

# 3GPP Standardisation Activity



**ITU-BDT Seminar**  
Doha, Qatar, 29 September – 1 October 2003

## 3GPP Standardisation activity

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September 2003 1

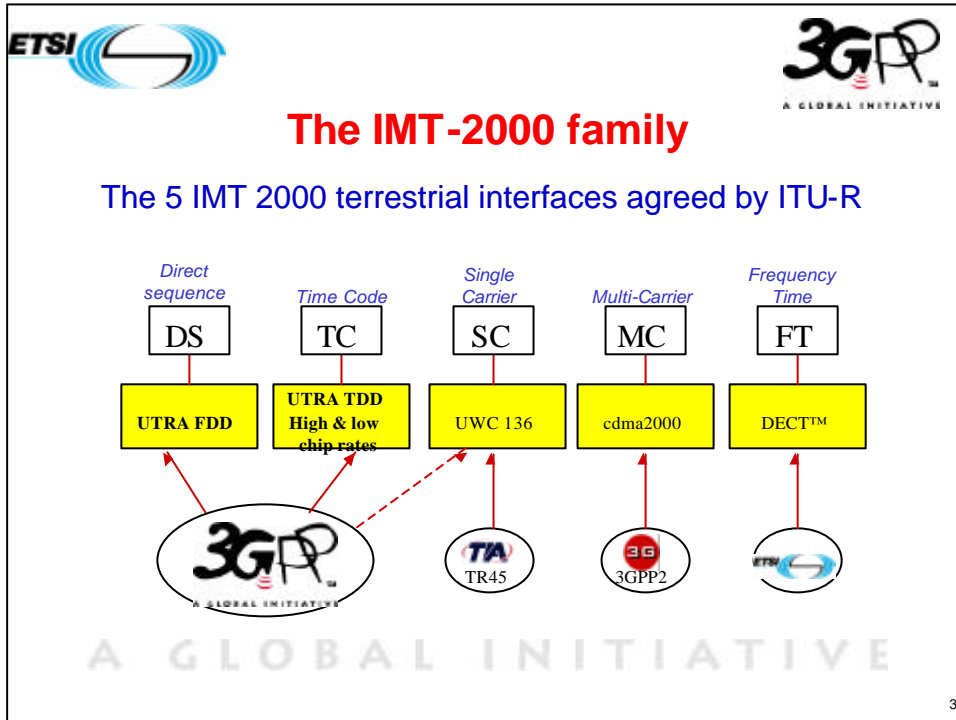


## Contents

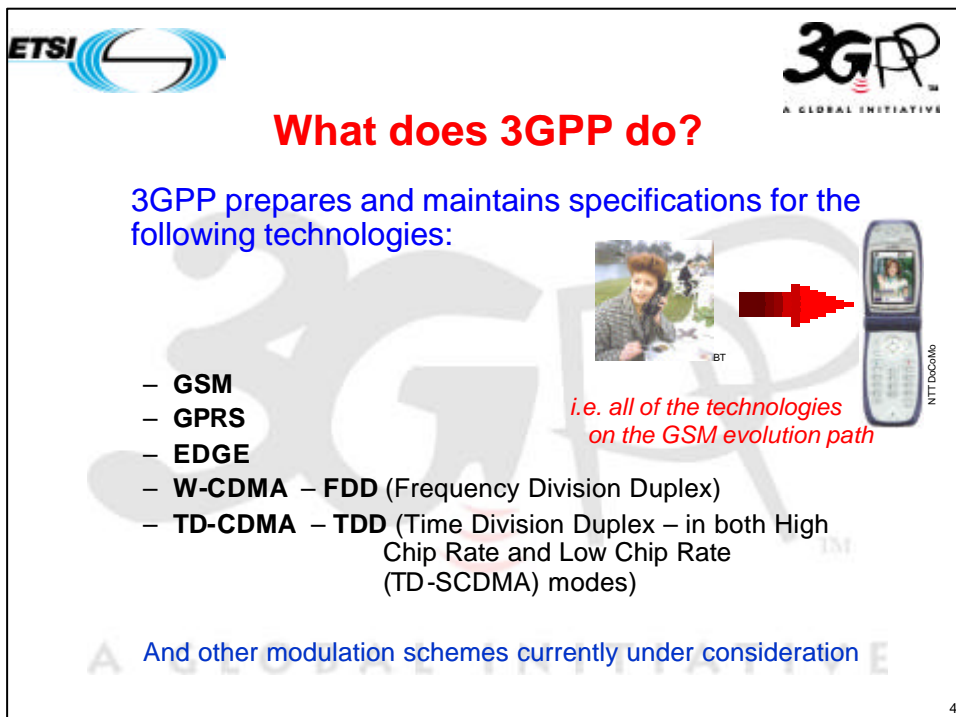
- ✚ What 3GPP does
- ✚ Partnership and Membership
- ✚ Relationship with the ITU
- ✚ 3GPP Releases
- ✚ What's next ?
- ✚ Relationship with other groups
- ✚ Conclusions

