

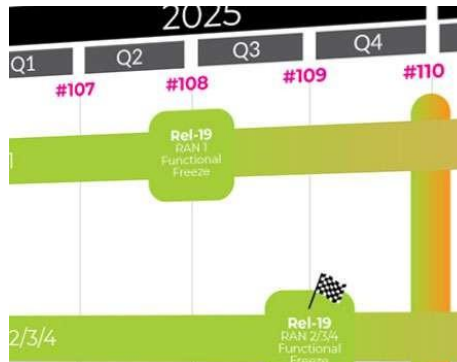
Introducing 3GPP

Jerome Vogedes (AT&T)
3GPP RAN Vice-Chair

Content



- 📶 The role of 3GPP
- 📶 3GPP – How the project works
- 📶 Partnership & the 3GPP eco-system
- 📶 Technical Specification Groups
- 📶 Bringing the work in
- 📶 3GPP releases & Stages of a release
- 📶 Quarterly meeting cycle
- 📶 5G/5G-Adv/6G Releases
- 📶 Rel-20 planning



The role of 3GPP



- Standardization of four generations of cellular.
- Providing the **system description** for mobile telecommunications
- This system description is characterized by a number of **standardized interfaces**. It is **not** a description of a standardized **deployment**
- Enabling an interoperable, multi-vendor approach to deployment for mass market economies of scale, without stifling innovation



3GPP – How the project Works



3GPP works based on

- Participation in face-to-face meetings
- Pro-activity & Contributions. You need written proposals to get attention
- Consensus – nobody says “no”

Organization of...

- Study Items, Work Items
- Releases with fixed time-lines, which are partially overlapping
- The [Work Plan](#) (A spreadsheet view of WIDs and SIDs, by Release)

Over 3 Stages

- Stage 1: Service description & Requirements
- Stage 2: Architecture of functions & flows between them
- Stage 3: Concrete implementable Protocols

Companies not individuals participate

- From all over the world
- All major telecommunication companies – operators, vendors, service providers
- Ministries, Regulators and government agencies actively engaged
- More and more vertical industry representatives bring their work directly to 3GPP

Building on our Track Record

- 3GPP started 1998, since then all 3GPP Releases have been deployed
- Seamless migration from “old” to “new” mobile generations

A new Release every 15 to 24 months

- Allows for reasonably fast standardization & deployment of new technologies
- Strong commitment to time-lines guarantees reliable planning

A GLOBAL INITIATIVE

850+
companies



3GPP Market Representation Partners (MRPs)



- The 3GPP **Organizational Partners (OP)** - 7 Standards Organizations - from China, Europe, India, Japan, Korea and the United States.
- Participation in 3GPP by companies and organizations becoming Members of one of these 7 OPs.
- Inputs on market requirements may come in to the Project via 3GPP **Market Representation Partners (MRP)**.
- There is a lot of additional **external liaison** activity...SDOs, Industry bodies, projects...

