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# Motivation on New SID: Enhancements to MIMO operation for NR

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# Justification

To achieve higher network capacity under co-channel interference from same or neighboring TRPs LTE specifies support of the following schemes:

- Interference-aware receivers with and without network signalling assistance
  - MMSE-IRC
  - NAICS
- Multi-user and Multi-point coordination schemes (CoMP)
  - SLNR MU-MIMO precoding
  - DPS/DPB, NC-JT, CS/CB

It is expected that support of similar interference mitigation schemes should be also beneficial for NR to achieve similar or better performance comparing to LTE

However due to new signal structure of NR, deployment scenarios (e.g. high carrier frequency) and use cases (e.g. URLLC) additional study should be performed to identify schemes and the required changes in Rel-15 NR specification to support the above schemes

# Objectives

## Support of interference-aware receivers operation in NR

- Identify specification impact to support network assisted interference cancellation and suppression (NAICS) receivers
  - For data channel identify the parameters of the interfering signals that can be blindly detected at the UE
  - For data channel identify the parameter of the interfering signals that can be indicated to the UE using physical layer and higher-layer signalling to assist interference aware receivers
- Identify specification impact of interference-aware analog beamforming selection at the UE for reception of physical channel

## The study should consider the following scenarios

- Inter-TRP and intra-TRP (MU-MIMO) interference
- FDD, TDD and dynamic TDD

# Objectives (cont'd)

## Enhancement to multi-user and multi-point operation in NR

- Identify candidate approaches for supporting multi-user transmission schemes for UE with analog beamforming and corresponding specification impact
- Identify candidate multi-point transmission schemes to support multi-point operation for UE with analog beamforming and corresponding specification impact
- Identify candidate multi-point transmission schemes for unlicensed spectrum (e.g. dynamic point selection) and corresponding specification impact
- Identify candidate multi-point transmission schemes for URLLC type of communication and corresponding specification impact

The study should consider data and control channels

# Possible timelines