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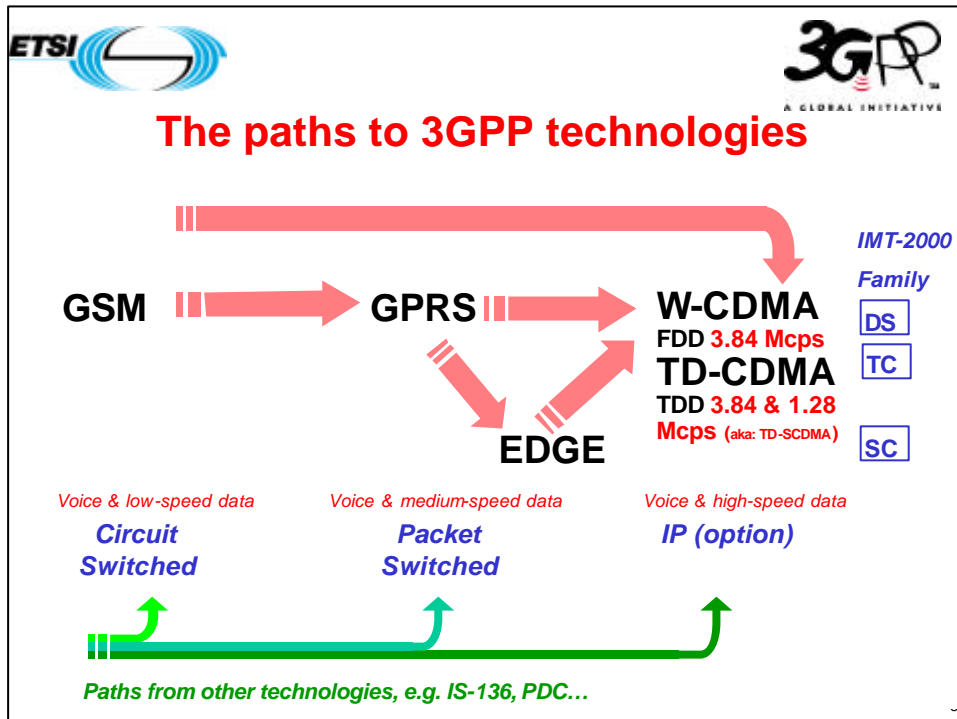


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## Partnership and Membership

3GPP is composed of:

- Partners:
  - Organizational Partners
    - 3GPP is open to all officially-recognized standards organizations irrespective of the geographical location
  - Market Representation Partners
    - invited by the Organizational Partners to offer market advice and to bring a consensus view of market requirements (e.g. services, features, functionality)
- Individual Members

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**Organizational Partners**

ETSI 3GPP A GLOBAL INITIATIVE

ARIB CCSA ETSI

TTC Telecommunication Technology Committee TTA

Standards Committee T1 Telecommunications

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This slide features a large, faint '3GPP' watermark in the background. The title 'Organizational Partners' is centered in red. Logos for ETSI, ARIB, CCSA, TTC, and TTA are displayed. A logo for Standards Committee T1 Telecommunications is also present. The text 'A GLOBAL INITIATIVE' is at the bottom, and the number '7' is in the bottom right corner.



