

**Tech
Mahindra**

**OnG Nxt with 5G :
Digitally enabling
NxtGen Connected
Oil & Gas Industry**



The Global Oil & Gas (OnG) industry is expected to witness a YoY growth of 1.6 percent till 2024. Amidst growth potential, the industry continues to witness unprecedented challenges.

Major challenges, as seen by the industry, are:



Offshore Oil field avg unplanned downtime **27days/yr** costs **\$38mn**



Worker slips/trips and compensation claims cost the industry **\$70B/yr**



Quicker turnaround maintenance post scheduled downtime (single day downtime for LNG facility costs **\$25 million**. Typical midsize LNG goes down five times a year.

Can 5G be a pivotal technology OnG is looking to embrace for accelerating their Digital Transformation journey?

Can Multi-Access Edge Computing satisfy OnG's hunger for real time remote operation?





5G: Enabler of Digital Transformation in Asset Intensive hazardous Oil & Gas Industry

With continuous downturn in oil prices, the industry is looking to improve operational efficiency, reduce cost of operations, and improve the Mean Time Between Failures (MTBF) of its machineries.

Ubiquitous IoT deployment, Real-Time Analytics, AR/ VR assisted remote maintenance, Digital Twin, Drone-based surveillance are a few of the NXt Gen use cases, which are the roadmap of every player. These use cases are, however, generating a humongous volume of data. According to sources, **2 to 3 TB** of data is getting generated daily, but only **1%** is used. At remote locations, data can take up to **12 days** to reach the data center.

Thus, secure and reliable cellular network connectivity coupled with adequate bandwidth and requisite latency is an obvious ask. Although 5G doesn't necessarily define industrial process automation, it acts as an enabler of new working and operating models. Sources also confirm the same.



5G enabled use cases could provide a boost of 5% to global GDP by 2030



OnG forecasted to be \$304 billion in GDP by 2030 for GCC (Gulf Cooperation Council)



