The 3GPP Standardization Process

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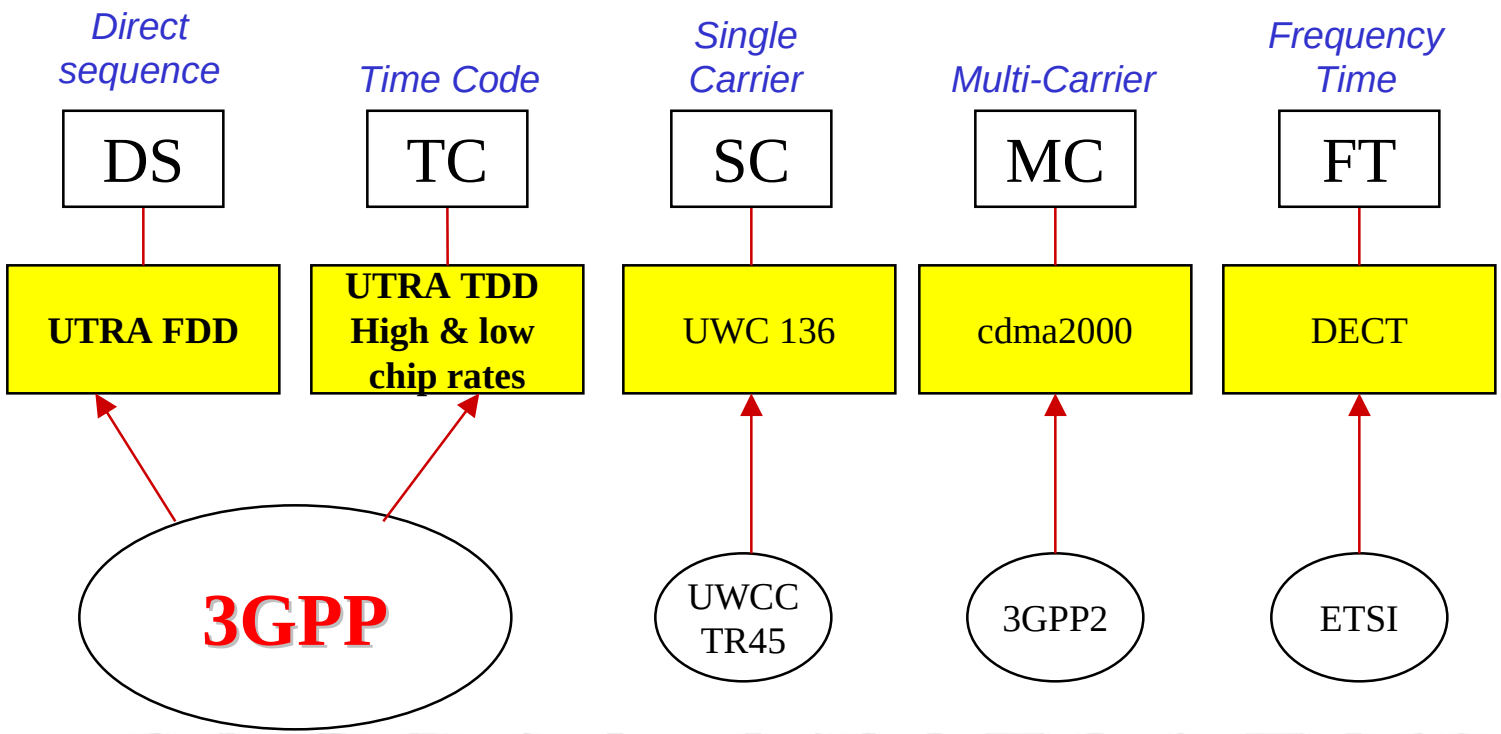
ICT/IMT-2000 Seminar
Abidjan, Cote d'Ivoire
September 10, 2002

IMT-2000

The 5 IMT 2000 terrestrial interfaces agreed by ITU-R



What is 3GPP ?

3GPP is:

A collaborative agreement between Standards Development Organizations (SDOs) and other related bodies for the production of a complete set of globally applicable Technical Specifications and Reports for:

- a 3G System based on the evolved GSM core network and the Universal Terrestrial Radio Access (UTRA), FDD and TDD modes;
- the Global System for Mobile communication (GSM) including GSM evolved radio access technologies

Organizational Partners

3GPP is:

- Open to all national/regional Standards Development Organizations irrespective of their geographical location *(Organizational Partners)*

CWTS

ETSI

ARIB

Standards Committee T1
Telecommunications

Telecommunication Technology Committee

TTA

Market Representation Partners

Observers

Observers are Standards Development Organizations (SDOs) who have the qualifications to become future Organizational Partners.

