

## Impact of AI in transforming Networks and digital experience in the 5G era

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### Abstract

The 5G network ecosystem should be agile, flexible, dynamic, learning, evolving and secure to support differentiated innovation and monetization. Every one of these features will be driven by AI/ML, and its confluence with 5G and MEC will be the driving force to reshape every industry including Automotive, Manufacturing, Retail, Financial etc. To enable this, Telecom Service Providers have to reinvent how they leverage AI in every aspect of their operations from Network Agility to Digital Customer Experience, to offer differentiated experience on every connected device. This presentation will discuss AI/ML models for cognitive network operations, closed loop anomaly detection and automated resolution, personalized customer experience, and industry 4.0 use cases such as cognitive automated manufacturing, worker safety etc. all wrapped with cognitive security operations. The presentation will also discuss some of the cutting-edge techniques for training and deploying AI/ML models at the 5G network Edge such as Coresets, Federated Learning, Model Fingerprinting, and Neural Tomography to elevate the customer experience and optimization of the 5G network slicing and operations. Using Coresets we can define ML algorithms that provide mechanisms to use a succinct summary of data samples without losing data quality and without sensitive private data, and with Federated Learning algorithms we form distributed cohorts and create a global model without the need to transfer data from the edge, and use Fingerprinting to dynamically choose the most accurate AI models for the environment and use case. With Neural Tomography we configure the network slice dynamically for the best network quality for moving entities such as emergency vehicles. Incorporating all these features of AI/ML helps define zero touch closed loop, automated Intelligent Network Operations solutions to transform operations completely.

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### Biography

Utpal Mangla (MBA, PEng, CMC, ITCP, PMP, ITIL, CSM, FBSC) is a VP and Senior Partner in IBM Services. He ( [utpalmangla.com](http://utpalmangla.com) ) is the Global Leader of TME Industry's Centre of Competency. In addition, Utpal leads the 'Innovation Practice' focusing on AI, 5G EDGE, Hybrid Cloud and Blockchain technologies for clients worldwide.

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responsibility and thought leader in emerging technologies, Utpal's mission is to fuel growth by building, scaling and implementing differentiated competitive market service solution offerings to meeting business imperatives of our customers. Under Utpal's leadership, IBM recently achieved the mission of scaling to make "Watson AI Impact 1.5 Billion Consumers" and creation of "Industry Blockchain platforms".