



**Purposeful.
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Innovation.**

AMD Conference

Engineering the Future: AI
Applications in MedTech

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Oct 28, 2025

L&T and L&T Technology Services Overview



Part of a 36Bn multinational conglomerate involved in Engineering, Construction, Technology, and Manufacturing

SERVICES & SOLUTIONS ACROSS...

- Digital Engineering & Consulting
- Product Engineering
- Manufacturing Engineering
- Plant Engineering

Top 3 Global Pure-play Digital, Engineering and Technology Services Company

- 450+** Global Clients
- 23,600** Employees
- 25+** Countries
- \$1.34 Bn** Q2FY26 Annualised Revenue
- 57** Of Global 100 R&D Spenders as clients
- 1600+** Patents
- 108** R&D Innovation Labs
- 23** Global Design Centers
- 90%** Repeat Biz.

LTTS MedTech

SOLUTIONS

- AiCE, AiCH, AiTest, Chest-rAi*
- Digital Health Platform, Asset Health Framework, S/W Defined Endoscopy

INVESTMENTS

- Labs: nVIDIA Experience Hub, Smart Manufacturing Lab
- IoT Lab, Wet Lab, Imaging Lab
- 263+ Patents, LTTS: 71 (27 AI), Client:192

ECOSYSTEM

- Partnerships: Google, Microsoft, aws, NVIDIA
- Academia: IISc, IIT Bombay, IIT Madras

- 40+ Years in Healthcare
- 10 out of 10 Clients in MedTech
- 450+ Medical Product Development
- 50+ Digital Health Solutions

Recognitions

- LTTS (ISG)
- Rated 'Leader' in MedTech Post-Market Digital Enablement
- Rated 'Leader' in MedTech - Regulatory Compliance, Strategy, and Quality Assurance
- zinnov ZONES ER&D SERVICES
- Rated 'Leader' in the Industry 4.0 Services PEAK Matrix® Assessment 2025 among 30 providers
- AVASANT
- Rated 'Leader' in Digital Engineering Services among 39 providers
- ISG
- 'Leader' in Digital Engineering Services – US 'Leader' in Manufacturing Industry Services and Solutions – Digital Factory and Agile Product Development and Design Services
- HFS Horizons
- 'Leader' in Engineering Research and Development Providers

Agenda

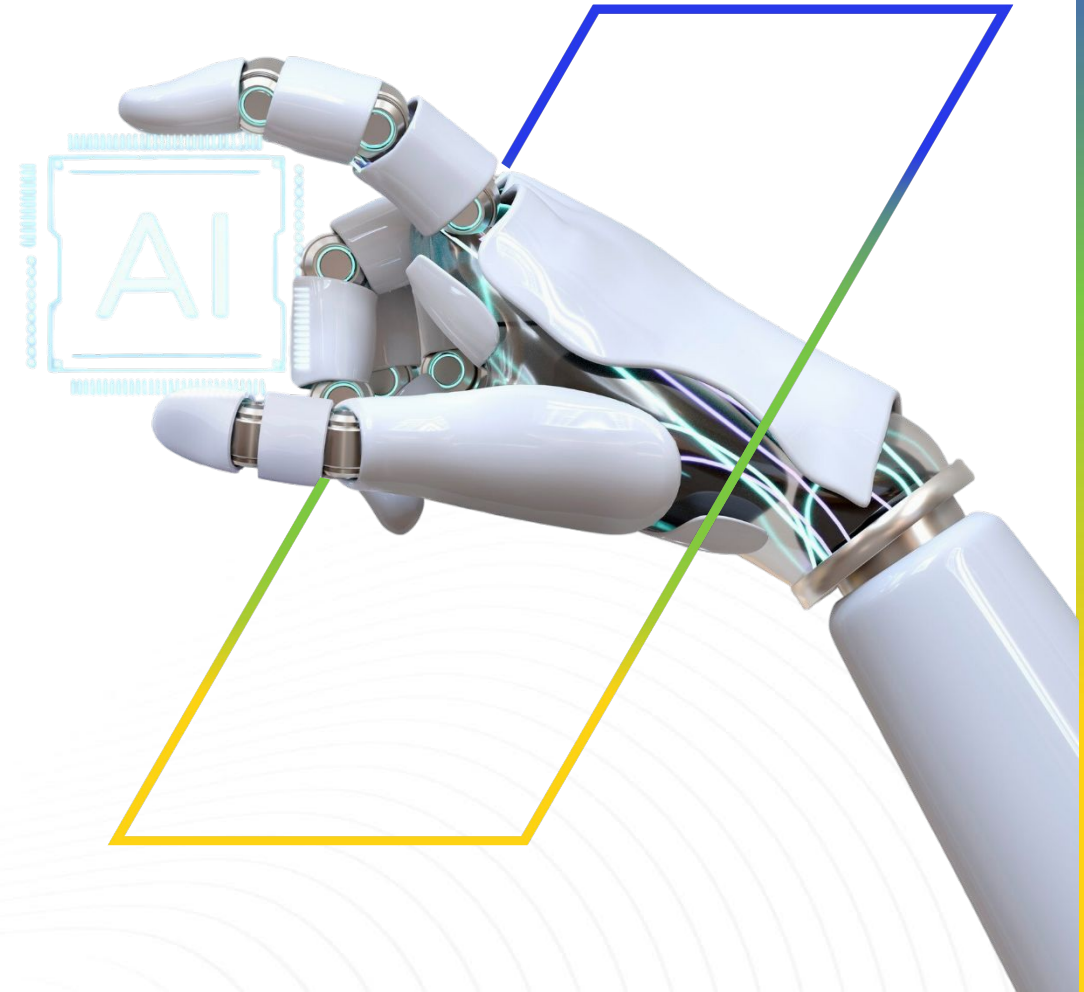
01 AI – Transforming the Engineering Landscape