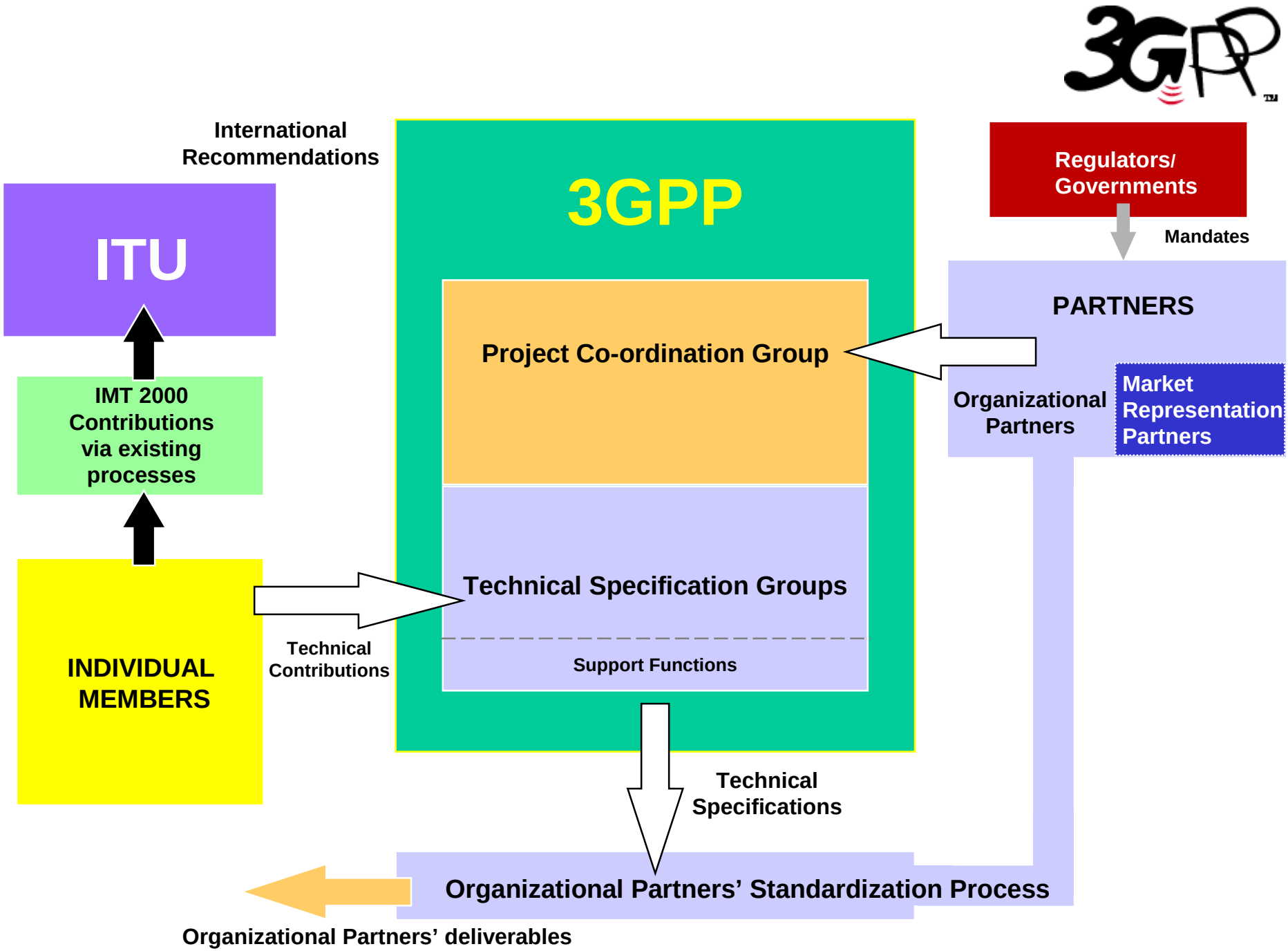
3GPP currently has three Observers:

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

Individual Members

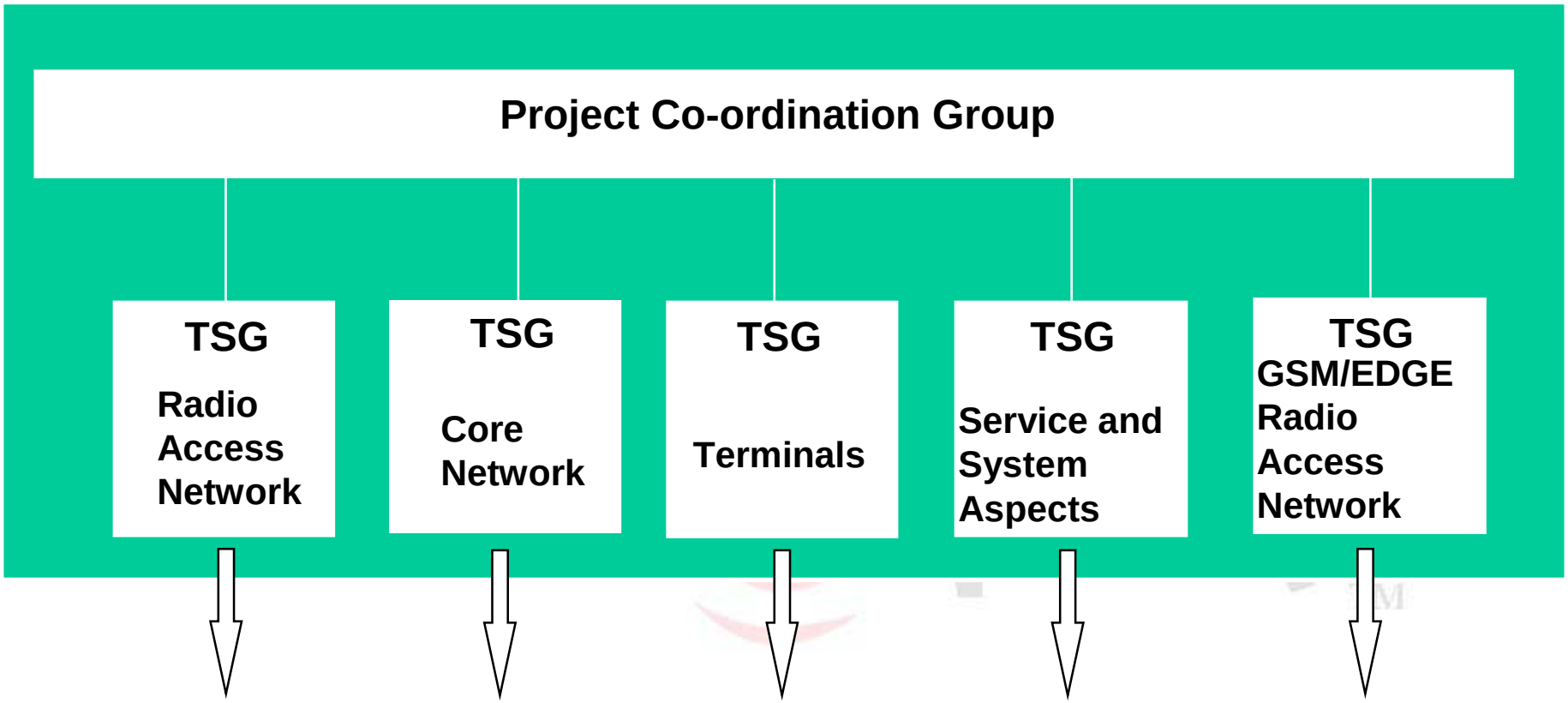
3GPP is:

- Open to the members who belong to each Organizational Partner
- Currently, more than 450 Individual Member companies are actively engaged in the work of 3GPP


International Recommendations
ITU
IMT 2000 Contributions via existing processes
INDIVIDUAL MEMBERS
Technical Contributions
3GPP
Project Co-ordination Group
Technical Specification Groups
Support Functions
Technical Specifications
Organizational Partners' Standardization Process
Organizational Partners' deliverables
Regulators/ Governments
Mandates
PARTNERS
Organizational Partners
Market Representation Partners

How does 3GPP work ?

3GPP internal structure



What is the relationship between 3GPP and ITU ?