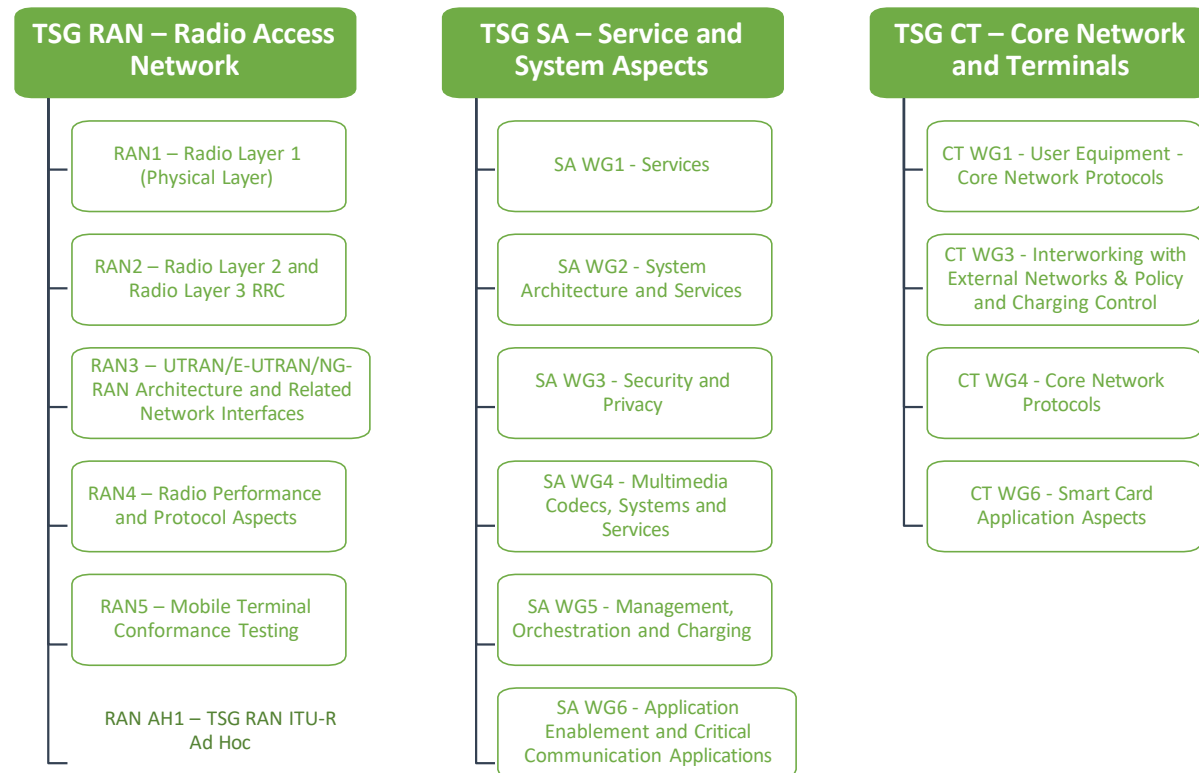
450 MHz Alliance, [AISG](#), [Bluetooth](#), [Broadband Forum \(BBF\)](#), [CableLabs](#), [International Special Committee on Radio Interference \(CISPR\)](#), [CTIA](#), [Digital Video Broadcasting \(DVB\) Project](#), [Ecma](#), [International Expert Group for Emergency Access \(EGEA\)](#), [Eurescom](#), [COST 273](#), [European Radiocommunications Committee \(ERC\)](#), [Fixed Mobile Convergence Alliance \(FMCA\)](#), [GCF](#), [Global TD-LTE Initiative \(GTD\)](#), [GPS Industry Council](#), [GSM Association](#), [HomeRF Forum](#), [IDB Forum](#), [IEEE](#), [Internet Engineering Task Force \(IETF\)](#), [IrDA](#), [International Multimedia Telecommunications Consortium \(IMTC\)](#), [Internet Streaming Media Alliance](#), [ISO-ITU expert group](#), [ISO MPEG / JPEG](#), [ITU-T SG2](#), [JAIN tm \(Javatm APIs for Integrated Networks\)](#), [The Java Community Process \(JCP\)](#), [Liberty Alliance Project](#), [Metro Ethernet Forum \(MEF\)](#), [NENA](#), [NGMN \(Next Generation Mobile Networks\)](#), [one2M2M](#), [OMA \(Open Mobile Alliance\)](#), [Open Networking Foundation \(ONF\)](#), [Open IPTV Forum](#), [Object Management Group \(OMG\)](#), [PCS Type Certification Review Board \(PTCRB\)](#), [Portable Computer and Communications Association \(PCCA\)](#), [Presence and Availability Management \(PAM\) Forum](#), [RSA Laboratories](#), [SDR Forum](#), [Sun Micro Systems Inc.](#), [Steerco](#), [SyncML Initiative](#), [Trusted Computing Group \(TCG\)](#), [TeleManagement Forum \(TMF\)](#), [TCCA](#), [TIA /TR45](#), [TIA/TR47](#), [ITU](#), [TV-anytime Forum](#), [Voice eXtensible Mark-up Language \(VXML\) Forum](#), [Wi-Fi Alliance](#), [Wireless Broadband Alliance \(WBA\)](#), [WLAN Smart Card Consortium](#), [Wireless World Research Forum \(WWRF\)](#), [World Wide Web Consortium \(W3C\)](#)

