5.1.1. Description of mobile phone data (CDR/IPDRs)

Every MNO stores information about a subscriber activity and any system activity regarding the subscribers for the purposes of billing, network maintenance and meeting statutory obligations. The MNO collects Call Detail Records (CDRs), Internet Protocol Detail Records (IPDRs) and, at times, signalling data. CDRs are generated every time a subscriber uses services such as calling (in/out), messaging (in/out). IPDRs are generated every time a subscriber is accessing the Internet. Signalling data refers to directly obtaining transmission signals from the radio network, which means it can tap into data sources beyond billing centres and data warehouse systems. Since signalling data are generated regularly throughout the day, even if the subscriber does not use any of the service, it also increases the number of records per subscriber which helps to minimise daily differences in record counts. Signalling data would, therefore, be the preferred option for most purposes. However, it comes with several drawbacks, including high costs of installing probing systems in MNO's systems. For ICT statistics it is sufficient, and often preferable, to trace active events on the network, namely CDRs and IPDRs.

The CDRs and IPDRs generated by mobile phone events include several attributes, including subscriber identifier, time, and location. Subscriber identifiers are needed to distinguish individual subscribers from one another. The time attribute is a mandatory field required for billing purposes and should include the start and end time of the event and its duration. The location attribute is typically mandatory in CDRs and IPDRs and is provided in terms of the last cell ID within a location area identity (LAI) or tracking area identity (TAI).

The LAI/TAI consists of the Mobile Country Code (MCC), the Mobile Network Code (MNC), a two- or three-digit identification code specific for the MNO, and the Location Area Code (LAC) / Tracking Area Code (TAC), an identifier of the location area within an MNO's network. Within each LAC/TAC, there is several cells towers that can be identified by Cell Identity (CI/Cell ID), a unique code only inside the location area.

CDRs and IPDRs can also include additional attributes such as the type of the activity, e.g. data use, messages, or calls, whether the call was incoming or outgoing, network technology (2G, 3G, 4G, and 5G) and the equipment used.

For the purposes of calculating the SDG indicators described in this Handbook, it is important to use MPD containing subscriber identity, time, location, and network technology. It is equally important that the subscriber identity remains the same for the duration of the project. In the study in Indonesia, data was obtained for one year (January-December 2019) from one MNO. In Brazil, data for a two-month period (March-April 2019) was obtained from one MNO (out of four possible).