

Supporting 5G Standardisation for Vertical Industries

Action Plan from the 2nd

5G Vertical User Workshop

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About the Task Force

The content of this Executive Summary is part of the work undertaken by the Task Force led by a sub-set of 3GPP Market Representation Partners. This Task Force is committed to helping Industry and Standards come together in a constructive and cooperative way to achieve a better understanding of each other's requirements and address any concerns, to the benefit of all.

Members of the Task Force

Stephanie Parker, Trust-IT and Global5G.org coordinator

Balasz Bertenyi, 3GPP TSG RAN Chairman

Alessandro Bedeschi, Head of Office, 5G-Infrastructure Association (3GPP MRP)

Didier Bourse, NOKIA and Chair of the 5G-IA Trials Working Group

Raffaele De Peppe, TIM and Chair of the 5G-IA Verticals Task Force

John Favaro, Trust-IT and Global5G.org deputy coordinator

Maxime Flament, CTO 5G Automotive Association (3GPP MRP)

David Lund, President of Public Safety Communications Europe (3GPP MRP)

Georg Mayer, 3GPP TSG SA Chairman

Lionel Morand, 3GPP TSG CT Chairman

Andreas Mueller, Chair of 5G-ACIA (3GPP MRP)

Adrian Scrase, ETSI CTO

Christian Toche, Huawei and ETSI

Paul Voskar, Huawei and 3GPP

Colin Willcock, Chair of the 5G-Infrastructure Association (3GPP MRP)

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5G networks are intended to bring a new disrupting ecosystem with vertical industries (automotive, health, Industry 4.0, maritime, media, public safety, transport, utilities and others) bringing new market opportunities. By doing so, verticals are extending the 5G community beyond telecom operators, manufacturers, SMEs and research institutes.

Herein lies a key opportunity to embrace a new community in 3GPP, working alongside sector specialists to optimally capture end-user requirements and support contributions to the 3GPP standardisation process.

To help drive these efforts, a sub-set of 3GPP Market Representation Partners, notably 5GAA, 5G-ACIA, PSCE and 5G-IA, have joined forces with high-level 3GPP specialists. This task force is geared towards guiding verticals through the bottom-up, member-based inputs for 5G standardisation within 3GPP.

Beyond the workshop series, the Task Force is now defining a new collaboration platform and mentoring support for newcomers. Activities seek to help sector specialists join forces with the vast experience of traditional 3GPP members while recognising the leadership role of industry associations in driving member inputs and helping to prioritise requirements in a global context.

Participants: The workshop brought together the Task Force MRPs (5G-IA, 5GAA, 5G-ACIA and PSCE), the European Broadcasting Union (EBU), the International Railway Union (UIC), the European Utilities Telecom Council (EUTC), the International Association of Lighthouse Authorities (IALA), SNCF, EMEA Satellite Operator's Association (ESOA), The Critical Communications Association (TCCA), the Next Generation Mobile Networks Alliance (NGMN), Continental, Enensys, Siemens, The Police of the Netherlands, u-blox, Volkswagen. These associations were joined by Industry representatives from verticals, large companies and SMEs, 3GPP TSG Chairs (SA and RAN), SA1 and SA2 Chairs, delegates and rapporteurs, as well as 5G PPP phase-2 and -3 projects (5GCity, 5GMOBIX, 5G-TOURS, 5Genesis, 5G EVE, 5G CARMEN, 5G SOLUTIONS). The joint session with 3GPP SA6 brought in SA6 Chair, Co-chairs and delegates.



The 2nd 5G Vertical User Workshop, 9-10 July 2019 in Rome, was designed as a highly interactive event to guide participants from verticals through the 3GPP timelines and processes, showing them how to avoid potential stumbling blocks on the road to 5G standardisation. To help verticals maximise impacts with the resources available, the workshop brought on board specialists from 3GPP to explain how members from global operators and vendors self-organise and use their knowledge and resources to drive much of the standardisation work. Co-location with the SA6 Meeting, which is working on mission-critical applications for diverse verticals, helped further boost the workshop's multi-stakeholder approach.