ITU-R

3GPP contributes to the ongoing ITU Rec M.1457 (IMT.RSPC) activity:

- specification work is performed in the Partnership Project
- the resulting specifications are transposed by the Organizational Partners (OPs)
- the OPs provide inputs to update Recommendation M.1457
  - according to the OPs' individual working arrangements (e.g. input to ITU-R via Individual Members)
  - according to the ITU timetable

ITU-T

- Special Study Group "IMT-2000 and Beyond"
- 3GPP liaises closely and contributes to ITU-T IMT-2000 "road map"

Direct participation of ITU in PCG meetings

ITU-R WP 8/F

TSG RAN

Approved

Updated

3GPP specifications

SDO standards

Transposed

Submitted by SDOs to ITU-R

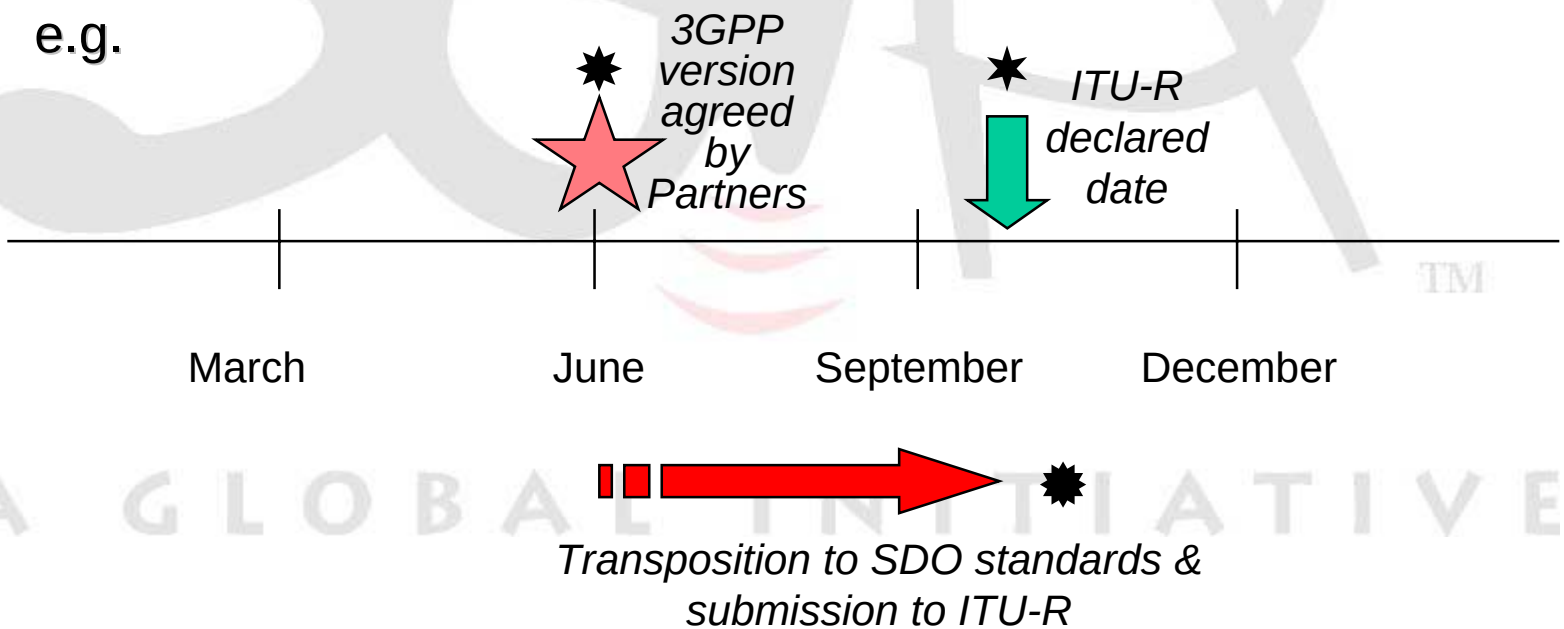
ETSI T1 ARIB etc

Rec M.1457

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

Contributions to ITU-R

- 3GPP produces updates of specifications every 3 months
- ITU-R announces date for contributions to update M.1457
- 3GPP Partners agree which versions will be the basis of submissions to ITU-R…
- …allowing sufficient time for transposition of the 3GPP specifications into SDO standards before submission to ITU-R
- e.g.



ITU-T SSG

TSG CN

Approved

Updated

3GPP specifications

SDO standards

Transposed

Submitted by SDOs to ITU-R

ETSI T1 TTC Telecommunication Technology Committee

etc

Rec Q.1741.1

- 3G road map
- Refers out to the SDOs' standards (ETSI, T1, etc.)

