**3GPP TSG-SA5 Meeting #156 *S5-245137d1***

Maastricht, Netherlands, 19 - 23 August 2024

**Source: NEC, Intel, Deutsche Telekom**

**Title: DP on potential SA5 WG level pCR to TR 22.850 SA study on AI/ML Consistency Alignment**

**Document for: Discussion & endorsement**

**Agenda Item: 5.2 Technical issues at SA5 level**

# 1 Decision/action requested

***The group is asked to discuss and approve the proposal in this DP.***

# 2 References

[1] [RP-233796](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_102/Docs/RP-233796.zip), DP on Need for a consistent e2e AI/ML framework

[2] [SP-240292](https://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_103_Maastricht_2024-03/Docs/SP-240292.zip), DP on Need for a consistent AI/ML E2E framework

[3] [SP-240448](https://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_103_Maastricht_2024-03/Docs/SP-240448.zip), Way forward on AI/ML E2E framework

[4] [SP-240575,](https://www.3gpp.org/ftp/TSG_SA/TSG_SA/TSGS_104_Shanghai_2024-06/Docs/SP-240575.zip) Study on AI/ML E2E framework

[5] [SP-240970](https://www.3gpp.org/ftp/TSG_SA/TSG_SA/TSGS_104_Shanghai_2024-06/Docs/SP-240970.zip), Study on 3GPP AI/ML Consistency Alignment

[6] 3GPP [TS 28.105](https://www.3gpp.org/ftp/Specs/archive/28_series/28.105/28105-i40.zip) Management and orchestration; Artificial Intelligence/ Machine Learning (AI/ML) management

[7] [SP-201084](https://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGs_90E_Electronic/Docs/SP-201084.zip), latest terms of reference for SA WG5 - Management, Orchestration and Charging

[8] S5-244584 pCR TR 22.850 Study on 3GPP AI/ML Consistency Alignment

# 3 Background & Rational

The topic of an end-to-end (E2E) AI/ML framework has been the subject of extensive discussions at the 3GPP SA and RAN plenary TSG levels. These discussions were initially triggered by a discussion paper submitted to both RAN#102 [1] and SA#103 [2] by a group of operators. The debate at SA#103 progressed towards a provisional agreement and resulted in the first draft SID proposal to initiate an SA-level study. This study aims to track and investigate ongoing AI/ML-related work in the RAN, SA, and CT WGs and to identify any potential misalignments, overlaps, or inconsistencies between the solutions being developed by these working groups [3,4].

The discussions continued prior to and during SA#104, leading to the approval of the new SID on 3GPP AI/ML Consistency Alignment [5]. The study aims to achieve consistent terminology and an E2E framework, particularly from the lifecycle management (LCM) perspective for AI/ML models, and the cross-domain collection and storage of training/inference data.

This study will investigate ongoing AI/ML work within TSG CT, TSG RAN, and TSG SA Working Groups, identifying instances of potential misalignment and/or inconsistencies. The following objectives are included

*WT1: Identify AI/ML related activities of all working groups of Rel-18 features and Rel-19 studies and work items.*

*NOTE 1: The AI/ML related content captured in TR 21.918 ("Release 18 Description; Summary of Rel-18 Work Items") can be considered as a starting point.*

*WT2: Identify any potential inconsistencies on AI/ML related terminology (i.e. set of definitions, acronyms) across 3GPP, based on WT1.*

*WT3: Identify any potential misalignments and inconsistencies among existing AI/ML related features specified in 3GPP, including cross-domain (UE, RAN, core network, media, OAM, and application enablement) aspects. Examples of areas to be investigated are LCM for AI/ML, data collection/storage/exposure, model training/delivery/ (de)-activation/inference emulation, inference/storage/exposure, performance evaluation and accuracy monitoring.*

*NOTE 2: Any RAN related aspects are subject to early coordination and feedback from TSG RAN.*

*WT4: Provide information on any potential outcome from WT1, WT2 and WT3 to the respective WGs (according to their Terms of Reference (ToR)) to resolve any issues with appropriate SA-level co-ordination as necessary.*

*NOTE 3: The study item does not impact ongoing studies and normative work for AI/ML across all SA/RAN/CT WGs for Rel-19.*

This DP aims to highlight and discuss the rational behind the submission of a WG level contribution towards TR 22.850 study on 3GPP AI/ML Consistency Alignment, capturing SA5’s accomplishments on the topic of AI/ML management.

# 4 Discussion & Rational

* Based on the discussion conducted prior and during the SA-level study proposal, it is probably fair to conclude at this stage that SA5 is among the leading 3GPP WGs that have managed to develop and accomplish stable AI/ML related specifications for Rel-18.
* The specifications [6] focused on the management and orchestration aspects of AI/ML features and capabilities in the 5G system addressing various aspects including e.g. terminology and ML model LCM. These components form an integral part of the of SA study on 3GPP AI/ML Consistency Alignment.
* In the context of the 3GPP system, lifecycle management (LCM) of network functions (NFs), features, entities, and ML models primarily involves management tasks. These tasks fall under the scope of SA5's Terms of Reference (ToR) [7]. SA5 has already completed numerous specifications addressing LCM, including the recently finalized Release-18 specification on AI/ML management [6]. This extensive work highlights SA5's expertise and foundational contributions to AI/ML lifecycle management within 3GPP.
* Therefore, we strongly believe that an input summarising relevant work accomplished by SA5 on AI/ML management, including AI/ML-related terms and LCM would provide valuable initial input for the SA study TR 22.850 on 3GPP AI/ML Consistency Alignment. This input would help ensure that the study is grounded in the comprehensive and established work already completed by SA5, promoting consistency and alignment across 3GPP AI/ML initiatives.

# 5 Detailed proposal

It is proposed to submit the pCR in S5-244584 [8] as a SA5 WG level input proposal to TR 22.850 Study on 3GPP AI/ML Consistency Alignment.