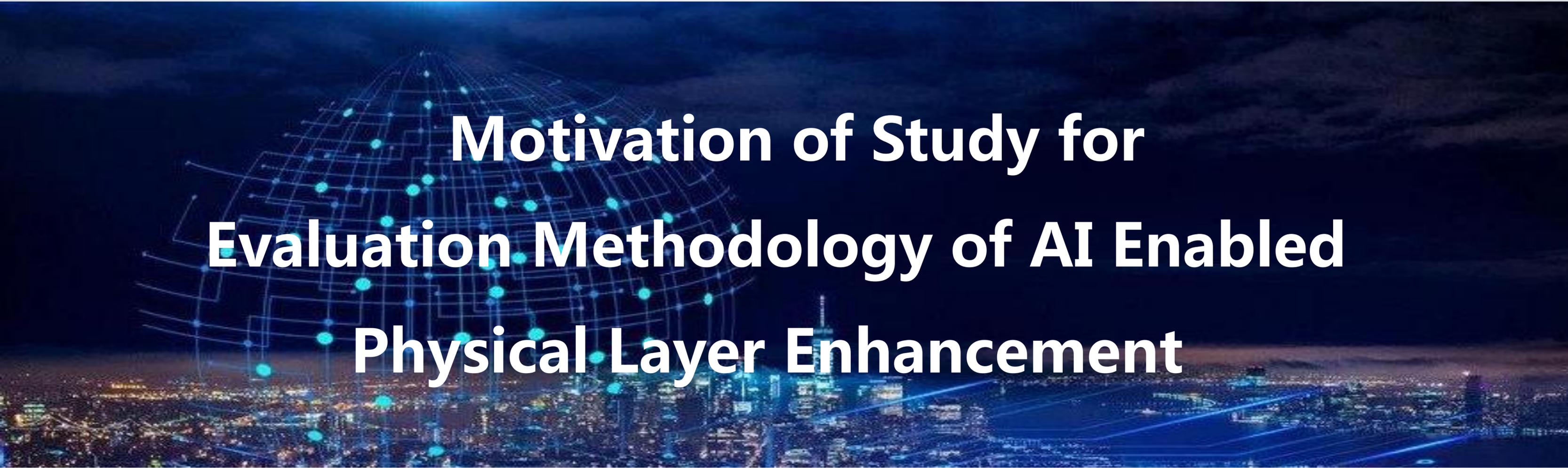


3GPP TSG RAN Rel-18 workshop  
Electronic Meeting, June 28 - July 2, 2021

RWS-210357



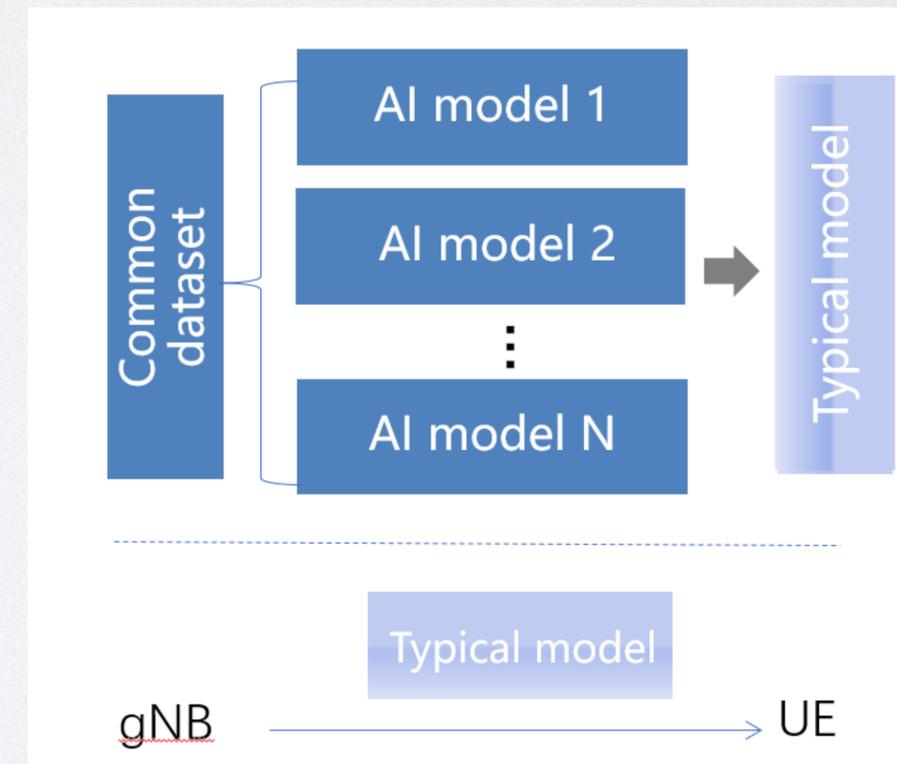
# Motivation of Study for Evaluation Methodology of AI Enabled Physical Layer Enhancement

Agenda Item: 4.3  
Source: CMCC



# MOTIVATIONS

- Artificial intelligence (AI) provides a possibility to solve the problems difficult to model or find the solution and further improve the spectrum utilization.
- Compared with traditional algorithms, the performance of AI relates to many factors, e.g. data sets, architecture of AI model, training method, hyper parameters. To evaluate different AI algorithms and compare AI with traditional algorithm, the evaluation methodology for AI based PHY enhancement should be studied.
  - For a potential use case, various AI models may be used , and different AI models may be used by different UEs.
  - For common understanding and evaluation, some basic concepts and terminologies can be introduced to describe AI models.
  - To ensure the basic performance, typical AI models can be introduced, and if needed, the typical model can be sent to UE.





# Potential Study Objectives

- Identify typical use case(s) for AI based physical layer enhancements [RAN1]
- Study the **evaluation methodology** of AI based physical layer enhancements [RAN1]
  - Study the **common dataset** for each use case, including the source, the size and the structure of the dataset.
  - Study the evaluation metrics, e.g., throughput increase, overhead reduction, complexity reduction, etc.
- Study the **typical AI models** for each use case [RAN1]
  - Study the architecture of typical AI model based on the common parts of different AI models
  - Study the parameterized expression of typical model, including the input/output, architecture, parameters, etc.



**Thank you!**