02 AI Interjections in MedTech

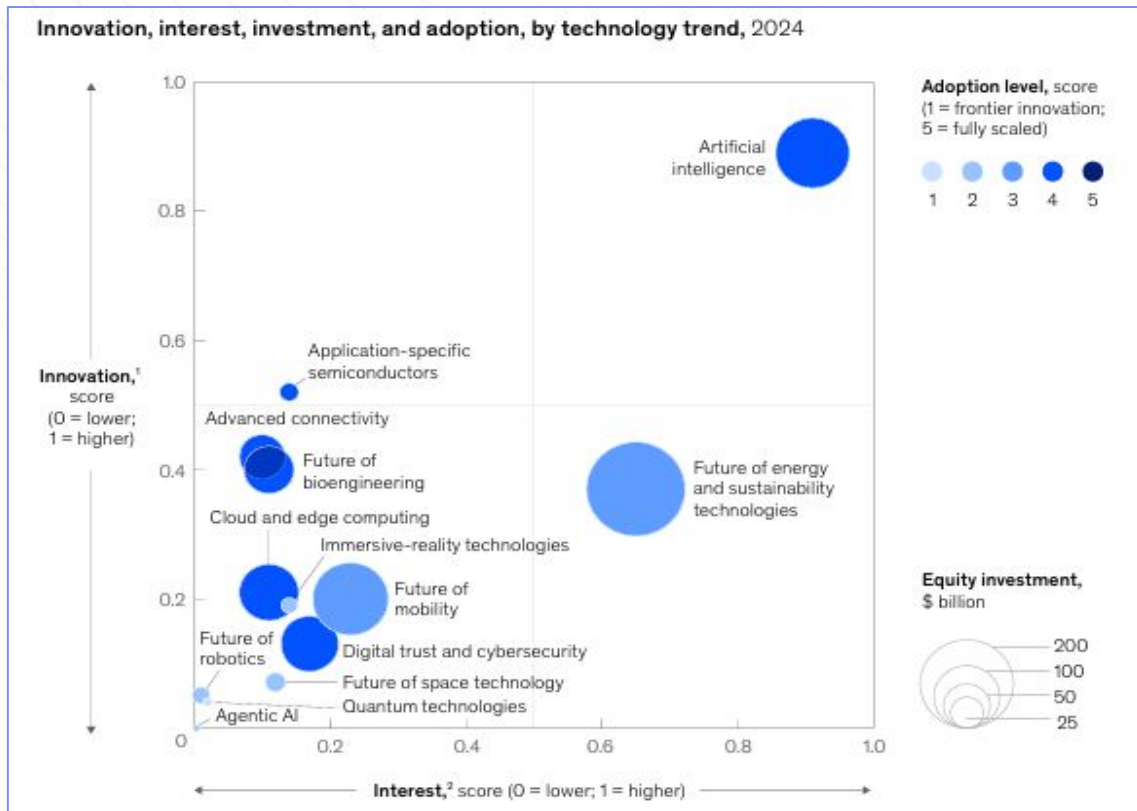
03 POV – AI Role in Business Transformation across domains