(Source: extract from <https://www.3gpp.org/about-3gpp/15-bodies-with-which-3gpp-has>)

Technical Specification Groups



- 📶 TSGs prepare, approve and maintain the 3GPP Technical Specifications and Technical Reports.
- 📶 Responsible for the detailed time frame and management of the work's progress;
 - Management of work items;
 - Technical Co-ordination;
 - Proposal and approval of work items within the agreed scope and Terms of reference of the TSG
- 📶 TSG Chair is responsible for the overall management of the technical work within the TSG and its Working Groups.
- 📶 WG Chair is responsible for the overall management of the technical work within the WG and its sub-groups.
- 📶 3GPP Project Coordination Group (PCG) and OP group are management groups (See 'About/PCG' section of the website)



Bringing the work into the groups



Use Case diversity

- High or Low data rates
- Higher user mobility
- Improved coverage

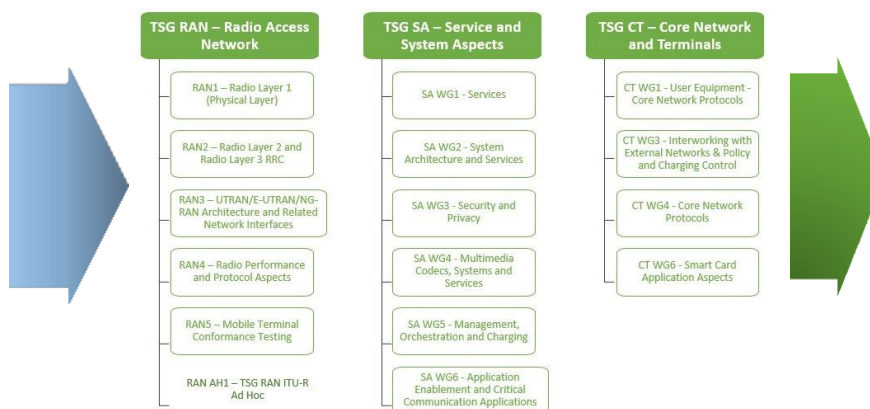
Overall System Goals

- Enable new business
- Greater efficiency
- More flexibility – not one-size-fits-all

Pre-Standards R&D

- Test beds
- 3GPP MRP Papers and Vision
- Regional initiatives
- IMT process (ITU)