5G and edge to aid in digital transformation

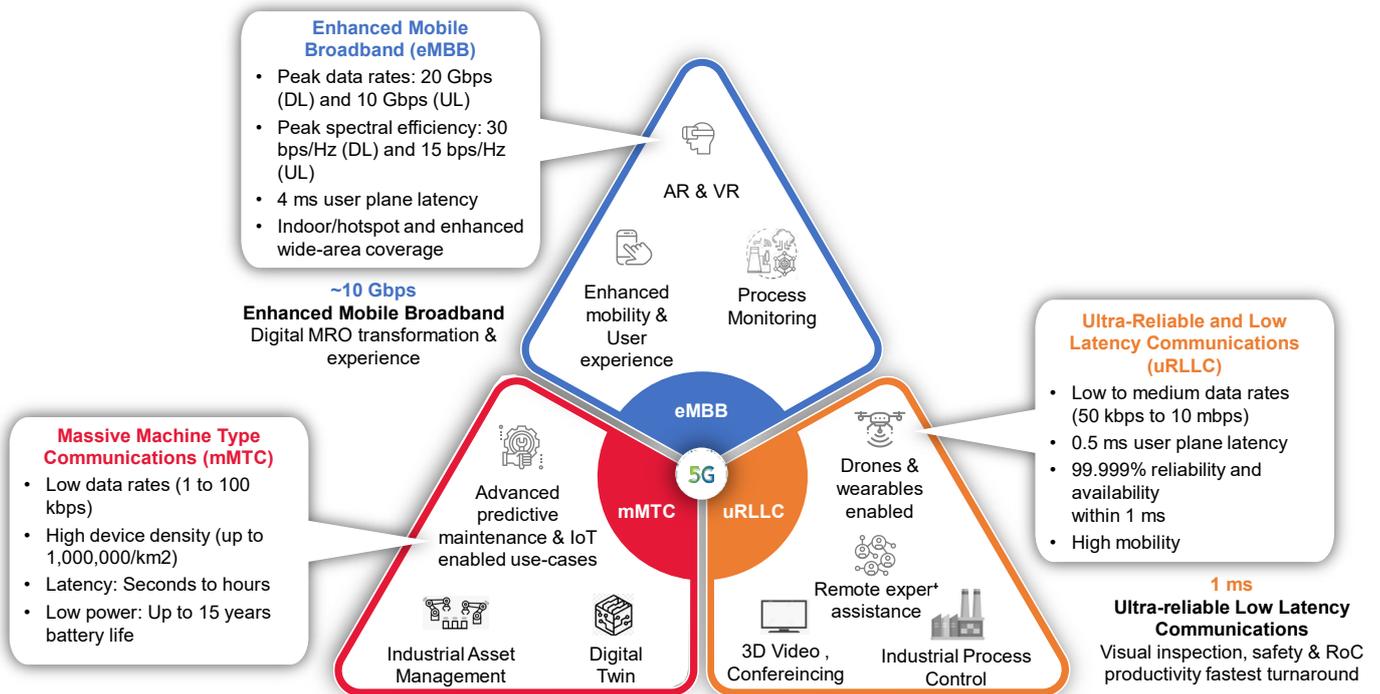


5G provides foundation for unmanned oil production



5G impact on operations & equipment optimization will be \$1.2 – \$3.7 Trillion in 2025

5G for Oil & Gas

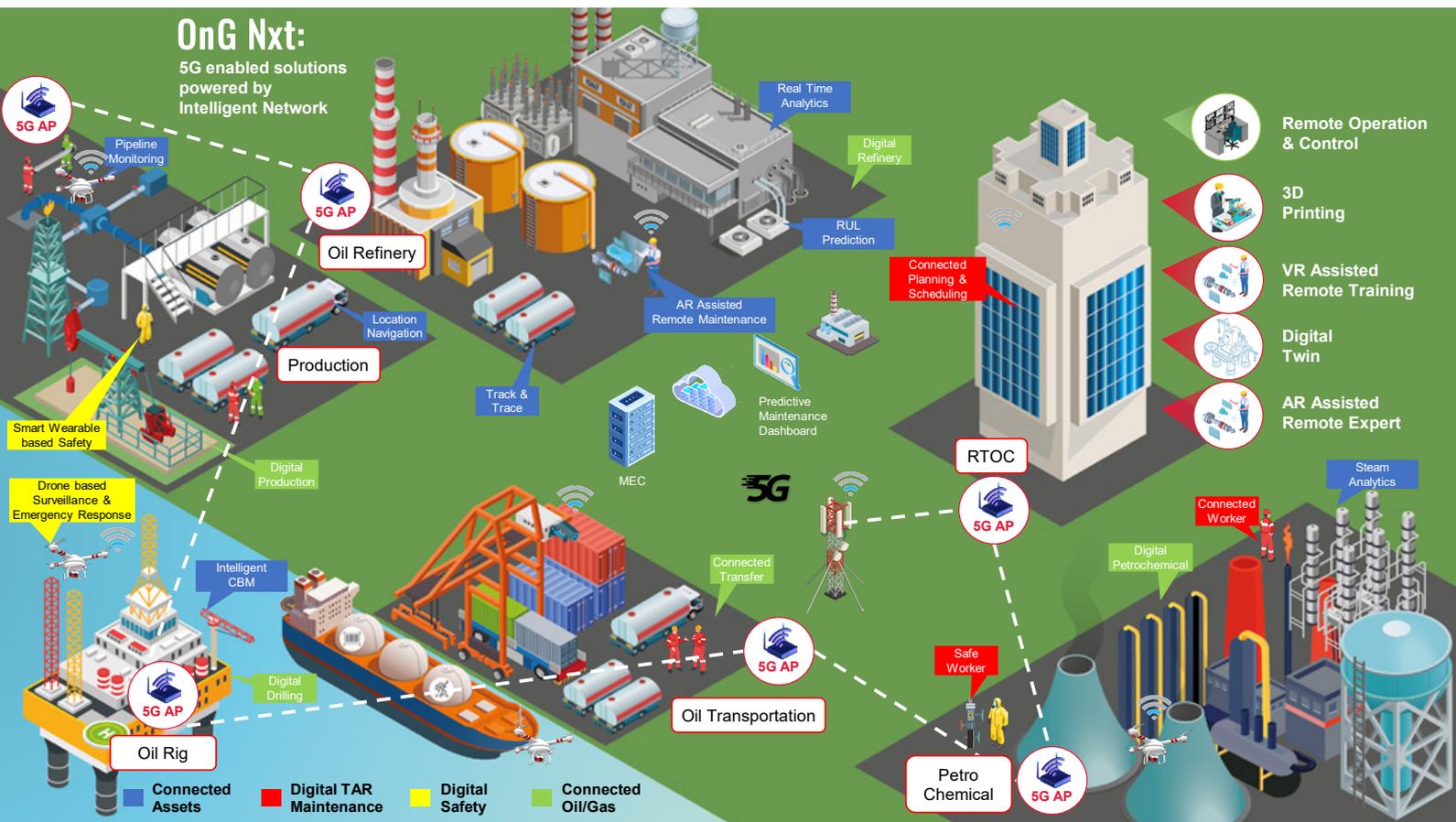


OnG Nxt from Tech Mahindra:

Transforming Oil & Gas Value Chain with prowess of 4G LTE/ 5G and Insights delivered at Multi-Access Edge Compute (MEC)

Tech Mahindra's OnG Nxt with 5G is an end to end pre-integrated portfolio offering that incorporates a 3-tier architecture to shift Intelligence to Edge. With this, OnG players would be better equipped to set up a Private Wireless Network with insights delivered at MEC. With its vast experience in domain powered by network prowess, Tech Mahindra is committed to enabling a digitally connected OnG through portfolio of offerings that includes consulting, private network setup & operations use cases/solutions that drive efficiency improvements, shifting legacy application to 3 tier architecture (edgification) and e2e integration in a partner consortium approach.

OnG NXT Suite offers various portfolio of solutions, with our partner ecosystem, catering to vertical and horizontal needs of the industry:



1. Connected Assets: OnG assets are highly complex, spread over remote areas operating in harsh environments. Massive IoT deployment coupled with immersive experience is expanding the boundaries of managing a network of industrial assets. Offerings in this portfolio are targeted towards improved equipment MTBF and reduce downtime.



Real-Time Remote Asset Monitoring & Anomaly Detection: Provides valuable insights into critical machine health for quicker risk mitigation, improved MTBF, and lesser truck rolls and anomaly detection techniques.



Augmented Reality Assisted Remote Maintenance: Offers increased first-time fix rate, shortened MTTR with easy access to remote experts, and reduced travel cost.



Machine Failure & RUL Prediction: Delivers early warning notification of equipment malfunctions days before failure. Predictive maintenance alert coupled with RUL notification ensures the highest return on critical assets with better inventory planning and higher turnover ratios.



Digital Twin: Suggest real-time virtual replica of physical assets that acquire sensor data from physical assets, processes, and analyzes them in real-time for insights on product performance, operational deviations, etc.



2. Digital Safety: The combination of complex equipment with flammable chemicals makes OnG one of the most Hazardous & Security Risk-prone industries of the world. Technological advancements of smart wearables, drones, visual analytics are expanding the boundaries of managing Safety & Security regulations of the Industry. Offerings in this portfolio are targeted towards improved personnel safety with enhanced emergency response and reduced security risk.



Safe Worker & Emergency Response: Worker analytics based on smart wearables, visual surveillance, etc., provide insights into safe work environment, PPE compliance, fall detection, lone worker, geo location tracing etc ensures early warning of potential hazard.

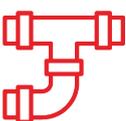


Security Surveillance: UAV assisted automated data gathering & analytics, perimeter surveillance, asset integrity management offer attractive benefit to conventional approaches of manual surveillance.

3. Connected Oil & Gas: Digital transformation is already a fact of life in the Oil and Gas industry. Companies that are embarking on this journey today would be tomorrow's winners. Offerings in this portfolio are targeted towards capitalizing the benefit of enhancing digital capabilities to redefine its boundaries.



Digital Drilling: Real time drilling data and equipment analytics coupled with visualization and control at Remote Operational Control Centre, UAV assisted remote structural inspection reduces non-productive time(NPT) and OPEX in turn.



Connected Transfer: UAV assisted cross country pipeline monitoring and leak detection, real-time Oil volume prediction with automatic transport scheduling, track & trace Oil/gas movements help reduce wait time in queues for Oil pickup, lesser leaks, and reduction in per barrel shipping cost.