Key features of the workshop:

- **Requirement tracking across verticals:** collecting and updating technical viewpoints from automotive (5GAA and Continental), broadcasting and media, manufacturing (Industry 4.0), maritime, public safety, transport and smart mobility, utilities. Understanding market drivers and sector mindsets toward 5G.
- **Mapping of common requirements:** enabling verticals and other stakeholders to pursue standardisation work of mutual benefit by forming interest groups, offer mutual support and build consensus. Show why both verticals and vendors/operators need to work together to standardise new applications and services for and beyond niche markets to serve a broad base of users.
- **Practical guidelines on 3GPP processes and timelines:** helping newcomers and members from vertical industry associations navigate their way through 3GPP processes. Chairs and delegates came together to share personal journeys and explain how verticals need to adjust their expectations as inputs move across working groups and stages.
- **Joint session with SA6:** building on established links between 3GPP specialists and verticals to show the benefits of a collaborative approach to standardisation beyond traditional constraints. This session was highly effective in giving a birds-eye global view of mission-critical applications, and the importance of combining the necessary competences, energy and enthusiasm as key success factors.

Guide for vertical industries



Interactive discussions highlighted the following points for vertical industries on the road to 5G standardisation:

- Understand that the overall 3GPP ecosystem is critical.
- Participate in all levels of 3GPP to achieve success – not just one group.
- You cannot go it alone. Build relationships with others and help them when they need it.
- Understand that success takes time, e.g. it took The Critical Communications Association (TCCA) at least 5 years of effort to get practical standards. Work on non-terrestrial networks is also taking a stepwise approach across the different working groups and stages.
- Work together as verticals, consolidating and prioritising requirements when possible and mapping common requirements across verticals to pinpoint areas of mutual interest and support.
- Acknowledge that there is more work to be done for market adoption outside the scope of 3GPP: spectrum, policy, go-to-market, product development.
- Leverage the guidance of the Task Force and its evolving support and tools.

Guide for operators & vendors



- Embrace verticals as an important addition to the 3GPP community.
- Spend time getting to know newcomers and help verticals navigate their way through the 3GPP processes.
- Work with verticals in understanding their business cases, general needs as newcomers, requirements and priorities.
- Support verticals in leveraging your competences, long-standing experiences and resources in carrying out significant technical work, also on behalf of the verticals.
- Co-host webinars tracking work areas of mutual interest and progress on new verticals within the 3GPP ecosystem, e.g. led by SA and RAN chairs with support from the Task Force.

Action plan for verticals



The workshop led to the definition of a concrete action plan based on the mapping of common requirements, with the following pointers from the TSG Chairs:

- Realistically, 3GPP can only take on board a sub-set of the many work areas under discussion for Release 17.
- Some work areas like NR Multicast Broadcast should focus on a reasonable scope and simple solutions, or in the case of non-public networks, adjust scope of the Study Item (SI), if necessary.
- What is left out can be considered again in Release 18.

The plan for work areas in Release-17 is based on a mutual understanding of priority requirements for each vertical, other interested verticals and specific follow-up actions after 3GPP Plenary #85 (September 2019) for SA work areas. Plans will be updated and/or adapted ahead of Plenary #86 in December 2019, when RAN work areas will be under discussion.

Rel-17 Work Area	Interested Verticals	Agreed Actions
Side link enhancements	5GAA, Public Safety, EUTC, (utilities), 5G-ACIA (potentially).	Drive RAN email discussion (5GAA to lead) and SA Prioritisation
IIoT and URLLC enhancements	5G-ACIA. Also from factory side and broadcast.	Gap analysis of Rel-16. Drive critical leftovers in Rel-17 RAN email discussion & SA prioritisation (existing SA2 SI).
Predictive QoS	5GAA and combined efforts with 5G-ACIA, TCCA, IALA (maritime).	5GAA to do gap analysis (SA2 TR 23.786 & TS 23.288) on Rel-16 & drive Rel-17 actions accordingly (SA prioritisation, SI scoping).
NR Multicast broadcast	V2X, public safety, broadcast, industry automation, satellite, MBMS provider (Enensys)	Drive corresponding RAN email discussion and SA prioritisation.
Non-public networks	Critically important for 5G-ACIA. Also of interest to public safety, broadcast-ing, EUTC.	Gap analysis of completed work in SA2 for Rel-16. Drive Rel-17 study work (SA2). Prepare for SA2 prioritisation at SA#85.
Positioning enhancements	5G-ACIA, 5GAA, Public Safety	Drive RAN email discussion
NR for non-terrestrial networks	SA5 SI (Thales Alenia Space), UIC & SNCF, IALA, Public Safety, Media & Broadcasting, EUTC	Use RAN email discussion to scope out 1 st step for Rel-17.