3GPP Working Groups

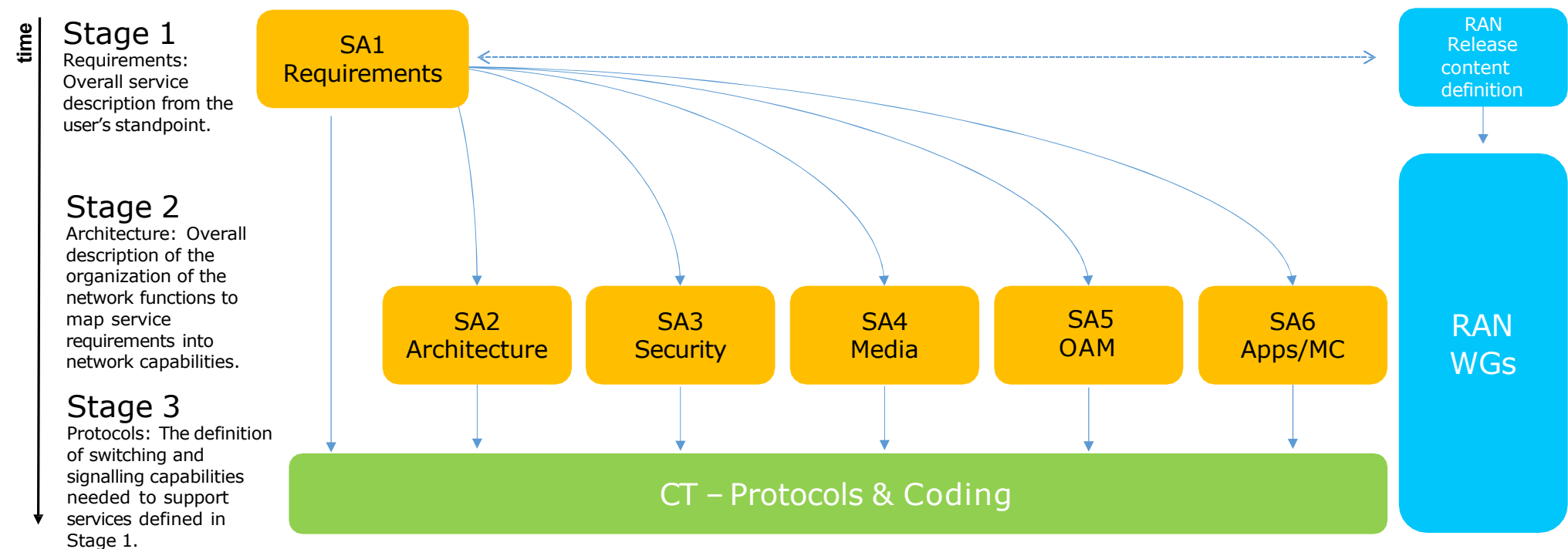


3GPP Specifications and Reports:

Requirements	21 series
Service aspects ("stage 1")	22 series
Technical realization ("stage 2")	23 series
Signalling protocols ("stage 3") - user equipment to network	24 series
Radio aspects	25 series
CODECs	26 series
Data	27 series
Signalling protocols ("stage 3") - (RSS-CN) and OAM&P and Charging (overflow from 32.- range)	28 series
Signalling protocols ("stage 3") - intra-fixed-network	29 series
Programme management	30 series
Subscriber Identity Module (SIM / USIM), IC Cards. Test specs.	31 series
OAM&P and Charging	32 series
Security aspects	33 series
UE and (U)SIM test specifications	34 series
Security algorithms	35 series
LTE (Evolved UTRA), LTE-Advanced, LTE-Advanced Pro radio technology	36 series
Multiple radio access technology aspects	37 series
Radio technology beyond LTE	38 series



Three stage approach to Features, through Releases

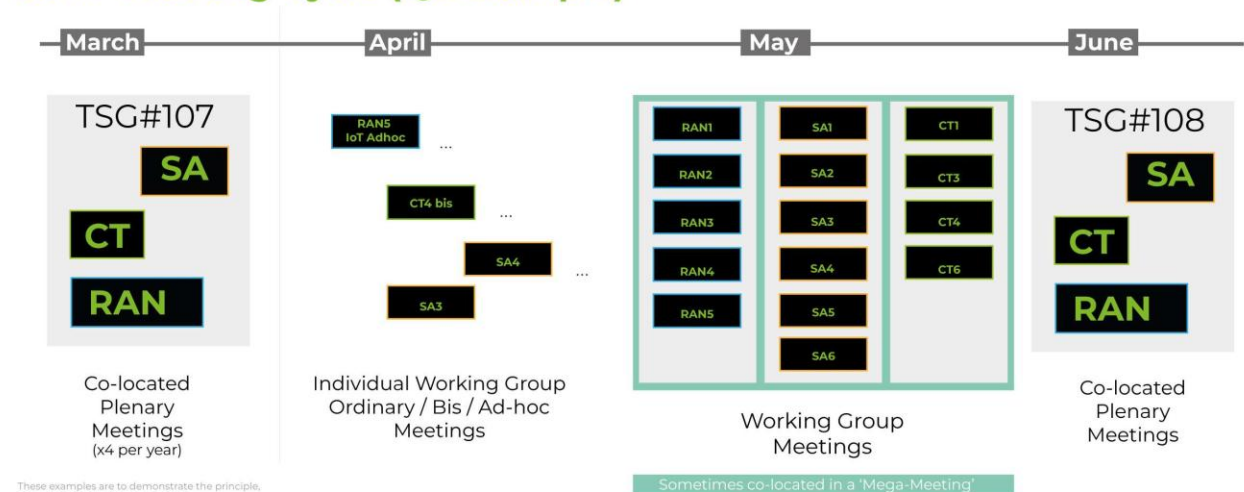


Work Schedule driven by technical meetings



- **New work** is initiated by member companies as Study/Work Items, via Tdocs at meetings
- Study/Work Items are prioritised and allocated time for discussion during meetings
- 3GPP member companies may contribute to any work item, on equal terms
- 3GPP seeks consensus on all technical matters (but has mechanisms if consensus cannot be reached)
- The **Release deadline is respected**. Unfinished work is deferred to a later release

3GPP Meeting Cycle (Q2 example)



5G Releases



Release15: The work on new radio (nr) and the 5G system (5GS) jointly addressed the urgent subset of needs for early commercial deployments.