**Market Representation Partners**

ETSI 3GPP A GLOBAL INITIATIVE

GSA

UMTS Forum

IR6 FORUM

TD-SCDMA FORUM

GEM

3G america

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This slide features a large, faint '3GPP' watermark in the background. The title 'Market Representation Partners' is centered in red. Logos for GSA, UMTS Forum, IR6 FORUM, TD-SCDMA FORUM, GEM, and 3G america are displayed. The text 'A GLOBAL INITIATIVE' is at the bottom, and the number '8' is in the bottom right corner.

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## Individual Members

Membership in an Organizational Partner is a pre-requisite for Individual Membership in 3GPP

Individual Membership is open to legal entities committed to support 3GPP and to:

- contribute technically or otherwise to one or more of the Technical Specification Groups within the 3GPP scope
- use the 3GPP results to the extent feasible

Currently, more than 430 Individual Member companies are actively engaged in the work of 3GPP



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## Observers

3GPP currently has three Observers:

- Telecommunications Industries Association (TIA) 
- Telecommunications Standards Advisory Council of Canada (TSACC) 
- Australian Communications Industry Forum (ACIF) 

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### ITU participation




- Official representatives of the International Telecommunication Union (ITU) have the right to attend meetings of:
  - the Project Co-ordination Group (PCG)
  - the Organizational Partners

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### ITU referencing of 3GPP results




- 3GPP does not contribute directly to the ITU
- Formal contributions to ITU Study Groups are made by ITU members following existing national/regional processes


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## ITU referencing of 3GPP results




- ITU - R
  - Regular updates submitted to ITU-R Recommendation M.1457
    - High level description of IMT-2000 air interfaces
- ITU - T
  - Collaboration with ITU-T Special Study Group on "IMT-2000 and beyond"
  - Regular updates submitted to ITU-T Recommendation Q.1741
    - Framework for IMT-2000 networks

