Internet of Medical Things (IoMT): Empowering Healthcare with IoT and 5G



Dr Amitabh YADUVANSHI

MD, DM, FACC, FSCAI Head of Cardiology | HOLY FAMILY HOSPITAL

- +917867000051 | +919810794959 t.
- amitabhy@gmail.com
- www.dramitabhyaduvanshi.com
- Holy Family Hospital, Okhla Road, New Delhi 0

Self Introduction

Medical Doctor | Technology Enthusiast

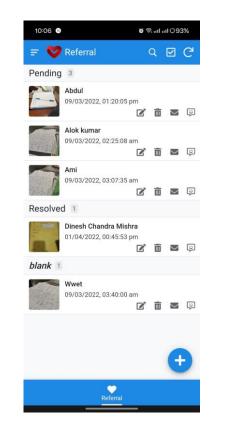




Syncing...

Cardiology Cancel IFH



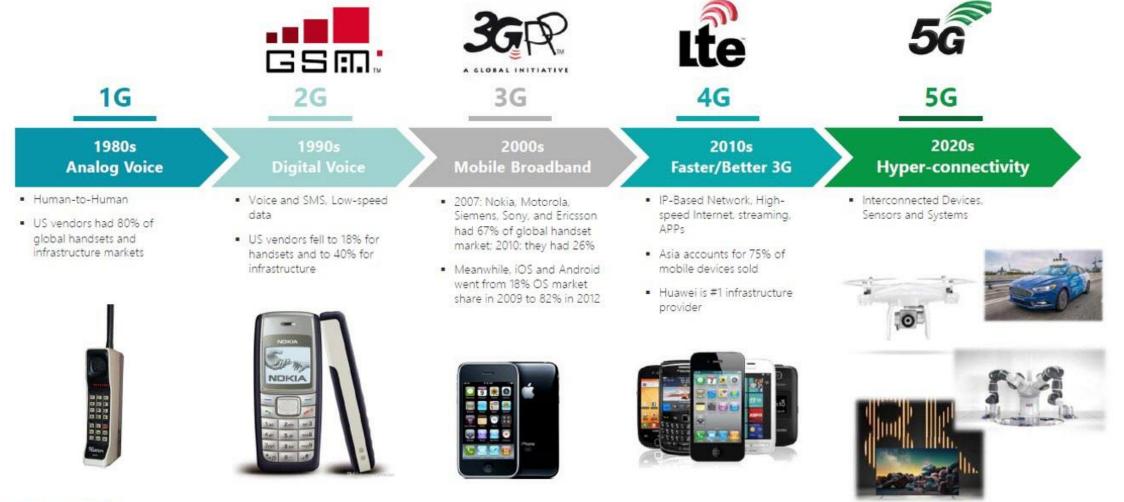






Every new generation of connectivity capability enables fundamental process reinvention

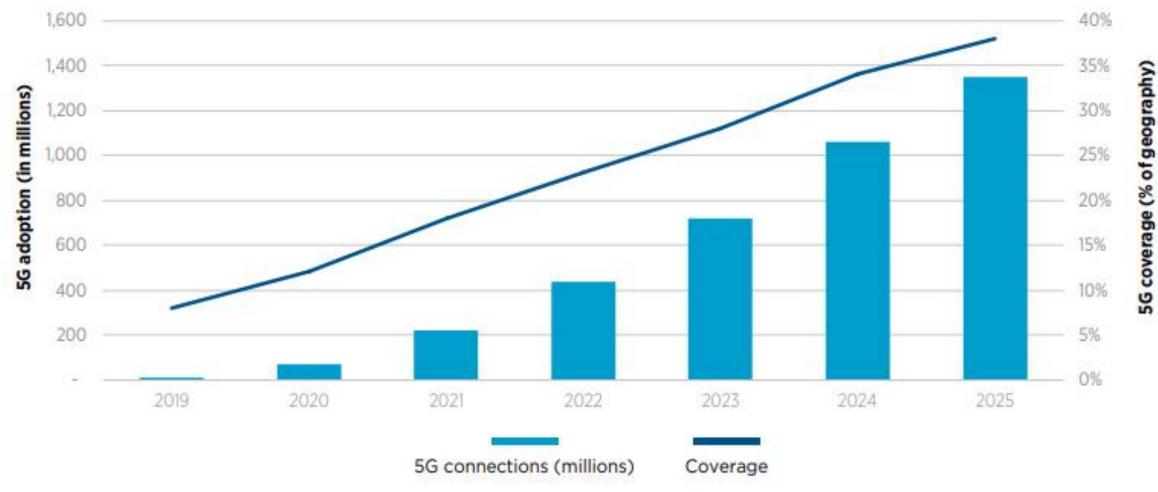
The 5G disruption - from Consumer centric towards Industry & Verticals