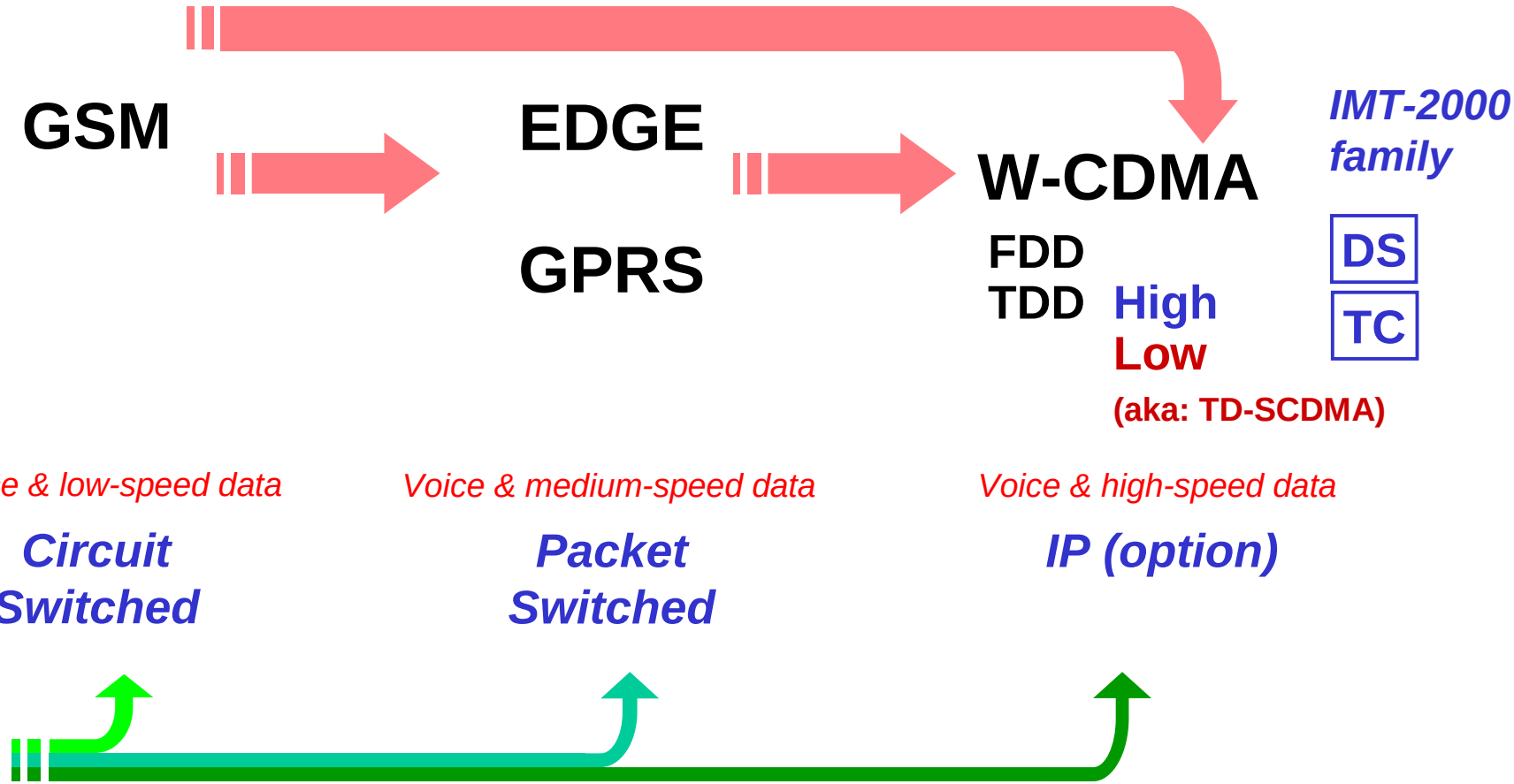
Principle

Do the work where the right competence exists

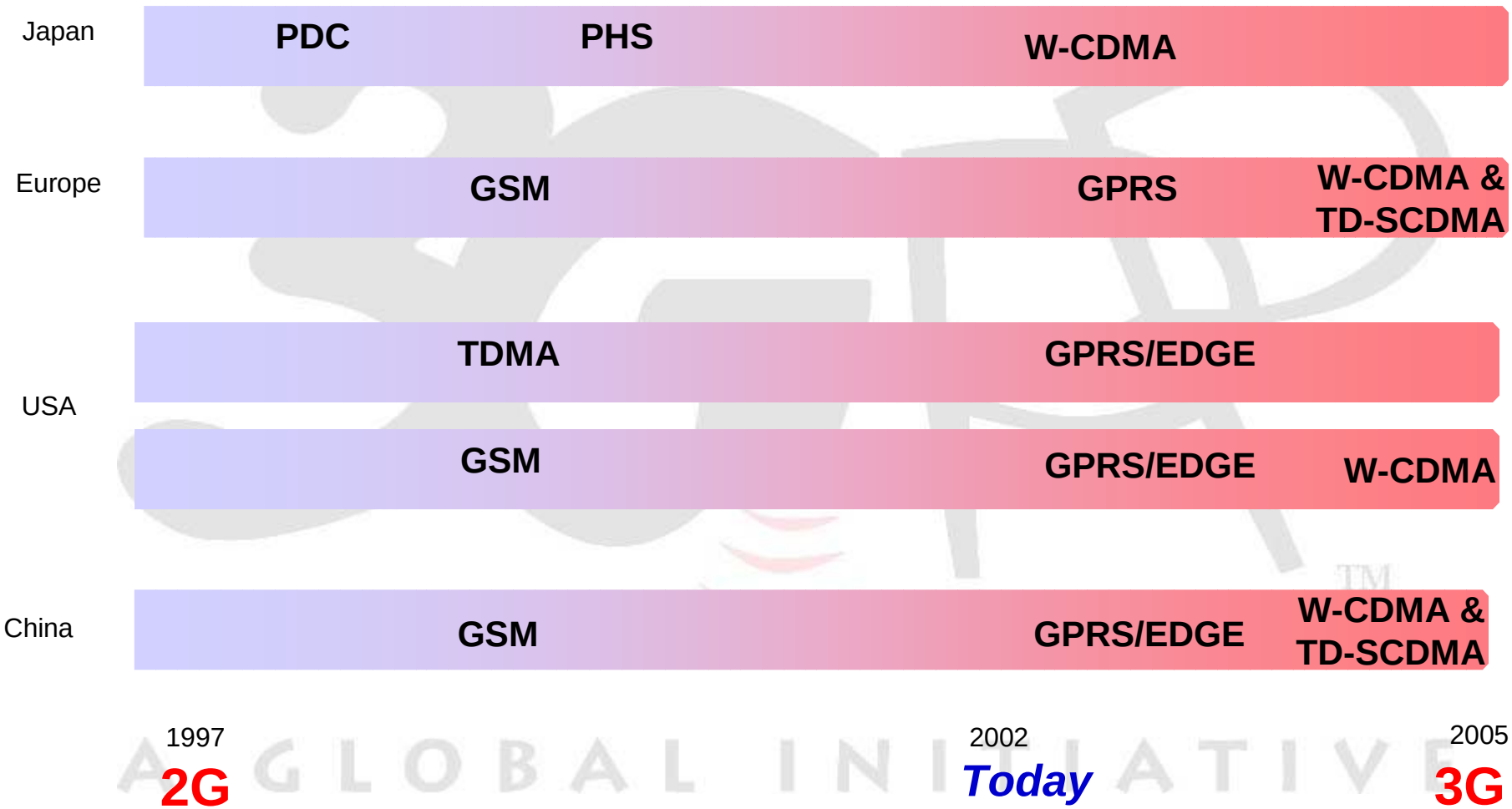
- ITU – excellent for the global recognition
- 3GPP – excellent for detailed technical work

- The model works well!
- ITU-R, ITU-T, 3GPP all satisfied by the model
- All parties wish it to continue

