

The engagement of Televerket in the specification of GSM

A SHORT INTRODUCTION BY BJØRN LØKEN



Bjørn Løken is Director in Telenor Nordic Mobile

Mobile communications have expanded its grounds from covering pure communication needs to become a lifestyle product, and Telenor has become one of the business' major players, even on a global scale. In Norway mobile phone is a natural first choice to many people. But it was not written in the stars that the future of wireless communications should become that bright. I am therefore pleased that the Editorial Board invited Telenor to highlight its contributions to the development of the GSM standard and reflect upon why GSM became such a success.

Telenor (formerly Televerket) has a long record in operating public mobile telephone systems. A manual system in the 160 MHz band opened in 1967 (OLT). The service became quite popular, and the system soon ran out of capacity. A few years later a supplementary system was introduced in the 450 MHz band in some heavy traffic areas in the southern part of Norway. The introduction was coordinated with neighbouring countries which experienced similar capacity strains.

The request for more capacity was uniform in the Nordic countries. Hence the idea to develop and establish a common automatic mobile telephony system was born. The system was called NMT. An

important requirement was that the system should offer international roaming throughout the Nordic countries.

The appreciation of OLT and NMT in the Norwegian market revealed some basic knowledge that became crucial for Televerket in the years to come.

- The market potential of mobile communications seemed substantial, but unpredictable.
- Coverage is crucial, both in terms of area coverage and in terms of services offered, i.e. seamless handover, international roaming, and voice mail services.
- The steady miniaturisation of electronic components and the ever lasting increase in processor speed imposed some inherent market drivers that are particularly valuable in mobile communications, for success so much relies upon the ability to create mobile applications.
- The operator's best salesmen are the mobile users themselves and the importance of forefront users eager to exploit new technology should not be underestimated. Equally important is the need to identify user groups inclined to generate traffic volume.

Two years ahead of opening the analogue NMT system to the public in 1981, Televerket launched some initiatives to study what would be the impact of digital treatment of speech, modulation and coding on mobile communications. Those activities were tightly connected to an advanced expert community at the Norwegian Institute of Technology (NTH).

At the same time Televerket once more joined forces with its Nordic sister operators to study what might be the best strategy for the Nordic countries for mobile communications after the NMT era (FMK, "Fremtidens Mobilkommunikasjon"). In parallel, Televerket took some initiatives within ITU CCIR and CCITT to engage those bodies in the specification of global standards of vital importance for the smooth operation of automatic international mobile communications systems. I myself was appointed Special Rapporteur on mobile questions in CCITT Study Group XI (ISDN and telephony swiching and signalling), a position I held from 1980 to 1992.

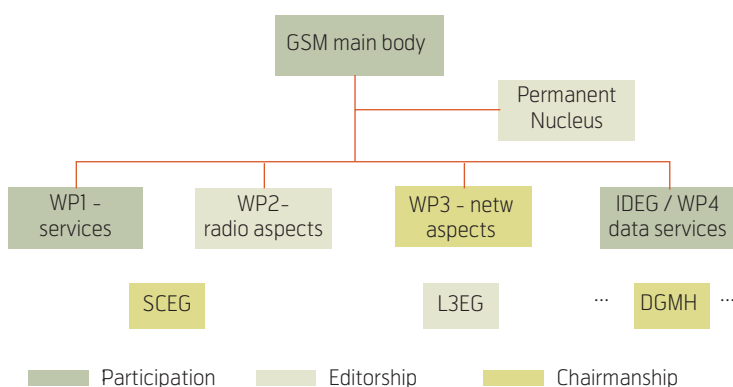


Figure 1 An extract of the organizational structure of the GSM project around 1988. GSM Main Body was the group to approve or reject the work items or specifications proposed by the four working parties. Below the working parties, there would be ad hoc groups with special assignments. Three of those groups are depicted in the figure; SCEG (Speech Coding Experts Group), L3EG (Layer 3 Expert Group), and DGMH (Draft Group on Message Handling). The colour codes indicate which groups in which Televerket was a) represented, b) had editor responsibilities, or c) had the chairmanship

When the GSM initiative was launched Televerket found itself in the happy situation of possessing experts in many different fields that appeared to be crucial in the GSM work. These resources were offered to the GSM group. In my opinion Televerket's efforts made a significant contribution to the success of GSM. Indeed, without operational experience and convincing expertise we would have had a much harder time advocating for a system equally well suited for both urban and rural areas like those we find in the Nordic countries.

The organisation of GSM is depicted in Figure 1.

From Televerket Jan Audestad, Petter Blikrud and myself participated in the main body. When the working parties were established, Jan became chairman of WP3. Several experts joined WP2 and took part in the endeavours therein, in particular Torleiv Maseng and Rune Rækken. Helene Sandberg and Hans Myhre from the operational division of Televerket's mobile activities joined WP1. Jon Emil Natvig, being at that time a distinguished expert on speech coding techniques, became chairman of SCEG. Knut Erik Walter entered WP3 and became

heavily involved in its work. Finn Trosby entered IDEG (later WP4), and became chairman of DGMH, one of its four drafting groups. Stein Hansen entered the Permanent Nucleus in Paris (PN) and became editor of several of the specifications that became assignments of PN.

Many of the individuals mentioned above are among the authors of the articles to follow. In addition, we have been so lucky as to get the chairman of the GSM project itself, Thomas Haug from the Swedish Televerket (now TeliaSonera) to write about how GSM came about.

It is for the historians to judge what the future had held for mobile communications in Europe without heavy involvement of Televerket and the other telecom operators in the GSM specification work and their firm commitment to launch services based upon the emerging standards (MoU). Having reached such an overwhelming penetration worldwide, it is in my opinion obvious that the efforts have paid off. Telenor – being the 12th biggest mobile operation company in the world and entirely basing its business on GSM – has indeed benefited from it.

Bjørn Løken (57) graduated from the University of Oslo in 1972. After graduation he joined Norwegian Computing Center as a researcher on teletraffic simulation models. In 1975 he was employed by the Research Department of Televerket, and in the following five years he worked on specification and testing of the NMT system. In the 1980s he was engaged in the CEPT/ETSI specification work on GSM. From 1980 to 1992 he also held a position as Special Rapporteur on mobile questions in CCITT Study Group XI. From 1987 to 1992 Bjørn Løken was Chief of Research with responsibility for network development for both fixed, mobile and data communications. From 1992 to 1995 he was Director of Strategy in Televerket. Since 1995 Bjørn Løken has been with Telenor Nordic Mobile, primarily concerned with questions related to telecom regulations.

email: bjorn.loken@telenor.com