- Product Engineering
- QARA
- Digital Health
- Manufacturing

04 LTTTS Solutions for AI in MedTech



AI – Transforming the Engineering Landscape



Facilitate Faster Innovation Cycles

~50% faster product design & ~30% less time to clinical trials



Redefined Workflows & Decision Making

Automate repetitive tasks and quick insights from large datasets



Enhanced Engineering Precision and Quality Assurance

Detect defects with up to 90% accuracy

AI delivering Value across Industry

74%

report ROI within the first year

53%

of those reporting increased revenue estimate gains between 6–10%

51%

noted their average time to market from idea to use case in production is between 3–6 months

Adaptations & Shift in the Ecosystem



AI Integration in core engineering tools



New Engineering Standards and Practices



Human-AI Collaboration Models



Shift towards Explainable AI (XAI)

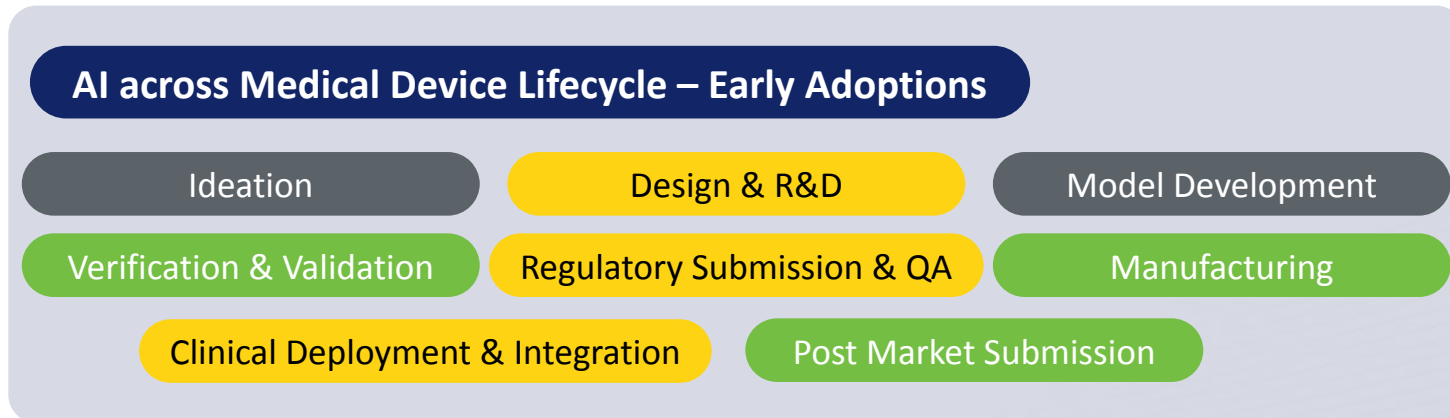
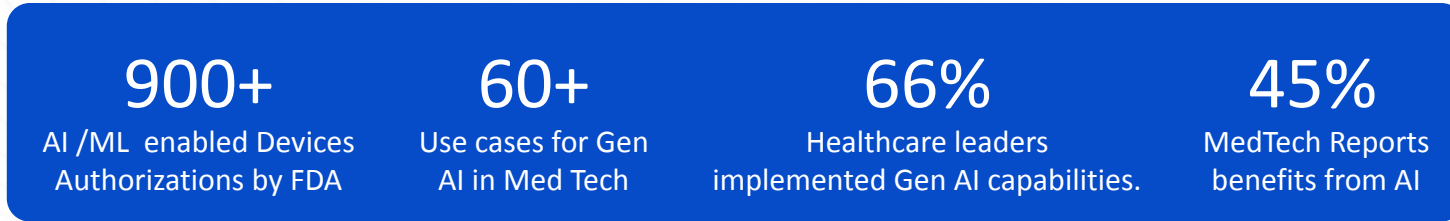


