



AI/ML in future networks: opportunities for MENA

ARTIFICIAL
INTELLIGENCE

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Outline

- 1. Opportunities in future networks standards for AI/ML**
- 2. Opportunities in ITU's AI/ML in 5G Challenges**
- 3. Driving international collaborations with MENA ML Sandbox**

Opportunities in future networks standards for AI/ML (1)

- Story #1
 - The Focus Group on Machine Learning for Future Networks including 5G (FG-ML5G) was created by ITU-T Study Group 13 at the opening plenary in **November 2017**
 - FG ML5G developed **10 technical specifications**, four of which were already approved by ITU-T SG13, as well as an informational document which lists gaps that could be addressed in future work.
 - The FG was successful and **closed** during the SG13 Plenary (20-31 July 2020).
- Next steps
 - Complexity of future networks requires integration of AI/ML in managing them
 - Autonomous networks are those that possess the ability to self-*
 - Proposed Focus Group on **“Autonomous Networks” (FG-AN)** will study such issues.

Building upon its success of FG ML5G, ITU moves forward to study further issues in achieving L5 Intelligence in future networks.

Opportunities in future networks standards for AI/ML (2)

■ Story #2

Output Document	Status
Use case document	Published as ITU-T Y-series Recommendations – Supplement 55 https://www.itu.int/rec/T-REC-Y.Sup55-201910-I/en
Architecture document	Published as ITU Y.3172 https://www.itu.int/rec/T-REC-Y.3172/en
Data handling framework	Published as ITU Y.3174
Intelligence level document	Published as ITU Y.3173
Marketplace document	Pre-Published as ITU Y.3176

•Draft Recommendations:

- **ITU-T Y.ML-IMT2020-MLFO** “Requirements and architecture for machine learning function orchestrator”
- **ITU-T Y.ML-IMT2020-MODEL-SERV** “Architecture framework for serving ML models in future networks including IMT-2020”
- **ITU-T Y.ML-IMT2020-SANDBOX** “Machine learning sandbox for future networks including IMT-2020: requirements and architecture framework”
- **ITU-T Y.ML-IMT2020-E2E-MGMT** “Machine learning based end-to-end multi-domain network slice management and orchestration”
- **ITU-T Y.ML-IMT2020-VNS** “Framework for network slicing management enabled by machine learning including input from verticals”

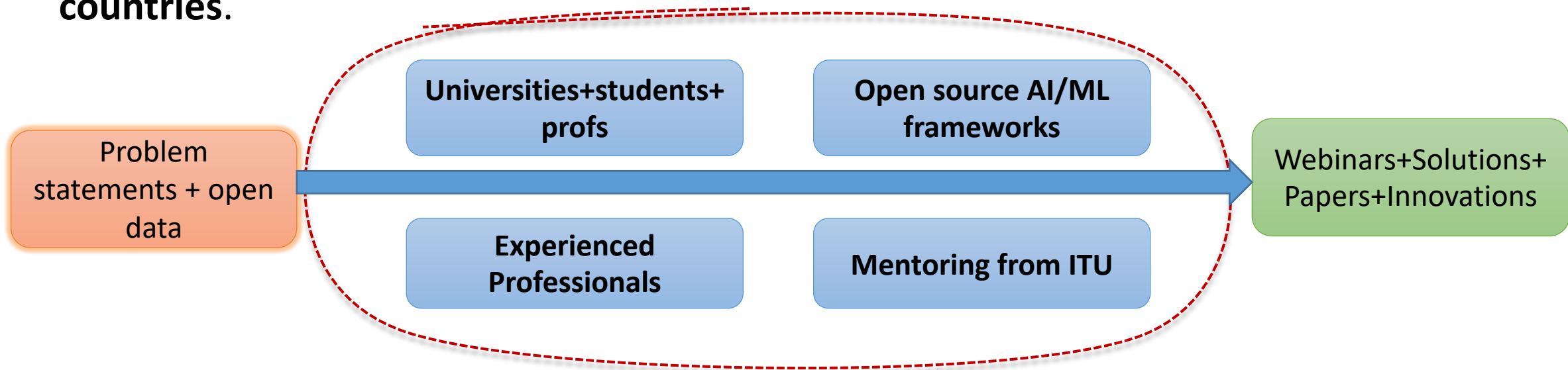
From pre-standard specifications, the real work of standardization for integration of AI/ML in future networks has begun!!

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Opportunities in ITU's AI/ML in 5G Challenges

- Story #3
 - How to predict network failures? How to use AI/ML for network traffic recognition? Channel estimation and Beam selection? Predicting packet delay using GNN, etc
 - AI/ML in 5G Challenge is concluding with “Grand Finale” on 15-17 Dec 2020
 - Global competition in which **26 partners** (telecom operators, vendors, and academia) hosted **23 problem statements** with participation from **1300+ participants** from **60+ countries**.



Applying AI/ML standards from ITU, Creating crowd-sourced innovations and practical implementations with TRA (UAE) as a Gold sponsor!