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## ITU-R WP 8/F

 **3GPP specifications**  
Approved  
Updated

**SDO standards**  
Transposed  
Submitted by SDOs to ITU-R

 **ETSI**  
**ARIB**  
etc

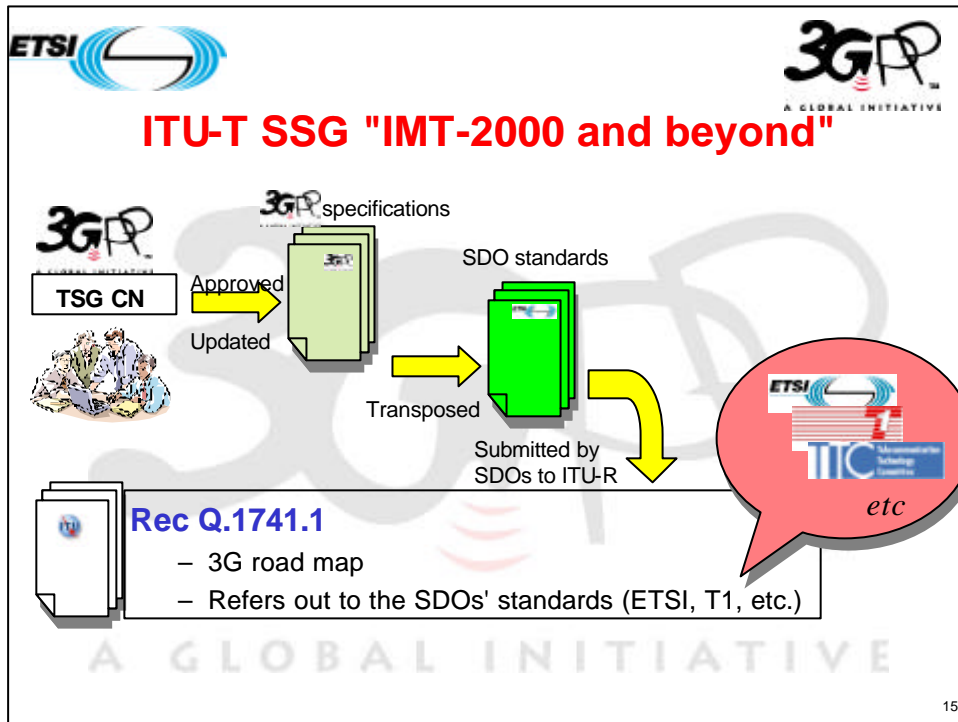
 **Rec M.1457**

- High level description of air interfaces
- Refers out to the SDOs' standards (ETSI, T1, etc.)

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The slide is titled "3GPP Releases" and explains the concept of releases. It features the ETSI and 3GPP logos at the top. The text states: "Specifications are grouped into 'Releases'". It then defines a release: "A mobile system can be constructed based on the set of all specifications which comprise a given Release" and "A Release differs from the previous Release by having added functionality introduced as a result of ongoing standardization work". A photograph of a mobile phone tower on a rocky hillside is included at the bottom. The background has a large, faint 3GPP logo and the text "A GLOBAL INITIATIVE". The slide number "16" is in the bottom right corner.



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## 3GPP Releases

**Release '99**

- functionally frozen December 1999. Defines UTRA and many other initial features
  - The basis for early 3G deployment

**Release 4**

- functionally frozen March 2001. Enhancements to Release '99 plus separation of control plane from user plan in core network
  - First steps towards IP-based operation
- Also defines the low chip rate TDD mode

**Release 5**

- functionally frozen March/June 2002. In addition to further enhancements, this release introduces:
  - IMS - IP-based Multimedia Services
  - HSDPA - High Speed Downlink Packet Access

**Release 6**

- functionality expected to be frozen early 2004.
  - Will include 2<sup>nd</sup> phase of IMS plus many other features designed to exploit multimedia communications, Internet access, etc.

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## Release '99 Summary



Current operational systems are based on Release '99:

- Japan – *FOMA & J-PHONE*
- Isle of Man – *Manx Telecom*
- United Kingdom – 3
- Austria – *Mobilkom*
- Others planned



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## Release 5 Summary

### Release 5 - March 2002



- Main features:
  - IMS - IP-based Multimedia Services
    - All the core network elements for multimedia services
    - Based on SIP (from IETF) and PS bearers
  - HSDPA - High Speed Downlink Packet Access
    - Data only, downlink speeds of up to 10Mbit/s
    - Included in ITU-R update of M.1457
  - And much more!
    - Wideband AMR codec
    - End-to-end QoS
    - Enhancements to messaging, security, etc...



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## What does IMS provide?

IMS provides:

- IP Transport in the Core network
- IP Transport in the UTRAN

And this therefore provides the possibility for:



- End to end IP services
- Increased potential for service integration
- Easy adoption and integration of instant messaging, presence and real time conversational services

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### What does HSDPA provide?

HSDPA (High Speed Downlink Packet Access) provides:

- The next step in the evolution of the 3GPP air interface
- Provides integrated voice on a dedicated channel (DCH) and high-speed data on downlink shared channel on the same carrier (HS-DSCH)
- May be deployed in both Frequency Division Duplex (FDD) and Time Division Duplex (TDD) modes (in both high and low chip rate)
- Provides data rates of at least 3 Mbit/s and expected to evolve to data rates in the order of 10Mbit/s

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### Other Release 5 Features


Other major features in Release 5 include:

- Wideband AMR (new 16 kHz codec)
- End-to-end QoS in the PS domain and Global Text Telephony (GTT) (i.e. real time text)
- Messaging enhancements (EMS, MMS)
- Intra domain connection of RAN nodes to multiple CN nodes
  - i.e one RNC serving two or more MSCs within the same network
  - opens the way to Network Sharing
- CAMEL Phase 4
  - new functions such as mid-call procedures, Interactions with Optimal Routing, etc.
  - Support of CAMEL in IMS

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## Other Release 5 Features - continued

Other features include:

- Enhancements in GERAN, LCS, OSA, MExE, etc.
  - Le interface (GMLC – external LCS client) defined by LIF
  - GERAN enhancements include Location Services, real-time QoS for packet services, enhance power control
- Security enhancements
  - Access security of IP-based services
  - Network Domain Security (IP Network Layer)
  - Lawful Interception interface

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## Interoperability Testing

Thorough testing



- Major investment in TTCN (Tree and Tabular Combined Notation) testing
- Interoperability is paramount
  - More than 1 M€ already invested in TTCN development
  - Permanent team to draft and deploy TTCN
  - More than a standards issue
  - Work performed in co-operation with industry players, in particular the Global Certification Forum (GCF)
  - Vital feedback into the specification work
  - ETSI “Plugtest™” events feature 3G interop testing



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## What's next ?

**Release 6**


- Early 2004
- Many new features and enhancements, including:
  - IMS "Phase 2" (incl. IMS Messaging, Conferencing, Group Management)
  - Interoperability between IMS using different IP-connectivity networks
  - Presence
  - Speech recognition and speech enabled services
  - Wireless LAN/UMTS interworking
  - Network sharing
  - Digital Rights Management
  - Radio optimisation
  - Multimedia Broadcast/Multicast Service (MBMS)
  - Generic user profile
  - MMS enhancements
  - Packet switched streaming services
  - ...

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## And what's beyond Release 6?

- 3GPP studies already looking beyond Release 6
  - ad hoc study group on 3G evolution
- New areas to explore, e.g.
  - New radio modulation techniques
  - Use of UTRA in other spectrum arrangements
  - Exploitation of high speed packet operation
  - Exploitation of IP
  - Further Integration and interworking with Wireless LANs



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## Evolution activity

Developing the position on 3GPP's long term future

- ad hoc study group preparing Technical Report as Roadmap (September 2003)
  - Foresees long-term evolution of 3G towards future generations
  - Foresees continued major role for 3GPP well into the future
  - Foresees continued/expanded collaboration with other bodies



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## Relationship with other groups


3GPP is required to establish and maintain good relationships with groups working on standards for other IMT-2000 family members



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## Collaboration with 3GPP2

- Considerable ad hoc collaboration as many companies active in both groups
- Joint meetings since 1999 to address interoperability, roaming and harmonization needs, centred on:
  - Radio access
  - Terminal design
  - Core network




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## Collaboration with 3GPP2

- Joint meetings
- 1999 "Hooks & Extensions" workshops
  - Interoperability between radio access technologies
  - Dual mode terminals
- 2001 Harmonization of HSDPA (3GPP) and 1xEV-DV (3GPP2)
  - Various issues noted:
    - terminal design; services; spectrum; implications of All-IP
  - Initial attention on
    - common definitions for channel and traffic models
    - common physical requirements for future terminal designs
- April 2002 - Joint meeting of core network experts
  - All-IP core network harmonization
    - significant commonality between 3GPP and 3GPP2 core networks
- June 2002 - Joint meeting of radio experts
  - radio-related aspects of HSDPA / 1xEV-DV harmonization





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### All-IP Core Network Harmonization Workshop, Toronto, 3-4 April 2002