Release16: Met all identified 5G use cases, to allow a full 3GPP IMT-2020 submission to ITU-R.

Release 17: Enhances the earlier 5G work, meeting more 'vertical' industry needs, specifying NR operation in unlicensed bands, NR MIMO, V2-everything.

Release 18: Brought a balanced evolution in terms of:

- Mobile broadband evolution versus further vertical domain expansion;
- Immediate versus longer-term market needs;
- Device evolution versus network evolution.
- Introduced **5G-Advanced** as a mid-generational marker (covers Rel-18, 19, 20)

Release 19: The current focus of the groups. Due for completion in 2025.

Release 20: Further 5G Advanced content. Stage-3 freeze envisaged Mar. 2027. First 6G studies.

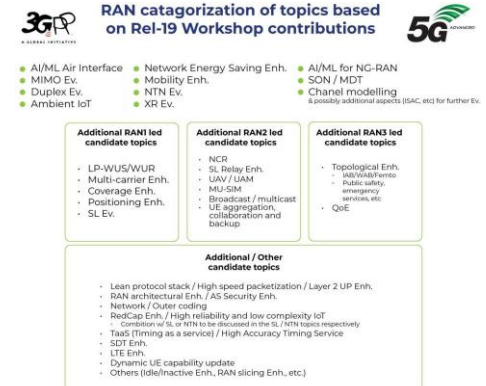
Rel-19 topics:

Source: <https://www.3gpp.org/specifications-technologies/releases/release-19>

TSG SA Core & Miscellaneous topics for inclusion in Release 19



TSG SA ([SP-230765](#), [SP-230759](#))



TSG RAN ([RWS-230488](#))

Release 20: 6G Study Items

Source: Summary of 3GPP 6G workshop: [6GWS-250243](#), [RP-251395](#)



6G Study Item(s) – TSG SA

SA SI Approval

- SA1 SI approval: TSG#105 (Sept 2024)
- SA2 SI approval: TSG#108 (Jun 2025)
- Other SA WG (SA3, SA4, SA5, SA6) SI approval: TBD 2025 TSG meeting

SA SI completion (18/21 months)

- SA1 6G SI completion: Mar 2026
- SA2 6G SI completion: Dec 2026 or Mar 2027 (To be confirmed at future TSG meeting)

6G Study Item(s) - RAN Plenary

RAN Plenary (RP) work is split into an ITU-focused aspects and General RAN aspects SI

- IMT-2030 discussion encompasses study of candidate sets of minimum TPRs (technical performance requirements)
- RP SI Rel-20 focusing on ITU- IMT-2030: started Dec 2024 until June 2025
- RP SI Rel-20 focusing on 6G General requirements and deployment scenarios: approval Mar 2025 (after 6G WS), until June 2026

6G Study Item(s) – RAN WGs

RAN WGs: 21 months

- RAN WG SI package approval June 2025
- RAN1 SI started June 2025 until Mar 2027
- RAN2/3/4 SI start in Sep 2025 until June 2027

6G Study Item(s) – TSG CT

CT WGs: at least 9 months

- Discussion on 6G studies will start in Q4 2025 in CT
- CT WG 6G SI is expected to be approved in 1Q 2026