Towards \rightarrow 5G

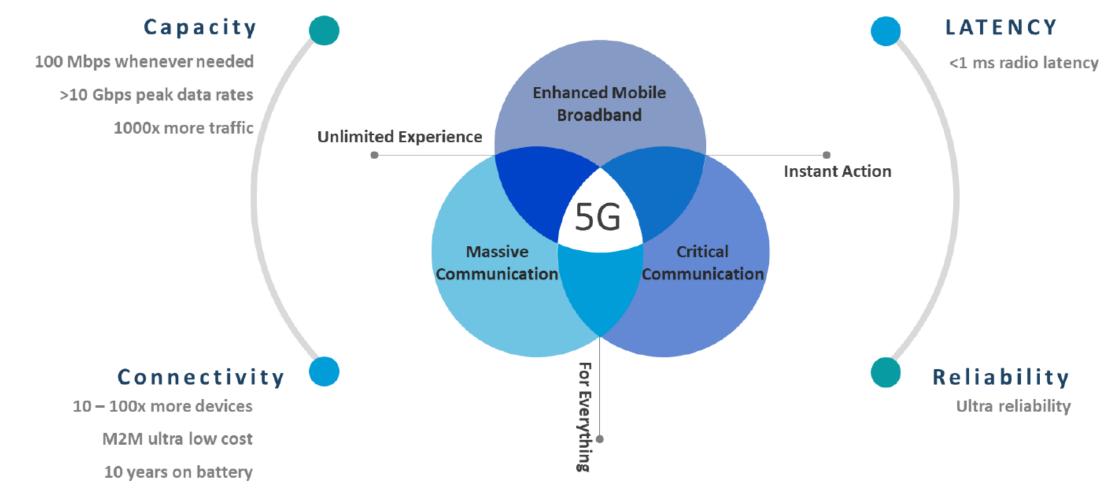


Global 5G coverage and adoption (Source: GSMA Intelligence)