- **Agreed harmonization goals:**
  - OSA/PARLAY-based service APIs
  - IMS (3GPP IMS and its equivalent in 3GPP2, MMD)
    - Adoption of a single IMS reference model
    - Consistent terminology to describe common IMS functional entities
  - Interoperability between 3GPP IMS mobiles and 3GPP2 IMS mobiles
    - a 3GPP IMS mobile can set up a session with a 3GPP2 IMS mobile and vice-versa
  - Application level intersystem IMS roaming
    - a 3GPP IMS mobile should be able to roam into a 3GPP2 network and vice-versa
- **Recommendations include:**
  - continued collaboration between 3GPP & 3GPP2, and with IETF, ITU, etc
  - 3GPP2 to base on-going development on 3GPP IMS Rel-5 and Parlay 3.1

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### Collaboration with IETF

- Harmonization of 3GPP work also being enhanced by adoption of external common specifications



I E T F

- Notably, IETF RFCs (approx. 40)
- RFC 3113 defines basis of co-operation between 3GPP & IETF
- IMS based on SIP, defined by IETF...
  - SIP in original form not adequate for 3GPP
    - signalling, voice and radio efficiency issues
  - But 3GPP did not want a 3GPP specific version of SIP
    - would prevent interworking
  - 3GPP-IETF collaboration has provided required SIP extensions and IETF interoperability changes
  - Collaboration continues...

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## Formal liaison with other groups

- 3GPP2
- 802.11 Forum
- International Special Committee on Radio Interference (CISPR)
- Cellular Telecommunications & Internet Association (CTIA)
- Digital Video Broadcasting (DVB) Project
- ECMA (European Computer Manufacturers Association)
- Eurescom
- European Co-operation in the field of Scientific and Technical Research (COST)
- ...in particular COST 273 (Towards Mobile Broadband multimedia networks)
- European Radiocommunications Committee (ERC)
- Global Certification Forum (GCF)
- GSM Association
- HomeRF Forum
- IDB Forum
- Internet Engineering Task Force (IETF)
- IrDA
- International Multimedia Telecommunications Consortium (IMTC)
- Internet Streaming Media Alliance
- ISO-ITU expert group
- ISO MPEG / JPEG
- JAIN™ (Java™ APIs for Integrated Networks)
- Liberty Alliance Project
- MExE Forum
- Multi Service Switching Forum
- OMA (Open Mobile Alliance)
- Object Management Group (OMG)
- PCS Type Certification Review Board (PTCRB)
- Portable Computer and Communications Association (PCCA)
- The Parlay Group
- Presence and Availability Management (PAM) Forum
- RSA Laboratories
- SDR Forum
- Sun Micro Systems Inc
- SyncML Initiative
- TeleManagement Forum (TMF)
- TIA / TR45
- TV-anytime Forum
- Voice eXtensible Mark-up Language (VXML) Forum
- World Wide Web Consortium (W3C)

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## Influencing the work

### 3GPP is contribution driven...

- Are your requirements fully reflected in 3GPP specifications?
- Are you satisfied with the pace of standardization?
- Are you satisfied with the content of 3GPP Releases?

### If not...



- All progress is the result of member contributions...
- Progress can be accelerated by more input...
- New Features may be proposed by 3GPP Individual Members

### So

- Make sure your company participates in a 3GPP Organizational Partner and that your voice is heard !

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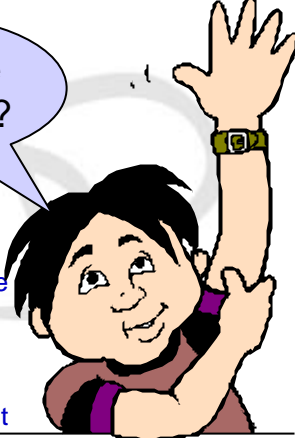
**Conclusion**

Will 3G be a success ?

**Considering:**

- The enormous industrial effort expended on developing 3G
- The huge financial investment in this sector
- The rigorous standardization process in place
- The major attention to interoperability issues
- The emphasis now placed on developing innovative and compelling services
- The early experience gained from deployment

Yes, 3G *will* be a success...  
...it's only a matter of how and when!



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**and finally....**

Thank you for your attention

For more information please visit

<http://www.3gpp.org>

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