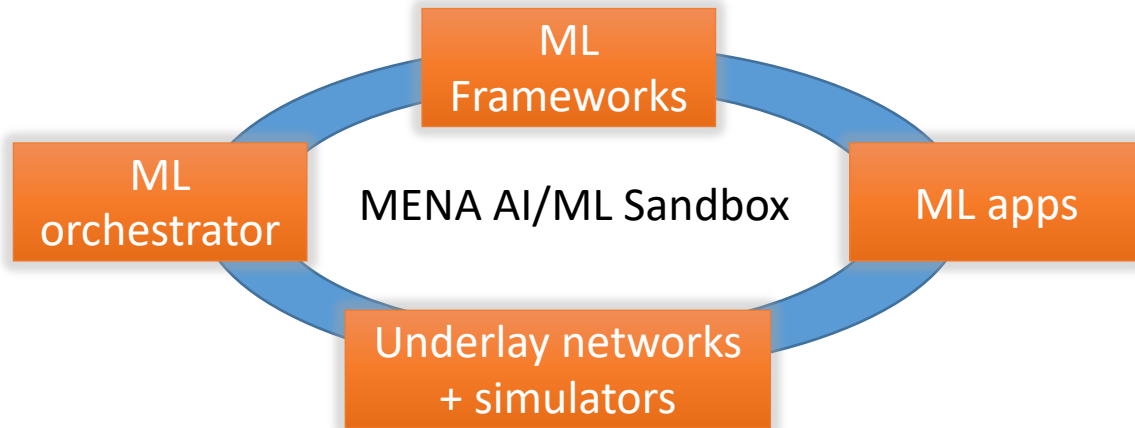
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MENA ML Sandbox (1)

■ Story #4

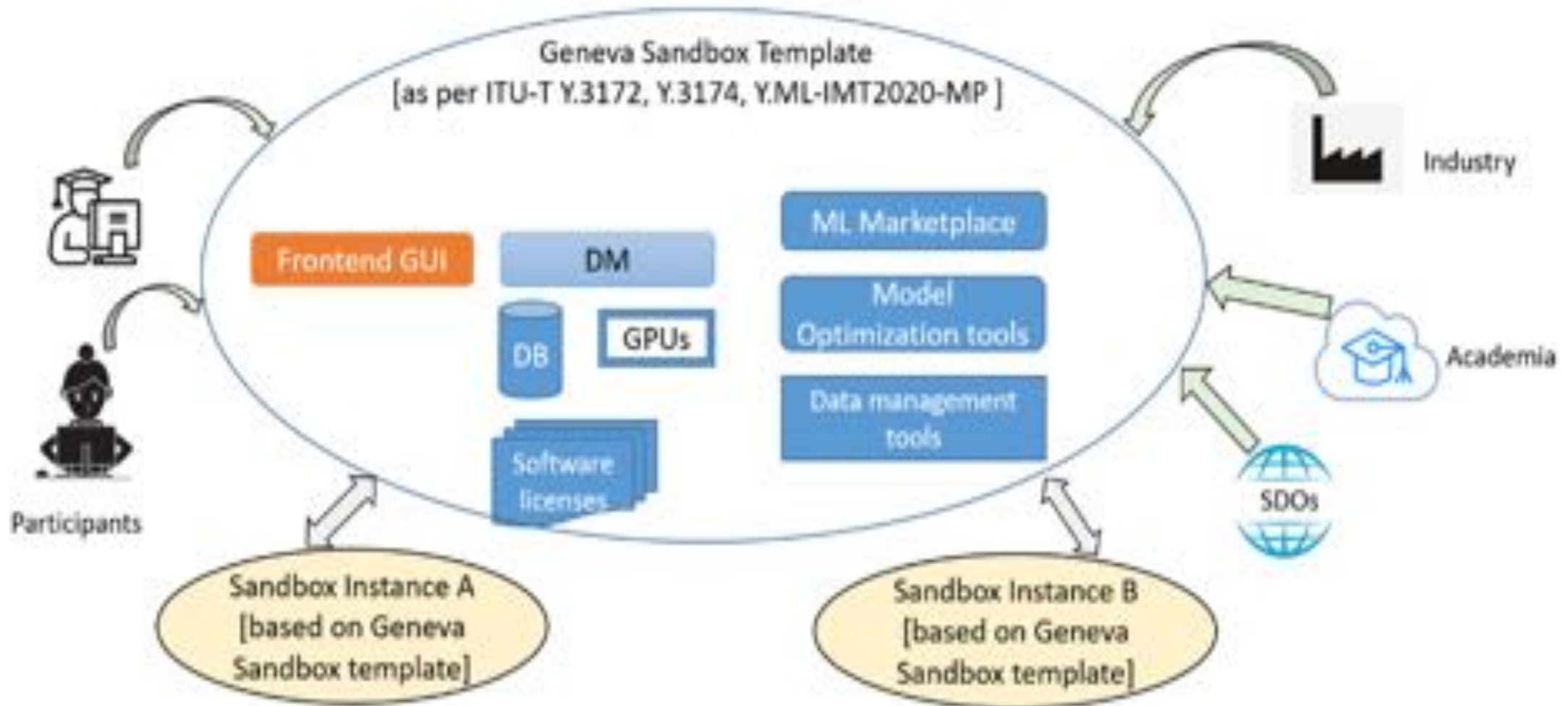
- How to enable network operators, network manufactures and innovators, developers, research students?
- Provide a platform to Innovate and solve network problems with AI/ML
- Uncover problems and point to practical solutions
- Collaborative Technology leadership with ITU support, in the MENA region.
- Find standards gaps



Future Work:

- Progress the specification of MENA ML Sandbox – in SG13.
- To provide a common, open, toolset to participants of current and future challenges.
- To generate study reports and contributions based on this Sandbox.

MENA ML Sandbox (2)



Setup a federated MENA Sandbox based on ITU specifications.

An open platform for collaborating and experimentation based on ITU standards on AI/ML in networks

Conclusion

1. Opportunities in future networks standards for AI/ML
 - **New work items and proposals for AI/ML in networks**
2. Opportunities in ITU's AI/ML in 5G Challenges
 - **Create crowd-sourced solutions for practical problems**
3. Driving international collaborations with MENA ML Sandbox
 - **Setup a federated MENA Sandbox based on ITU specifications.**

Any Questions?

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