP-address.

3. The total number and minutes of voice calls, by country of origination at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).

4. The total number and minutes of video-calls, by country of origination at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).

5. The total number of instant messages, by country of origination at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).

6. The total number and minutes of voice calls terminated inside the country of origination at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).
7. The total number of instant messages terminated inside the country of origination at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).
8. The total number and minutes of voice calls terminated in any other EU/EEA country at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).
9. The total number and minutes of video-calls terminated in any other EU/EEA country at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).
10. The total number of instant messages terminated in any other EU/EEA country at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).
11. The total number and minutes of voice calls terminated in non-EU/ countries at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).
12. The total number and minutes of video-calls terminated in non-EU countries at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).
13. The total number of instant messages terminated in non-EU countries at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).

Note:

Since only NI-ICS are within the scope of this proposed metric, the relevant calls/messages to be taken into account should only be those made/sent by NI-ICS users towards other NI-ICS users. Thus, this would exclude any calls/messages which are routed towards fixed/mobile networks based on the called number, as the latter would constitute NB-ICS in accordance with EECC Article 2(6).

In this respect, the country of termination for the calls/messages which is relevant for the proposed metrics in (6) to (13) above is to be established based on the country of residence of the called user or some other proxy as described in (1) above.

▪ **Additional indicators – to be discussed**

14. Revenue related indicators

Service revenue is an important indicator for regulators, as it allows NRAs to determine the size the market for services, learn of the importance of different providers by assessing their market shares and understand the average revenue per user. In the case of NI-ICS services, assessing service revenues is not simple. NI-ICS providers normally do not charge consumers for the use of NI-ICS and instead monetize the sales of services to third parties, using as a core input into their productive processes the

access to their customer base and customer information. In some cases, the services are funded by donations and grants or funds. Moreover, some NI-ICS form part of a digital platform, where different functionalities are bundled together to provide value to the end consumer. Yet, Recital 16 EEC recognises that the concept of remuneration of an electronic communication services is wide, as services are often supplied to the end-user not only for money, but increasingly and in particular for the provision of personal data or other data. Therefore, an ample definition of revenues needs to be considered by NRAs in the monitoring of markets.

BEREC would like to discuss with providers a way forward in delivering revenue indicators.

15. Preinstallations

Pre-installation can have a large impact on the usage of services. Consumers may use certain services, because they are readily available on the device. Several studies by NRAs³² show how pre-installations can have an impact on consumer choices, leading to a decreased number of consumers switching to other services, e.g. also by the impossibility for consumers to uninstall preinstalled apps. Information on pre-installations is hardly publicly available, but crucial in assessing the extent of this impact of pre-installations on the use of and competition between NI-ICS services and consider the implications for ECS markets.

Thus, some BEREC members would find it useful to collect information on which devices a NI-ICS is preinstalled – concerning pre-installations on devices of own brands and when applicable as well as pre-installations on the devices of other companies. The information may encompass characteristics of the devices on which a NI-ICS is preinstalled. In case the provider of NI-ICS is also manufacturing devices and performing preinstallations, the NI-ICS can provide a list of device models, on which those preinstallations are performed.

BEREC would like to discuss with providers about ways to delivering preinstallation information.

VIDEO-STREAMING SERVICES

SERVICE DEFINITION

Video content over the public internet which is either offered: on-demand (i.e. for the viewing of programmes at the moment chosen by the user and at his individual request on the basis of a catalogue of programmes) and/or linear content (i.e. for simultaneous viewing of programmes on the basis of a programme schedule) streaming, with the following characteristics:

- It is exclusively offered to a group of consumers normally in exchange of a monthly (or other regular) payment; or
- It is offered from a catalogue and in exchange of a fee per individual content; or

³² ACM (2019): Market study into mobile app stores; ARCEP (2018): Devices, the weak link in achieving the open internet; RTR (2019): Report on the open internet: operating systems, apps and app stores.

- It is offered at no specific cost to consumers but only if they either purchase or use other “for payment” services offered by the video-streaming provider.

This definition does not include IPTV services (that is, video transmission that is not provided over the public internet) or apps that allow paid managed IPTV service clients to access the video content offered via IPTV, using devices such as tablets or smartphones.

INDICATORS

16. Number of registered users, who subscribed to a specific “subscription service” by country of residence at least twice a year (data as of 30 June and as of 31 December).

- A “subscription service” is a service that allows the consumption of several contents for a pre-established period of time, for example for a month or quarter, that is contracted once and then has ongoing regular payments.
- BEREC understands this information is generally available although there are differences as far as payment schemes and subscription models are concerned.

17. Number of “simultaneous streams” that are marketed with “subscription” services by country of residence at least twice a year (data as of 30 June and as of December).

- This is if one registration only provides for 1 stream, it would count as 1, but if it provides 3 simultaneous streams, it would count as 3.

18. For services that are sold on a “fee per content basis”, number of services sold at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).

19. For services that are sold on a “fee per content basis”, number of registered users (at least twice a year, semester information, data as of 30 June and as of December).

- A “fee per content service” is a service by which contents are sold once for a price and are not subject to further recurrent payments

20. Only for subscription services. Number of monthly active users, who used the video-streaming service at least once in the last 30 days as of the date of measurement, by country of residence, by service. The data is to be provided at least twice a year (data as of 30 June and as of 31 December).

21. Subscriber based revenue of video-streaming services split by recurring fees and one-time purchases, by country and service at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).

22. Other direct user revenue sources, by country and service, at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).

23. Data traffic generated by the video-streaming service, per country. To be collected at least each semester (accumulated from 1 January to 30 June and from 1 July to 31 December).

Annex 3 – WORKSHOP PARTICIPANTS

1	AGCOM	30	MICROSOFT
2	AKOS	31	MOTION PICTURES ASSOCIATION
3	ALGORITHMS EXPOSED	32	NATIONAL COMMUNICATION AUTHORITY OF SOUTH SUDAN
4	ANACOM	33	NETFLIX
5	APPLE	34	NMHH
6	ARCEP	35	OCECPR
7	ARCT-ICT	36	OECD
8	AT&T	37	POLITICAL INTELLIGENCE
9	BAKOM	38	PTS
10	BEREC OFFICE	39	RATEL
11	BIPT	40	RRT
12	BNETZA	41	RTR
13	CNMC	42	RU
14	CRC	43	SKY
15	CTU	44	SPRK
16	DANISH BUSINESS AUTHORITY	45	SUPERONLINE
17	DANISH ENERGY AGENCY	46	SUTEL
18	ECTA	47	TRAFICOM
19	EETT	48	T-REGS
20	ERGA	49	TWILIO
21	FACEBOOK	80	UNIVERSITY OF SPAIN
22	FASTWEB	81	UNIVERSITY OF NAPLES/ PARTHENOPE
23	FLINT GLOBAL	82	VIBER MEDIA S.A.R.L
24	HAKOM	83	WALT DISNEY COMPANY EMEA
25	ILIAD REGULATORY	84	WIK
26	ILR	85	WINDTRE
27	ITU		
28	LMT		
29	MCA		
In total registered for an event: 112			
Participation in the session I: 79			
Participation in the session II: 66			