Action plan for the task force



The Workshop gave valuable insights into concrete actions that the Task Force can take with the support of Global5G.org to boost support to verticals. An essential point relates to the need for much greater cooperation between 3GPP and the vertical industries. The 3GPP and its MRPs also need to be vigilant in tracking items across a release and make sure that dropped items in one release get picked up in the next one. The 5G-IA Pre-Standardization WG can help in this respect as it is tracking the progress of items as part of its remit.

- Monitoring progress on 3GPP work areas for verticals through the 3GPP Work Plan and TF calls, with the support of the 5G-IA's Pre-Standardization WG.
- Creating an online collaboration platform with a view to lowering barriers for verticals. Such a platform would help solve or at least mitigate many of the issues raised during the workshop about the complexity of 3GPP processes vis-a-vis the resources available to verticals.
- Drawing and building on the workshop outcomes, with practical guides and glossaries, continuing to track vertical industry requirements and map common requirements.

The collaboration platform will be created through Global5G.org (through several releases) and from 2020 supported by FULL5G (Trust-IT) with the support of the 5G-IA's Pre-Standardization WG and Vertical TF.

- The platform will recognise the leadership of vertical associations (MRPs and others) in conveying business cases and driving standardisation in the broader context of the organisation. To this end, it will share roadmaps and strategies to help build understanding of the transition to 5G and what it entails.
- It will also seek to help verticals and SMEs understand the benefits of standards and come on board 3GPP as appropriate. The platform could help new verticals harvest requirements across their communities when needed, including new projects on verticals in Europe's 5G PPP Phase 3 (starting June 2019) with the support of the 5G-IA's Pre-Standardization WG. This WG can support many of the planned activities since it brings together 3GPP delegates, ETSI (Board) members and over 25 running EU projects, most of which are large-scale vertical industry pilots.

Next steps and target outcomes



The Task Force will support continued dialogue and engagement with verticals to track actions and impacts, defining future steps such as:

Short-term: early Q3-2019

Broadcast the outcomes of the 2nd Vertical User Workshop to all major stakeholders. Monitor progress on SA work areas at Plenary #85. Define steps for Q4-2019 and Plenary #86. Support the 3GPP SA6 webinar: "Initiatives to enable new vertical applications" and its outcomes as a recommendation from the Workshop.

Mid-term: Q4-2019

Make the Collaboration Platform available online. Track progress on RAN work areas at Plenary #86. Carry out a gap analysis and start planning for Release 18. Drive interest in 3GPP also at policy and regulatory levels.

Long-term: Q1-2020

Report on impacts and actions to the PCG. Plan a third workshop bringing in global perspectives, new verticals and stakeholders. Co-host and support webinars based on the outcomes of short- and mid-term targets.

Action Point	AP leader	Status
Organise special newcomer sessions at 3GPP plenaries.	3GPP TSG Chairs	Achieved. 1st Newcomer Orientation Session at TSG#85 (September 2019): mentoring support to help newcomers navigate their way through 3GPP, its groups and processes.
Host a webinar on the work in SA6 and its enablers for verticals.	SA6 Chair and co-chairs.	Achieved and extensively promoted. Webinar on SA6 on 26.09.2019 . TF providing post-event wrap-up.
Continue to support requirement tracking across vertical industries. The Task Force will also seek to support new sectors interested in coming on board by help-ing them capture their technical requirements.	3GPP MRP Task Force	Planning the rollout of the Standards Tracker as a collaboration platform. The aim is to give practical advice to Industry, track technical requirements across verticals. The online tool will also support gap analysis for 3GPP Release 18 and feature updated mapping of common re-quirements.
Organise future workshops bringing together Industry and Standards.	3GPP MRP Task Force Planning workshop in early 2020.	The workshop will be hands-on and interactive, zooming in new opportunities for 5G standardisation and tackling barriers to entry head-on.

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