The paths to 3GPP technologies



Evolution to 3GPP technologies



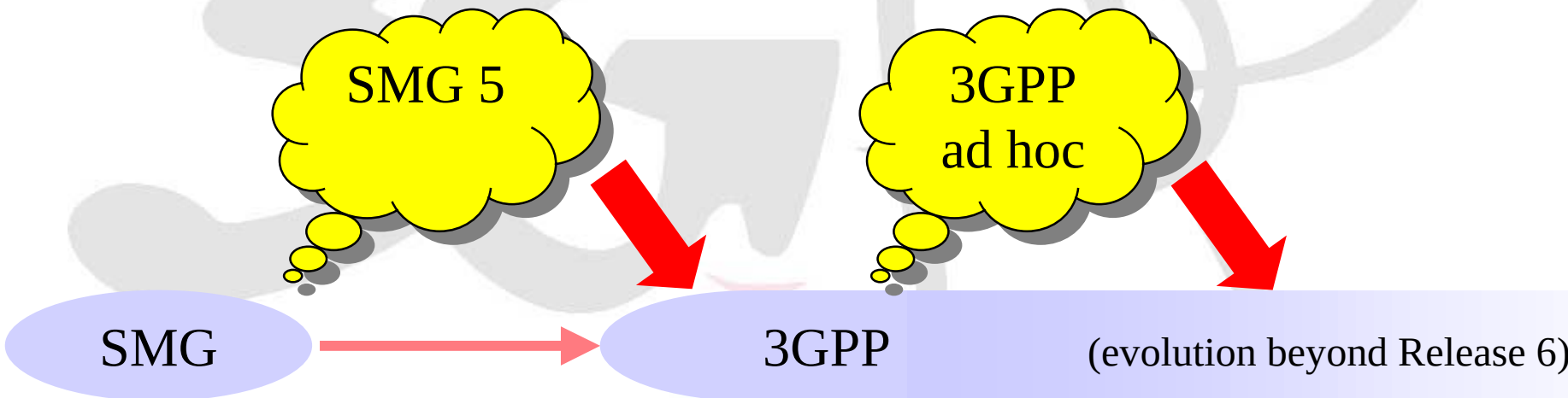
A smooth evolution to 3G

- In fact, the evolution path is already more than 10 years old!
- Remember this?

BT

A smooth evolution to 3G…

…and beyond

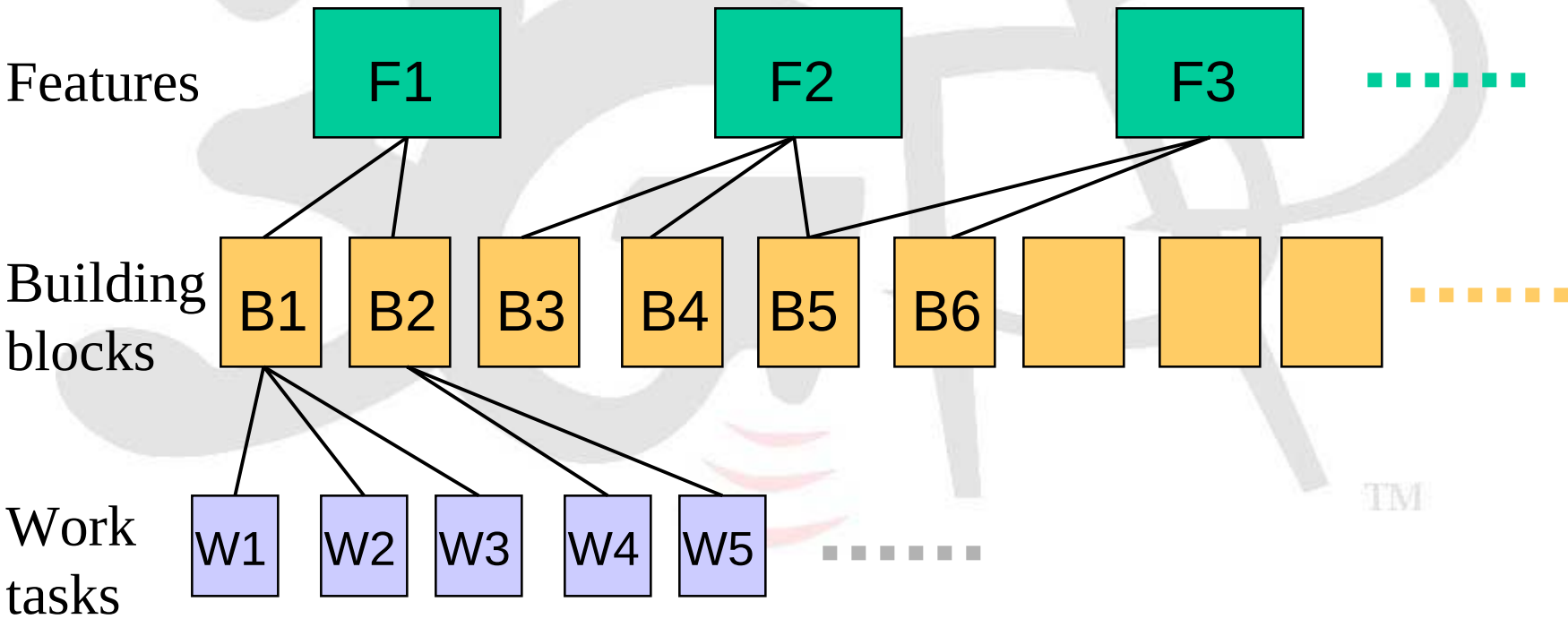


Rigorous development

- Professional project management
  - Permanent, paid project team
  - Significant resources deliberately committed
- Thorough testing
  - Interoperability is paramount
  - Major investment in TTCN testing
    - 1 M€ invested in 2002 alone
    - Permanent team to draft and deploy TTCN

3GPP Work Item Management

3GPP project management is based upon a concept of …



Project plan

- All Features, Building Blocks and Work Tasks are contained in the 3GPP Project Plan
- Plan based on Microsoft Project
- Gantt presentation available on 3GPP web site
- Open access – everyone can view the plan