Beyond Release 19



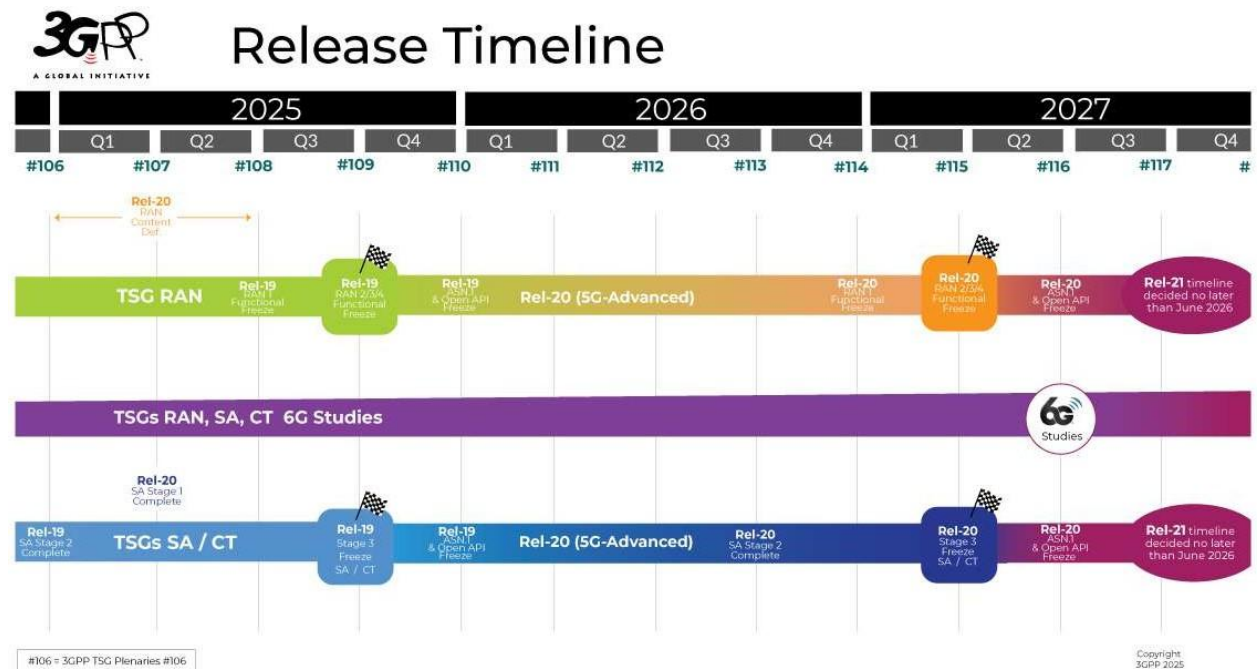
Release 19: Complete e/o 2025

Release 20:

- TSG-Wide Rel-20 Workshops completed (5G-A Dec24, 6G Mar25)
- Focusing on Technical Specifications for 5G Advanced and early 6G studies
- [RP-251395](#): The 6G RAN Plenary Study and WG (RAN1) is underway

Release 21:

- 1st set of 3GPP 6G technical specifications and IMT-2030 submission, expected to be delivered with a single drop (i.e., a single code freeze).
- Rel-21 timeline is to be decided no later than **June 2026**
- With ASN.1/OpenAPI freeze date is no earlier than March 2029





Concluding thoughts



- 3GPP is industry driven - Standardization of interfaces and protocols enables an interoperable, multi-vendor approach to deployment.
- The 3GPP processes are necessarily complex, but we will adapt to bring new sectors into the work.
- 5G Advanced will lay the foundations for 6G features.
- Release 19** is nearing completion EOY2025 (ASN.1 freeze).
- Release 20** content and priorities established, and the focus in the WGs.
- 6G timeline will be decided by June 2026. Studies will come in **Rel-20** and normative specifications no sooner than **Rel-21**.

*3GPP uses a system of parallel "Releases" which provide developers with a stable platform for the implementation of features at a given point and then allow for the addition of new functionality in subsequent Releases.
You can learn more about 3GPP Releases by looking into the following resources:*

TR 21.914	Release 14 Description; Summary of Rel-14 Work Items
TR 21.915	Release 15 Description; Summary of Rel-15 Work Items
TR 21.916	Release 16 Description; Summary of Rel-16 Work Items
TR 21.917	Release 17 Description; Summary of Rel-17 Work Items
TR 21.918	Release 18 Description; Summary of Rel-18 Work Items

For more info on 3GPP...



- Specifications, working documents, news, portal, technology articles:
 - Online; www.3gpp.org
- Consider attending a WG or TSG meeting (listing):
 - <https://portal.3gpp.org/>
- Subscribe to our regular newsletter:
 - www.3gpp.org/highlights
- Keep in touch:
 - www.3gpp.org/contact