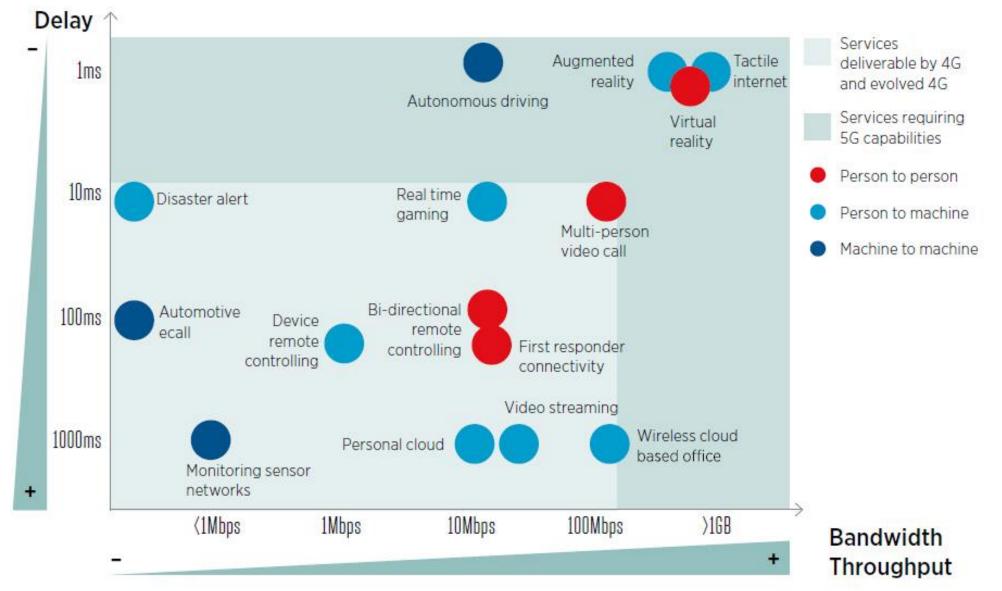
Towards \rightarrow 5G





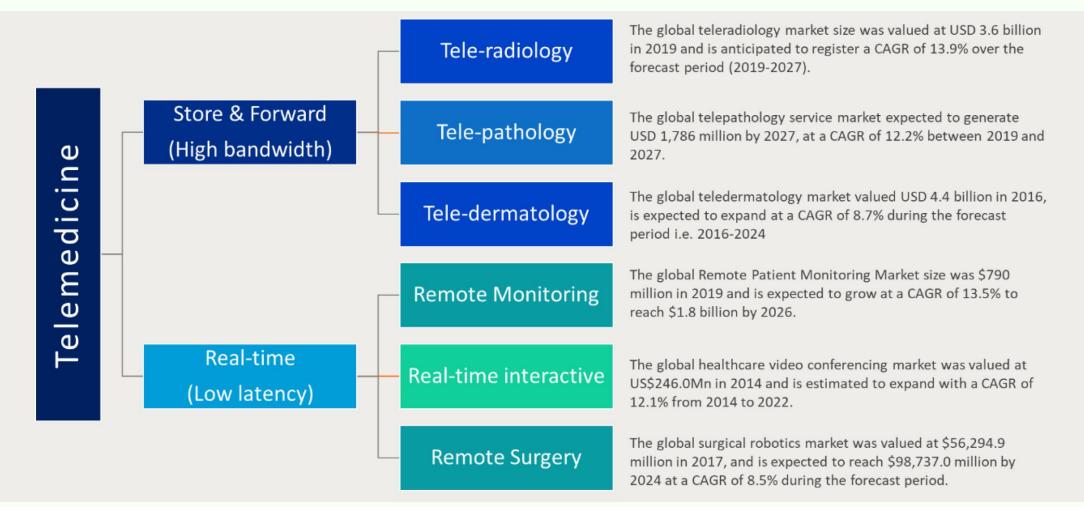
G Motivations





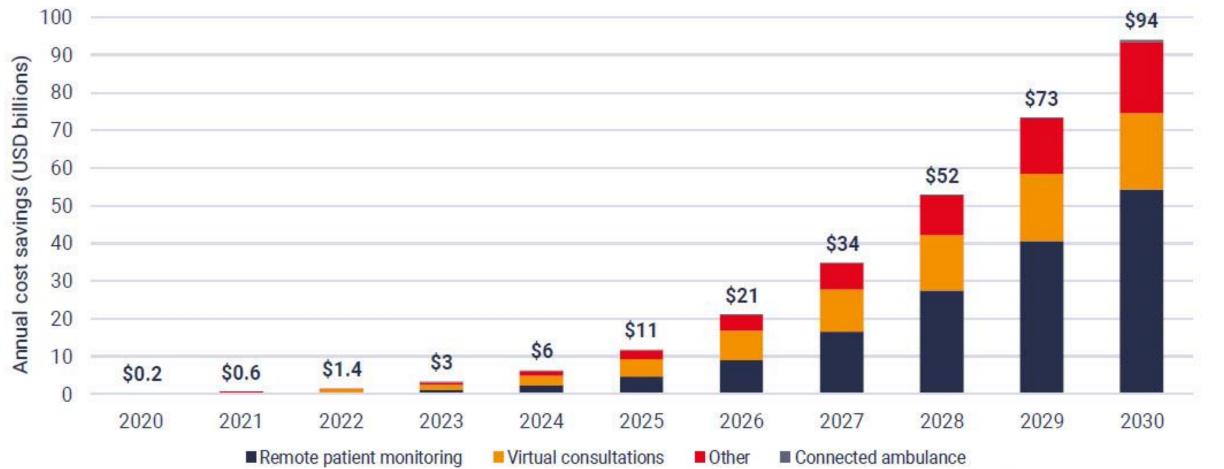
5G & Health





5G & Health

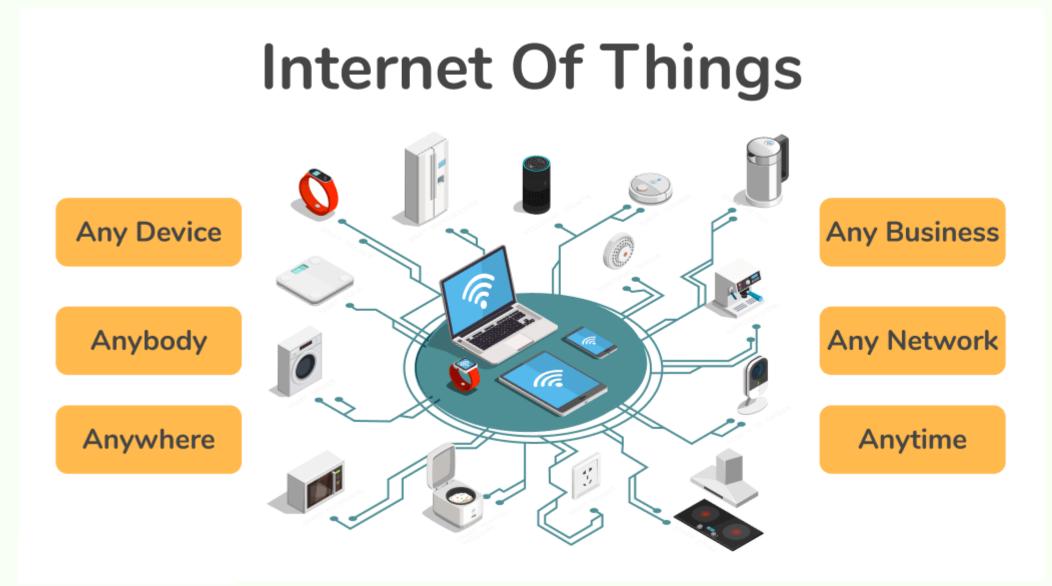




Source: STL Partners analysis