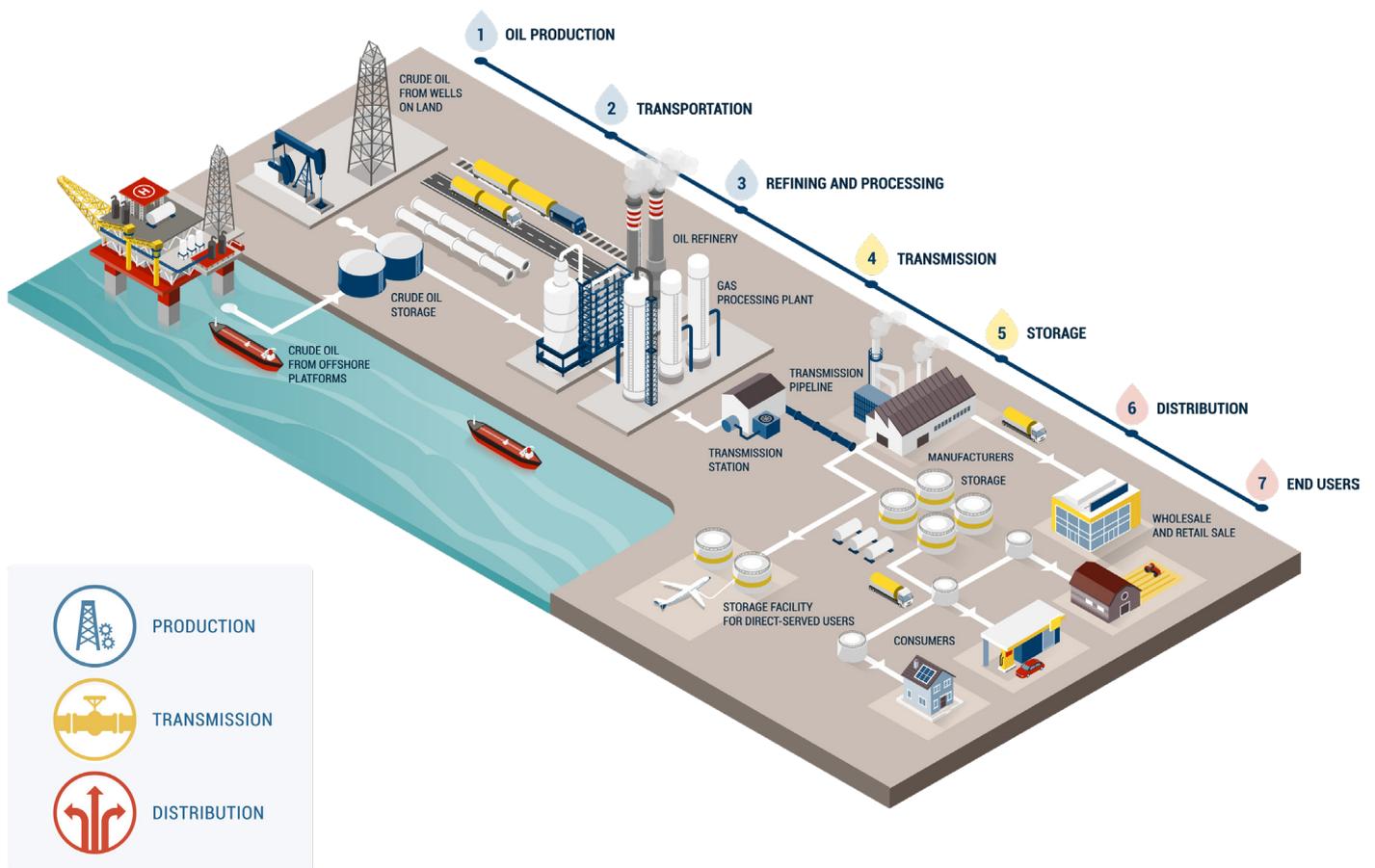


Connected Production: Real-Time Remote Asset Monitoring & Anomaly Detection, e.g., wellhead monitoring, artificial lift monitoring etc., provides insights into critical machine health, improved MTBF that results in savings in total spent with increased accuracy in production forecasting.



Digital Refinery: Predictive analytics on Steam optimization, Energy Management, Predictive Maintenance on critical process equipment along with RUL prediction will help achieve higher output and lesser unplanned downtime.

4. Digital Turnaround: Pre-Integrated digital solutions enabled over a wireless network providing higher transparency and visibility of people and assets post-shutdown, leading to a faster and cost-effective turnaround.



OnG NXt – Catalyzing transformation across Value Chain

Tech Mahindra's OnG NXt suite of solutions & services would help players in the OnG industry unlock people's fullest potential, assets, and operations. In a secure hybrid model with 5G private network and MEC, the solution suite provide improvement for Industry acknowledged KPIs:

20% to 25% Operational Efficiency improvement by increased MTBF



Upto 30% Downtime Reduction by reduced MTTR



10% to 15% Non Productive Time (NPT) reduction by advanced real time analytics



10% to 20% OPEX reduction by lesser manual overheads



Upto 23% reduction in accidents & injuries by improved safety



Upto 40% reduction in travel cost by remote expert assistance



References:



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