AI driven Product Lifecycle Management



Predictive Quality and Compliance Monitoring

AI in MedTech



AI Adoption High Medium Low

PRODUCT CENTRIC → VALUE-BASED CARE

MedTech OEMs – AI Integration

- Medtronic** GI Genius (endoscopy), MiniMed 780G (diabetes), and robotic surgery platforms,
- PHILIPS** SmartSpeed MRI and CT Precise Image
- J&J** Surgical video analysis & Clinical trial acceleration
- Abbott** AI in diabetes care (FreeStyle Libre) & Cardiac imaging (Utreon)

Source : USFDA, McKinsey, PwC

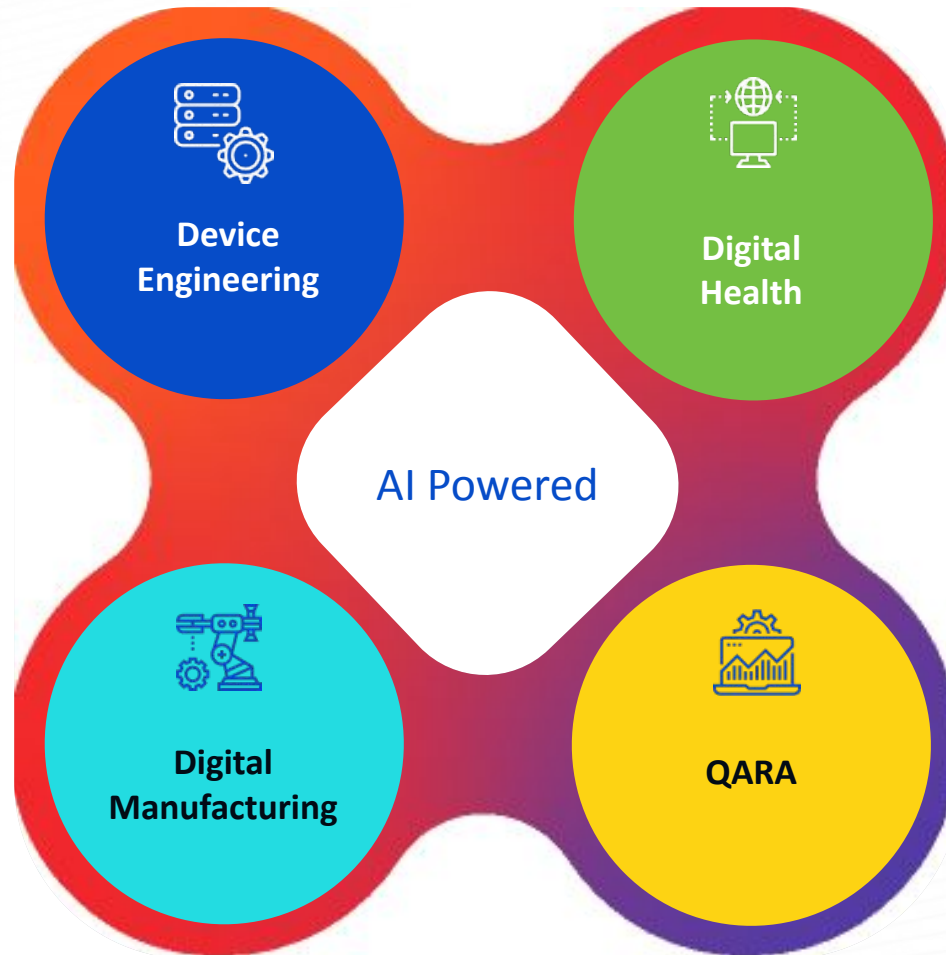
POV – AI Role in Business Transformation across Domains

Embedding AI into Engineering and R&D Workflows

- Accelerated time-to-market
- Reduces design iterations
- Improves innovation throughput

Optimizing Manufacturing and Supply Chain

- Improved operational efficiency
- Reduced downtime
- Enhances product quality



Enabling Digital Health Ecosystems

- Integration of EHRs and wearables
- Smart clinical workflow automation
- Interoperable digital ecosystems

Supporting QARA with AI-Driven Compliance Tools

- Reduces compliance burden
- Proactive post market surveillance
- Speeds up FDA/CE approvals.

