

Refutation of Analysys's Critique of WIK's Mobile Network Cost Model

Bad Honnef, 20 August 2007

Analysys claims that the WIK Model fails to account for the fact that on-net calls (calls originating and terminating in the same network) use more elements of the operator's network than other services when considering the conversion from 'dimensioning minutes' to 'service minutes'. Analysys attempts to substantiate the claim with two scenarios. Scenario 1 is supposed to replicate the total cost of voice services as calculated by the model starting from a figure of total minutes labelled dimensioning minutes while scenario 2 is supposed to show what the model – according to Analysys – actually arrives at as total cost of service minutes, the amount eventually to be recovered, where that total cost is lower than the cost shown to be incurred on the basis of dimensioning minutes.

The claim is completely unfounded. Scenario 1 approximately replicates the model's results (although with a numerical error, see below) provided the total number of minutes referred to are considered service minutes. Scenario 2 is totally wrong. The number of 27.5 billion total minutes are not, as Analysys argues, dimensioning minutes but are service minutes.

When carrying out the network design, the model counts different services' minutes for the various network elements in the proportions in which the services use these network elements. So, in the case of on-net services the number of minutes are doubled for the purpose of dimensioning network elements such as BTSs, BSCs, links between BTSs and BSCs and so on, because these minutes travel over these elements twice, the first time on the up-link and the second time on the down-link. Similarly, the minutes of on-net and incoming calls are considered with a factor of about 1.6 for the purpose of dimensioning MSCs because a certain proportion of these calls remain in the MSC cluster where the calls originated, meaning that the network element MSC is used only once, while another proportion is terminated in another MSC cluster, meaning that in this case the network element MSC is used twice. As a weighted average a minute of voice calling thus uses MSCs 1.6 times, and their capacities are modelled accordingly. There are further such cases which each time are handled by the model according to the use of network elements by the services.

When the costs of the services are determined, the per-minute costs of use of network elements are multiplied by services' usage factors, corresponding exactly to the intensities of use on the basis of which the dimensioning of network elements is carried out, as just described, and the results for each network element are added up.

In the report there are numerous references to the fact that services use network elements in different proportions and that the model would take this in account when dimensioning the network.

The numerical error mentioned above consists in the number of 27.5 billion for total minutes being wrong. The number of total minutes used in the original calculations

carried out by WIK is 28.8 billion minutes (see table 5-2 on page 107 of WIK's report). When this figure is used for the calculations that Analysys presents in the column "Operator's traffic" of the table for scenario 1, one arrives at a total of recovered cost of A\$ 506.5 million which is very close to the share of 94%, which voice services make up in the total of services, and not 90 % as stated by Analysys.