

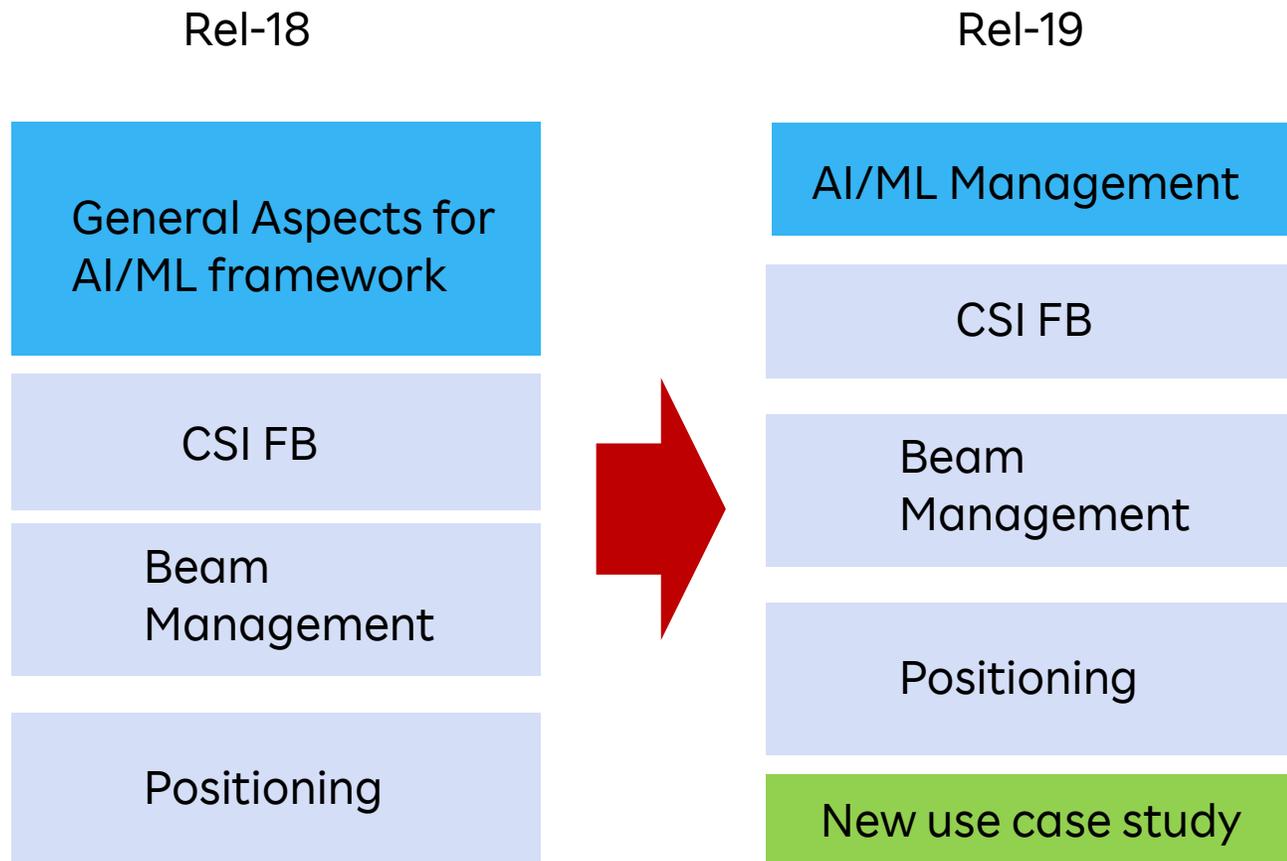
Discussion on Rel-19 AI/ML for Air Interface

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Background

- Rel-18 AI/ML for air interface SI has been discussed about the following items:
 - General Aspects of AI/ML framework
 - Use cases
 - CSI feedback enhancement
 - Beam management enhancement
 - Positioning enhancement
- AI/ML features to be specified in work item phase in Rel-19.
- This document explains requirements as an operator to the specification of the technology.

Work Item discussion structure



- In Rel-18, General Aspects discuss overall framework of AI/ML application.
- In Rel-19, most of the topics in general aspects can be discussed in each use case discussion, and AI/ML LCM management aspects can only have separate discussion.
- AI/ML management aspects can be discussed in RAN2 as the leading group. RAN1 may be available to study additional use cases by releasing time units for discussion of AI/ML framework.

Proposals

- WI scoping should consider how to avoid duplicated discussion among sub-agendas and WGs.
- With efficient WI scoping, consideration of the study on additional use cases can be possible.

Specification of AI/ML for air interface

■ Information exchange framework between gNB and UE

- Radio signaling in any layers (PHY/MAC/RRC)
Specified according to discussion outcome of each use case

■ Life Cycle Management (LCM) framework

- Transaction framework between gNB and UE, including AI/ML capability, model identification, model activation/deactivation, model monitoring, and so on.
- Performance/Behavior specification
 - In SA5, Study on AI/ML management has been almost completed. The outcome TR 28.908 summarizes various management requirements.
⇒ **General principle in the TR should also be applicable to the RAN AI/ML discussion.**
 - Examples (Requirements in TR 28.908 v1.2.0)
 - **REQ-AI/ML_PERF-ABS-1**: The 3GPP management system should have a capability for an authorized MnS consumer (e.g., an operator) to configure an abstract performance range that defines the minimum and maximum performance as expressed on an abstract performance index.
 - **REQ-AI/ML_INF_ACT-1/2**: The MnS producer responsible for AI/ML inference management should have a capability to allow an authorized MnS consumer to activate/deactivate an AI/ML inference function.

Proposal: RAN to discuss necessary AI/ML management function to guarantee controllability over AI/ML operation

Potential Additional Use Case Study for 6G

■ Mobility Enhancement with AI/ML

- Study feasibility and necessary coordination between gNB and UE to make handover decision and cell switching more efficient in L1/L2/L3 mobility
- Study feasibility of predictive handover
 - Based on the prediction on channel quality change, perform robust handovers and/or reduce inefficient handovers