http://www.3gpp.org/3G_Specs/wi_management.htm

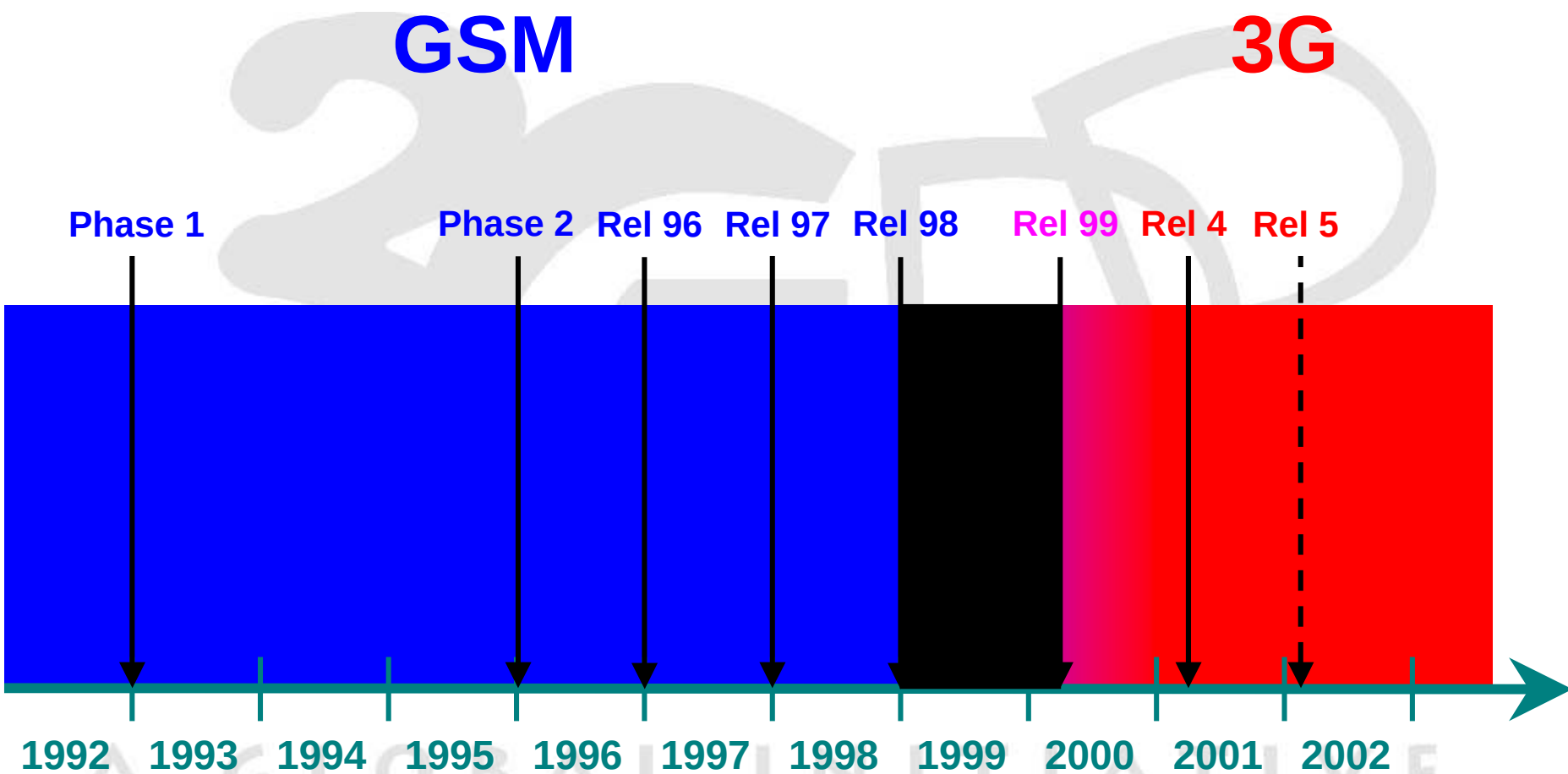
3GPP Releases

- **Specifications are grouped into “Releases”**
  - A mobile system can be constructed based on the set of all specifications which comprise a given Release
  - A Release differs from the previous Release by having added functionality introduced as a result of ongoing standardization work

The 3GPP Specification Releases

- ***Release 99***
  - content frozen December 1999
- ***Release 4***
  - content frozen March 2001
- ***Release 5***
  - functionality frozen March 2002
- ***Release 6***
  - functionality to be frozen 2003 (second half?)

Release 99


GSM
3G
Phase 1
Phase 2
Rel 96
Rel 97
Rel 98
Rel 99
Rel 4
Rel 5
1992
1993
1994
1995
1996
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2000
2001
2002

Release 99

- Main feature:
  - Creation of the Universal Terrestrial Radio Access (UTRA) both in FDD and TDD (3.84 Mcps) modes. (Fully referenced in ITU-R M.1457)
- Other features:
  - CAMEL phase 3
  - Open Service Architecture (basic version)
  - Location Services (LCS): improvements and corrections of the basic version
  - Narrowband AMR (new codec)
- Lot of other smaller uncorrelated improvements (multicall, HSCSD for 2G, etc)