AI Role in Device Engineering

AI Adoption

High

Medium

Low



>60%

Med Tech firms adopted AI in R&D



32-35% CAGR

AI Adoption growth in Device Engineering



65%

MedTech firms plan to double AI R&D Investments

Sample Use Case in Product Engineering

Design, Development

Automated Code Generation and Documentation

Automated Verification

Code Security Review and Bug Detection

Simulation with Digital Twin

Mass Product Customization or Configuration

Optimized Design for 3D Printing

Products & Services

Diagnostic Image Enhancement & Analytics

Health Assistants (including Mental Health)

Improved Interoperative Guidance

Automated Medical Documentation

Synthetic Data Generation

Product Health Monitoring



Accelerating Innovation Cycles

- Generative design agents.
- Simulations with digital twins.
- Faster design validation and risk analysis.



Enhancing Design Intelligence

- Informed design decisions.
- Optimize device ergonomics, usability, and biocompatibility
- Medical devices tailored to patient population



Collaborative Engineering Ecosystems

- Collaboration across product lifecycle
- Integration of feedback into design updates.
- Coordinated ecosystem between OEMs, suppliers, and service partners.



Challenges

- Talent and Change Management gaps
- Data integration and governance
- Lack of cohesive AI strategy

Source : McKinsey & Others

AI Role in QARA

AI Adoption

High

Medium

Low



~40%

Pilot to Scaled AI deployments by 2026



25 – 28% CAGR

AI Adoption growth in QARA



\$3 – 4 Bn

Segment by 2032



Intelligent Quality Management

- Prevent quality issues
- Automate CAPA workflows.
- Proactive quality assurance.



Autonomous Regulatory Compliance

- Proactive monitoring of global regulatory needs
- Automating documentation needs
- Smart gap analysis



Proactive Post-Market Surveillance

- Early detection of adverse events
- Automated Complaint Handling
- Predictive modeling for recalls.
- Automating regulatory reports and audit trails.

Sample Use Cases in QARA

Quality	Regulatory	Post Market Surveillance
Real-Time Quality Monitoring Agents	Regulatory Intelligence Agents	AI Based Complaint Handling
AI-Powered Risk Management	Automated Submission Drafting	Field Data Analytics Bots
Clinical Evaluation Reporting	Labeling and IFU Compliance Bots	Automated CAPA (Corrective and Preventive Actions)
AI-Driven Document Validation	Smart Gap Analysis Tools	Predictive Quality Analytics
Autonomous Audit Preparation	Regulatory Reporting Automation	Voice of Customer Intelligence Agents



Challenges

- Compliance uncertainty under evolving FDA and EU rules.
- Low deployment maturity
- Limited transparency and explainability of AI Models

Source : McKinsey, Precedence Research & Others

AI Role in Digital Health

AI Adoption

High

Medium

Low



45%

Of new MedTech innovations by 2030



36-40% CAGR

AI Adoption growth in Digital Health (2034)



AI Driven Diagnostics & Imaging

- Anomaly detection
- Tailored diagnostic
- AI integration for task automation



AI Enabled Remote Monitoring & Connected Devices

- Early warnings & proactive interventions
- AI powered remote diagnostics tools
- Health data and insight with AI-powered apps