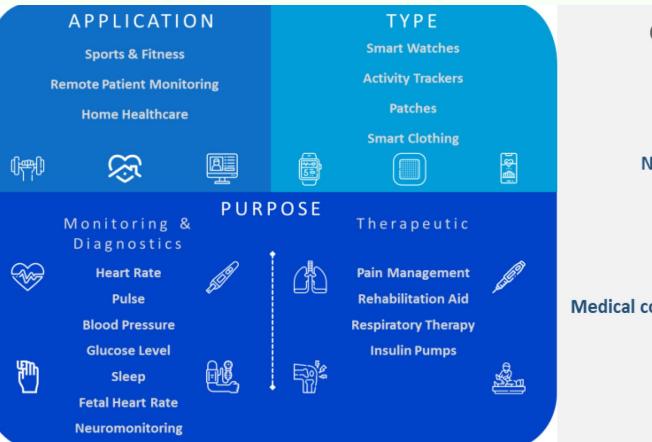
IoMT, 5G & Health





IOMT, 5G & Health





Category-wise Usage of mHealth Apps Across the Globe



5G & Health

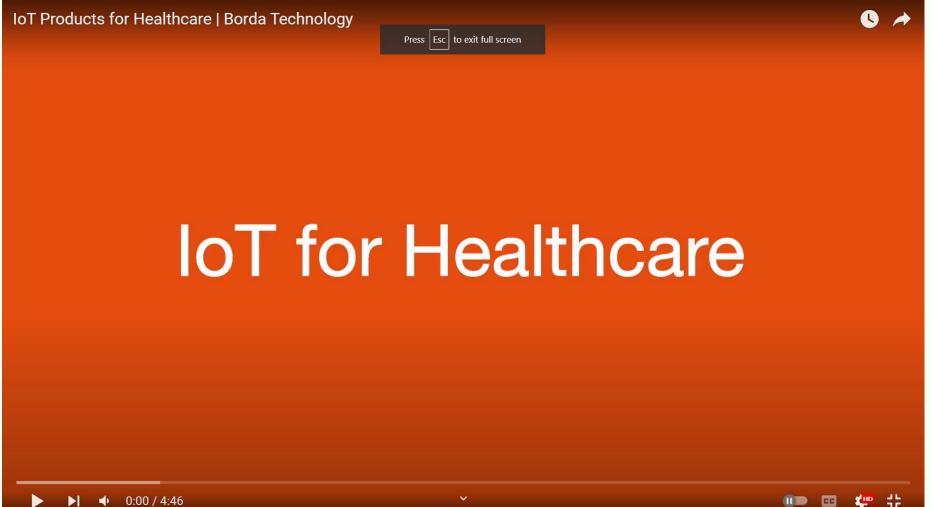




Estimated global impact of remote patient monitoring (2030)

