



World Class Standards

GSM: Vision and Challenges

Kari Marttinen

GSM...younger than ever

Lemesos, Cyprus
15 – 16 March 2007

Conditions leading to GSM

❑ Clear goals

- Create a singular Pan European digital mobile system
- Benchmarking against NMT and TACS -> better functionality, more capacity, tighter security, etc.

❑ SDO change from CEPT to ETSI

- Equal participation rights for operators and vendors
 - Special invitation requirement cancelled
 - Unlimited access to all meetings

Success in Policy (1)

- ❑ **All interested parties could join standardisation work**
- ❑ **Memorandum of Understanding was created**
 - **The Implementation of a Pan European 900 MHz Digital Cellular Mobile Telecommunications Service by 1991**
 - **Signed by 13 operators/administrations on September 7, 1987**
 - **MoU assured vendors that operators will implement GSM and development costs are justified**
- ❑ **Roles of different bodies were clarified in rather early phase**
 - **ETSI (GSM/SMG) responsible for technical standards and issues**
 - **GSM MoU responsible for business related issues**
 - **This split worked rather well even if GSM MoU did not have an official status as an organisation**
 - **Creation of GSM Association solved this status issue later**

Success in Policy (2)

- ❑ **Decision to extend/allow mobile networks based on GSM standards to be implemented outside Europe**
 - **Number One technology in mobile business!**
 - **Originally only operators/administrations from CEPT member states were allowed to sign the GSM MoU paper**
 - **Addendum to the Memorandum of Understanding on The Implementation of a Pan European 900 MHz Digital Cellular Mobile Telecommunications Service by 1991 created the possibility of membership for outside CEPT states**
 - **High resistance among some operators**
 - **A few operators feared a transfer of decision power to non-European countries**

Success in Technology

- ❑ **Introduction of SIM**
 - **Convenient way to:**
 - Personalise and change terminals
 - Transfer personal data
- ❑ **Open, well-defined interfaces and functions**
 - **A-interface enabled easy combination of vendor equipment**
 - **SMS created as a transfer mechanism within the system**
 - SMS could be regarded as a first service enabler
 - Room for innovative service development
- ❑ **GSM technology created as a competitive worldwide standard**
 - **Flexible frequency usage / multiband solutions**
 - 900 MHz, 1800 MHz, 1900 MHz, 850 MHz, 400 MHz, etc.
 - **Security algorithms became a political problem**
 - Multiple algorithms were developed

Challenges in Policy

❑ Clash between regulatory issues and operator/vendor views

➤ Type approval requirements

- Full type approval requirement for GSM Phase 1 (NET-10) -> Interim type approval (ITA) -> New type approval (CTR regime) -> 'No type approval' (GSM should not disturb other radio systems)
- GCF (Global Certification Forum) was created to fill the gap 🍷

➤ EMC issues

- Unfair requirements based on belief, not facts ('Your mobile phone can kill you')

➤ National policies and requirements

- No common policy how type approval issues should be interpreted

➤ EC DG XIII 'ruled' the type approval

- Operators (and vendors) had hard time to get the idea of fair type approval regime through
- GSM = 'God Send Mobiles'

Challenges in Technology

- ❑ **GSM work aimed to standardise end-user services instead of service enablers**
 - **Implementation of new services delayed**
 - **Exception; SMSC**
- ❑ **Open, but not well-defined interfaces**
 - **Abis-interface: O&M standardisation failed, which led to de-facto proprietary interface**
- ❑ **Further development of certain features lacked behind**
 - **WAP, GPRS, MMS**
 - **Operators neglected putting service requirements on the table**
 - **Services difficult to install and use**
 - **Interoperability and roaming problems**

Lessons Learned

- While developing a complex worldwide mobile communication standard, the GSM community successfully moved ahead in most areas
- During the business growth phase, the operator community neglected specifying future requirements; vendors took the lead
- Regulatory issues should continuously support the long-term development
- The spirit of fair play should be re-ignited
- Additionally, numerous other important issues have had crucial impact on the GSM success story



World Class Standards

THANK YOU!