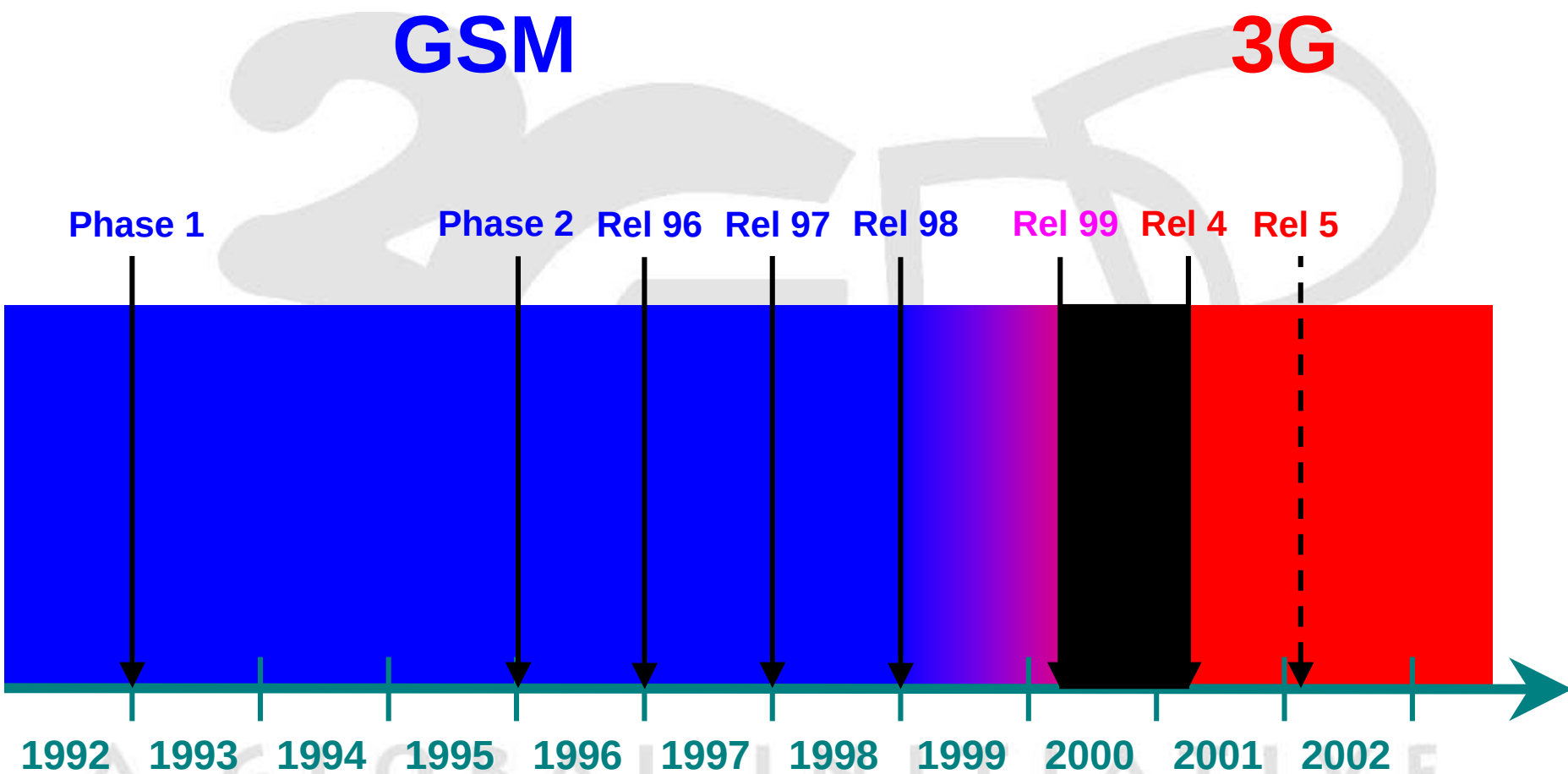
Release 99

Current operational systems are based on Release 99:

- Japan - *FOMA*
- Isle of Man - *Manx Telecom*
- Monaco - *Monaco Telecom*

NTT DoCoMo

Release 4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Release 4

- Main features:
  - Low Chip Rate TDD (1,28 Mcps) – i.e. TD-SCDMA
  - GERAN concept established (EDGE/GPRS Iu interface)
  - Bearer independent Circuit Switched network architecture
    - the MSC is split in “Media Gateway” for transport and “MSC server” for signalling
  - Streaming
    - Retrieval of real time video (e.g. movie playback)
  - Multimedia messaging
    - Enhanced messaging (rich text formatting and still image)
    - Multimedia messaging (multimedia attachments)

Release 4

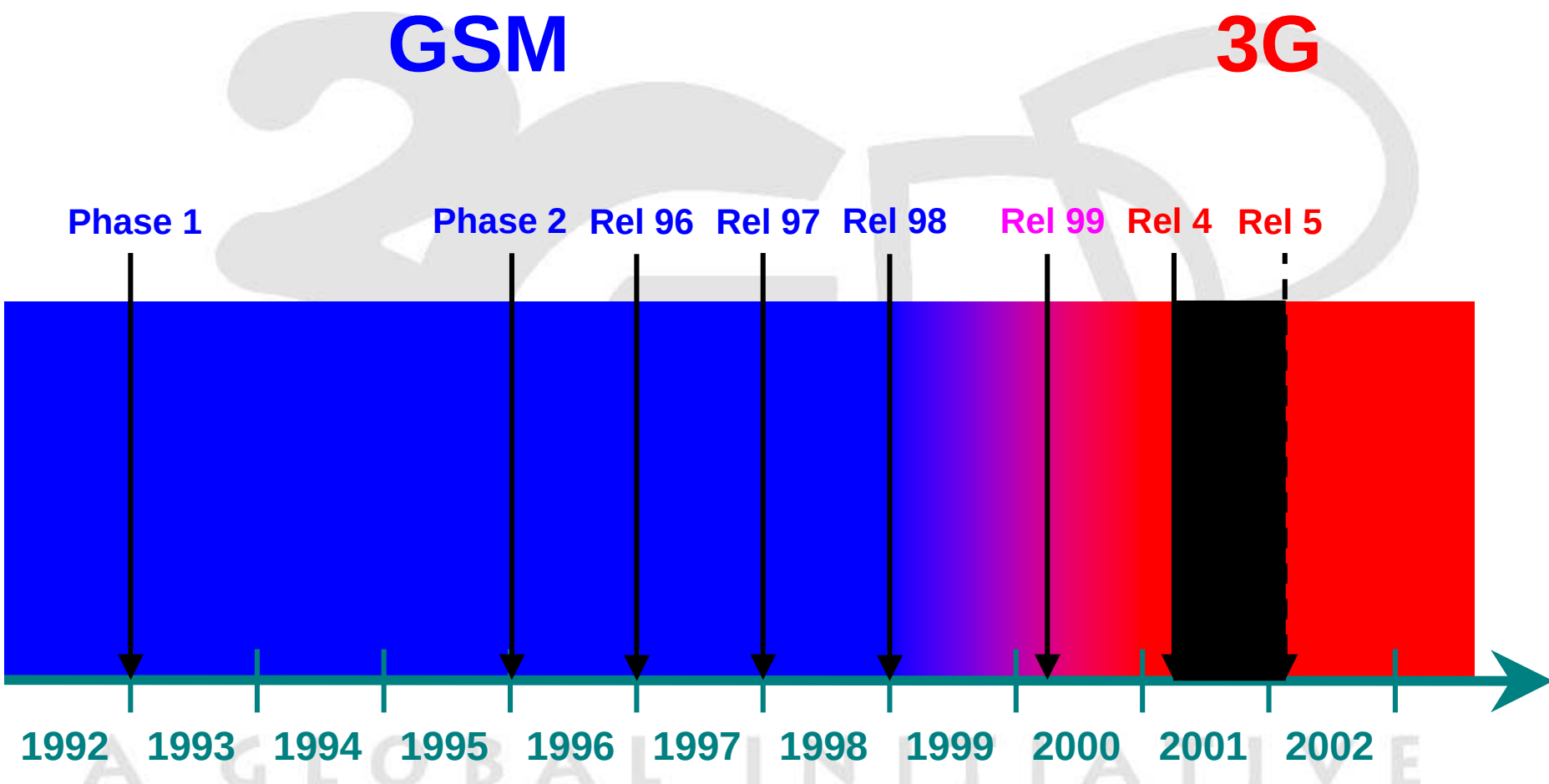
- Lot of other uncorrelated smaller improvements including:
  - UTRAN repeater specification
  - Real time facsimile
  - Transcoder Free Operation (mobile to mobile)
  - Improvements in: MExE, USIM toolkit, AT command, LCS, emergency calls in CS domain, security, etc.