Source: STL Partners analysis, NHS data, NHS England data, STL Partners survey August 2019, World Bank Data

Asset Inventory Management





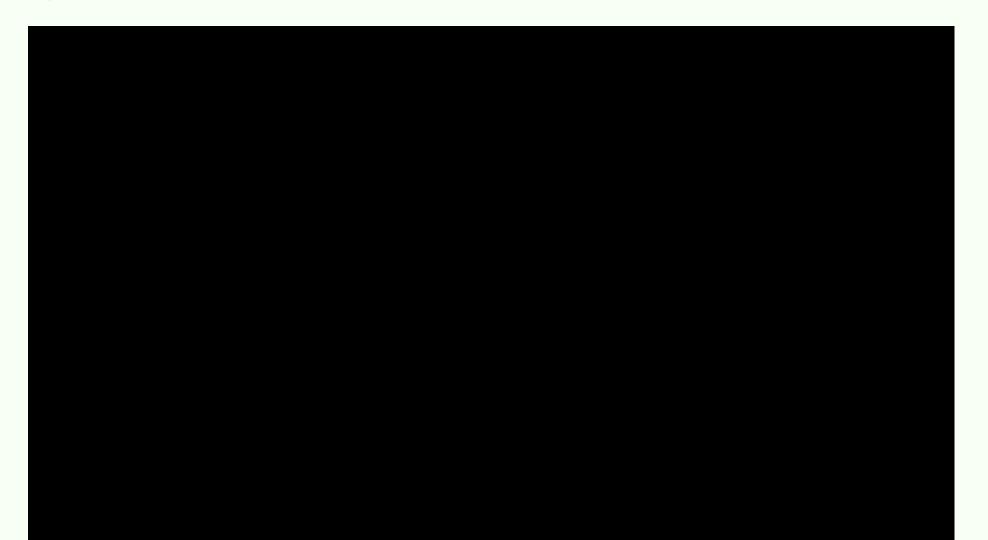


Asset Utilization





Asset Safety





Patient Throughput Management





Patient Safety





THEW DELH

Infant Safety



AFAMILY HOSPITA

Staff Safety





Location-aware Work Demand Management



AFAMILY HOGO ITA

Environmental Monitoring



	Use case			Benefits		Why 5G?
	Advanced predictive maintenance	Using dozens of sensors to give an accurate, real- time representation of the status of a machine to perform predictive and preventative maintenance	⇒	Reduce downtime Reduce spend on maintenance Reduce machine replacement rate	⇒	Capacity Reliability Device costs
B	Remote patient monitoring	Real-time streaming, monitoring and analysis of patient data from e-health devices and wearables	•	Reduce transfer delays Increase hospital throughput Increase emergency turnover	⇒	Device density Bandwidth MMTC
69	Augmented reality	Using augmented reality headsets to train/guide medical professionals, or create an immersive/ purposefully distracting experience for patients	•	Reduce maintenance resources Reduce spend on training Improve patient experience	⇒	Bandwidth Ultra-low latency
.	HD virtual consultations	HD video streaming between doctor and patient (e.g. for a routine appointment) or primary care and specialist doctor (e.g. for a referral appointment)	•	Increase patient throughput Reduce cost of appointments Cut "Did not attend" rates	⇒	Low-latency Bandwidth Reliability
₽ ₽ ₽	Connected ambulance	Real-time streaming of patient data/information (sensors + HD video) between ambulances and the hospital	•	Reduce ambulance handover times Increase emergency department turnover	⇒	Ultra-low latency Bandwidth Reliability
÷ Ņ.	Inventory management devices	Using light 5G sim devices (e.g. smart phone) to scan, track and manage inventory stores in hospitals or pharmacies	•	Reduce inventory costs Increase human productivity	⇒	Device costs Capacity
						Source: STL Partners



- A healthy society makes a healthy world and thus a better future comes with 5G-enabled smart healthcare.
- 5G brings latency low enough to provide real-time information either to deliver live HD video to a paramedic or to enable remote surgery.
- High bandwidth enables doctors to keep in contact with patients or the elderly or to transmit and analyze large data files.
- Reliability and security enhances communication within hospitals and thus 5G technology is set to have a transformative impact on healthcare.