Gen AI for Clinical Decision Support & Documentation

- Automated clinical notes
- AI based Clinical recommendations

Use Cases in Digital Health

Patient Engagement & Experience	Data Management & Interoperability	Digital Therapeutics & Care Delivery
Virtual Health Assistants	Real-Time Data Mapping & Integration (Interop.)	Digital / Robotic Surgery
Personalized Nudging Systems	Digital Patient Journey Twin	Predictive Health Risk Modeling
AI-Powered Appointment Scheduling	AI Based Clinical Data Harmonization	Behavioral Health Coaching Bots
Remote Monitoring & Alerting	Secure Data Exchange Agents	Genomics-Informed Treatment Planning
Patient Sentiment Analysis	Data Quality & Integrity Monitoring	SaMD



Challenges

- Fragmented Health IT ecosystems
- Multi-jurisdiction data privacy laws
- Trust with Clinicians & Patients

Source : Grandview research, IndiaAi and others

AI Role in Digital Manufacturing

AI Adoption

High

Medium

Low



20%

Reduction in production costs with Predictive Maintenance & Process Control



28 - 30% CAGR

AI Adoption growth in Digital Manufacturing 2023-2035

Use Cases in Manufacturing

Production

AI Guided Efficiency Improvement

AI Guided Assembly Assistant

Digital Twin For Flexible Production

End Of Line Test Automation

AI Assisted Scheduling

Maintenance

GenAI Virtual Assistant

Energy Analytics & Resource Management

Dynamic Maintenance Checklist

Predictive Maintenance

Connected Factory

Supply Chain & Aftermarket

Supply Chain Process & Planning

AI Enabled Inventory Optimization

Supplier Quality Monitoring

Demand Forecasting & Planning

Real-time Sales & Ops Dashboarding (S&Op)

RFQ Assistance



Predictive Maintenance and Machine Health Monitoring

- Sensor-based Machine performance tracking
- Potential Breakdown identification
- Reduced downtime & Optimization



Intelligent Quality Control and Inspection

- Automated Visual Inspection
- Real-Time Quality Feedback
- Traceability and Audit Readiness



Adaptive and Autonomous Manufacturing Systems

- Equipment adaptation to change
- Manufacturing workflow optimization
- Real time guidance and decision-making



Challenges

- High capital expenditure for AI-enabled robotics and sensor systems
- Legacy IT infra and outdated equipment
- Data quality and inconsistent data capturing

Source : ResearchAndMarkets & others

LTTS AI Based Solutions across Engineering Spectrum

■ MVP ■ POC
■ Concept ■ Benefits

70+ | Production Programs
 195+ | AI Agents
 216 | AI Patents
 30+ | AI / Gen AI Solutions

PLx AI	Scalable, Secure AI use case development & deployment platform		40% reduction in product launch timelines.		40% Cost Savings :: AI Based Solution for Clinical Evaluation Reporting	AiCE *
GenIQ	Rapid GenAI Development Platform Simplifying Integration of GenAI into Existing Workflows		AI Based Solution for Clinical Evaluation Reporting		AiCH *	
SecureAI	Framework for Securing AI model development environment		AI-driven Test Development for Apps & Devices across the Test Lifecycle 70% Return on Investment		AiTEST	
	Coding assistant AI Tool that suggests code in real-time		AI Based Solution for: Material Screening (PFAS and Others) Material Test Report Validation		Material Testing	
EdgeAI	Framework for AI Model Optimization for Edge Deployment					
Stent Graft Quality Check	Computer vision-based solution to check the quality inspection of stent grafts			AI assisted Chest X-ray Analysis Radiology Solution	Chest rAI #	
ASSET HEALTH FRAMEWORK	Decision Support for Manufacturing Copilot			AI Based Suite for Visualizing & Navigating anatomical Structures (Bronchial Segmentation)	AiVIZ	
ENERGY MANAGER #	AI Driven Energy Analytics to improve energy efficiency of assets/systems			Embedded AI solution for non-invasive, cuffless BP measurement using ECG & SPO2	Health Index Predictor	
LINE OPERATION TWIN	Performance & Prediction of Line Operations			Real time video processing with latency < 15 milliseconds :: AI-accelerated Smart Endoscopy; LTTS NVIDIA partnership	SDE	
AnnotAI	Annotation Tool provides flexibility to choose the most appropriate annotation shape for the specific use case(s)			LTTS ASR reporting tool offering a test Automation Platform & document generation	ASR	

LTTS AI Partnerships



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Thank You