Release 4

- Introduces TD-SCDMA
- Early operational systems in China will probably be based on Release 4
- Release 4 compliant products on show at 3GSM Cannes, 2002

Siemens press picture

Release 5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Release 5

- Introduces IMS - IP-based Multimedia Services
  - In two phases (Phase 1 in Release 5)
  - IP core network
  - Handling of multimedia services using SIP signalling and the bearers offered by the PS domain
  - Manufacturers already demonstrating IMS solutions
- HSDPA - High Speed Downlink Packet Access
  - Opens up throughput in order of 10Mbit/s
  - Included in latest ITU-R update of M.1457
- Both are enabling technologies
  - Providing opportunities for advanced services
  - Commercial decision by industry whether Release 5 will be basis of W-CDMA systems in short/medium term

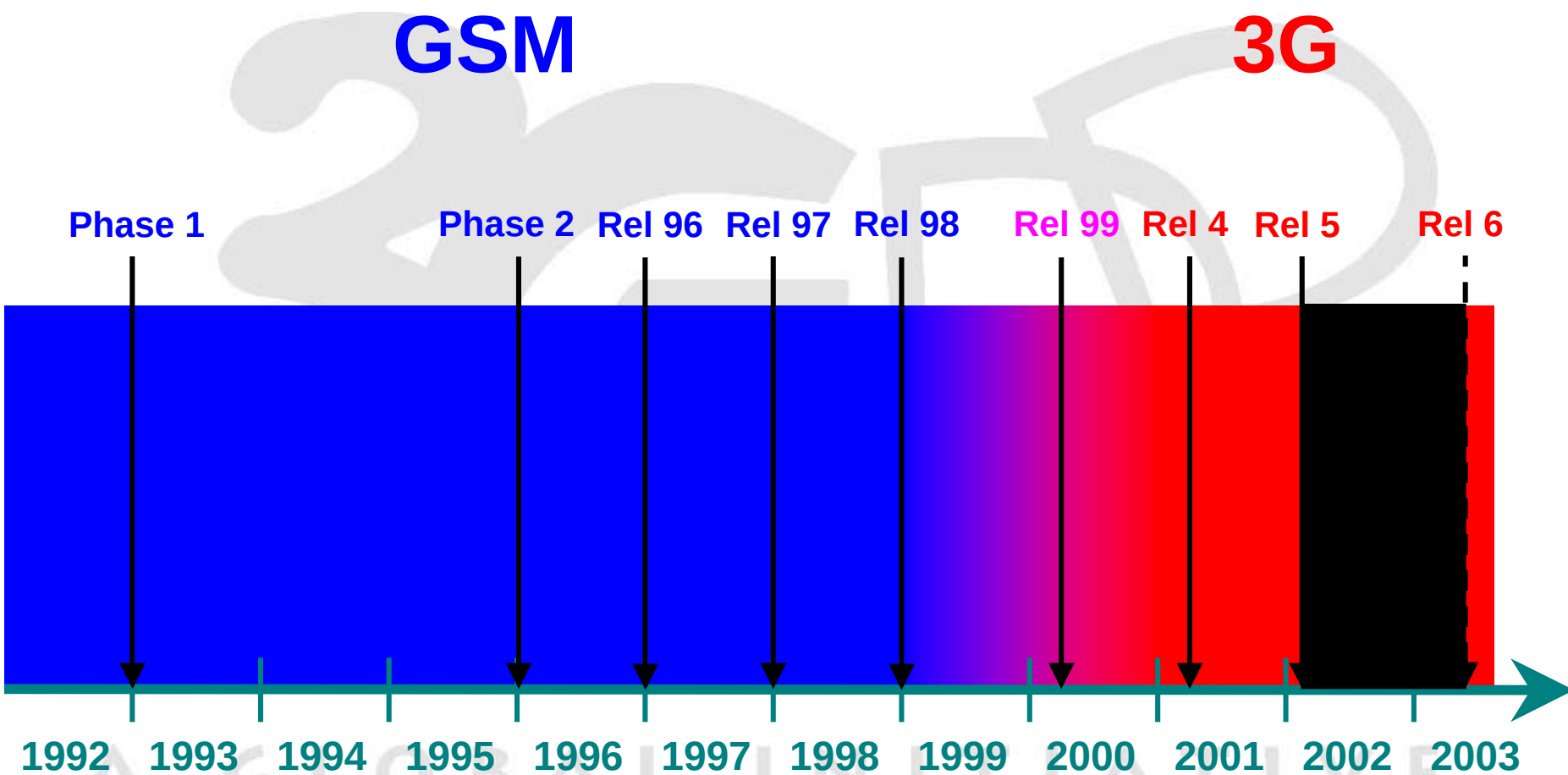
Release 5

- Other major features:
  - Wideband AMR (new 16 kHz codec)
  - CAMEL Phase 4
    - new functions such as mid-call procedures, Interactions with Optimal Routing, etc.
  - End-to-end QoS in the PS domain
  - Global Text Telephony (GTT) (i.e. real time text)
  - Extended transparent end-to-end PS mobile streaming

Release 5

- Other features:
  - IP transport in UTRAN
  - Intra domain connection of RAN nodes to multiples CN nodes (i.e one RNC serving two or more MSCs within the same network)
  - Emergency calls (circuit switched)
  - Messaging enhancements (EMS, MMS)
  - Improvements of Radio Interface (including UMTS1800/1900)
  - Enhancements in GERAN, LCS, OSA, MExE, etc.

Release 6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Release 6

- Currently planned for 2nd half 2003:
  - IMS "Phase 2" (including IMS Messaging, IMS Group Management)
  - Multimedia Broadcast/Multicast Service (MBMS)
  - Push services
  - Wireless LAN interworking
  - Network sharing (maybe Release 5)
  - Digital Rights Management
  - Speech recognition and speech enabled services
  - Identity Portability (formerly Number Portability)
  - Presence (maybe Release 5)
  - Radio optimisation
  - Priority service
  - Generic user profile
  - Enhancements to:
    - MExE, LCS, OSA, emergency calls in PS domain and IMS

And what's beyond Release 6?

- 3GPP studies already looking beyond Release 6
- New areas to explore, e.g.
  - New radio modulation techniques
  - Exploitation of high speed packet operation
  - Exploitation of IP
  - Wireless LANs – threat or opportunity?
- Ultimately, the solutions will be determined by the market

Conclusion

- The future's bright…
- We know where we've come from
- We know where we are now
- We have very high confidence in what we're producing
- And…
- …we know where we're going!