

MEDICAL DEVICES

Engineering Connected
Healthcare





PARTNER WITH US TO ADDRESS DISRUPTIONS

DIGITAL



Shift to Homecare



Combination Products



Servitization

REGULATORY

Impact of EU – MDR / IVDR Regulations.

On EU Medtech eco-system until end of 2020

USD 18.8 Bn

Incremental Operation Costs

FTE 31,500

Incremental Need of GA Experts

-4%

Average Bottom-Line Impact

EMERGING MARKETS



Growing at ~9%, 2x compared to ROW



Low cost competition



Large Value Segment



A STRONG FOUNDATION



Heritage

30+ years of L&T's
Medical product
development expertise



Innovation

90+ Patents generated
for MedTech clients



Infrastructure

20+ Labs supporting
innovation, research, and
development



Expertise

60 Million man-hours of
experience in medical device
engineering



Customer Base

Top 7 out of 10 MedTech
giants



Turnkey Capability

**Concept to
Commercialization**
Rapid prototyping to
Manufacturing handover

NEW PRODUCT
DEVELOPMENT

VALUE
ENGINEERING

MANUFACTURING
ENGINEERING

DIGITAL

REGULATORY

SOME SEGMENTS WE COVER



In Vitro Diagnostics



Surgical & Therapeutic Devices



Ophthalmology



Patient Mobility



Diagnostic Imaging



Orthopedics & Implants



Patient Monitoring



Digital Health



DIGITALIZE MEDICAL DEVICES



WHAT WE OFFER

OUR OFFERINGS



**SMART PRODUCTS
& SERVICES**



**SMART
MANUFACTURING**



**SMART
OPERATIONS**

OUR CAPABILITIES



Sensor and Connectivity
Development



Cloud, Mobile and
AR Apps



Engineering
Analytics



Security- vulnerability
assessment, remediation
and testing



IoT Platform
Development



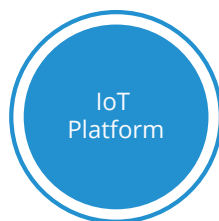
Gateway/Edge
Computing

OUR SOLUTIONS



Artificial
Intelligence
Solution

AiKno®



IoT
Platform

UBIQweise 2.0™



Condition
Based
Maintenance
Solution

Avertle®



Smart
Building
Solution

i-BEMS®



CONTRIBUTED TO 100+ SUCCESSFUL PRODUCT LAUNCHES



Ultrasound Scanner - NPD

- Display of ultrasound image and ECG waveforms enabled on a single screen
- A magic button in the user interface screen incorporated to restore the image settings in real time
- Scalable design to accommodate 64 and 128 channel beamformer
- Cost competitive product developed at a reduced cost



Chemistry Analyzer for Measuring Biomolecules in Body Fluids

- Met target of 25% BOM cost reduction, compared to imported products
- Optimized design for mechanicals and hardware
- Reduced design cycle time through 'Model-Based Design'



Linear Surgical Stapler for Emerging Markets

- 9 co-patents generated
- Capability of 200+ sterilization cycles with 99% reusability due to disposable cartridge
- Reduced procedure cost by nearly 70%
- Reduced part count by 32%



Customizable Knee Implant Design

- Designed 3D customizable implants from 2D CT Images for 3D printing
- Submitted proposal for AI techniques to improve quality of implants
- Ensured 6 hours of turnaround time for each implant

PROFESSIONAL
MEDICINE
DOCTOR
HOSPITAL
HEALTH CARE
EMERGENCY
NURSE
SURGEON



MEDICINE



MEDICAL

POWERING CONNECTED HEALTH



Connected Devices

Next-Gen Platform for Device Monitoring, Management, and Monetization

- Single platform to track and monitor multiple devices across multiple facilities
- Predictive maintenance and analytics on usage patterns
- Servitization of assets and central usage patterns



Connected Patients

Smart Inhaler for Asthma and COPD Patients

- IoT enabled smart device with complete integration of sensors, connectivity, cloud and mobility
- Remote monitoring and diagnosis of patients
- Development on iOS and Android platforms



Connected Hospitals

Smart Hospital Beds for Remote Monitoring and Management

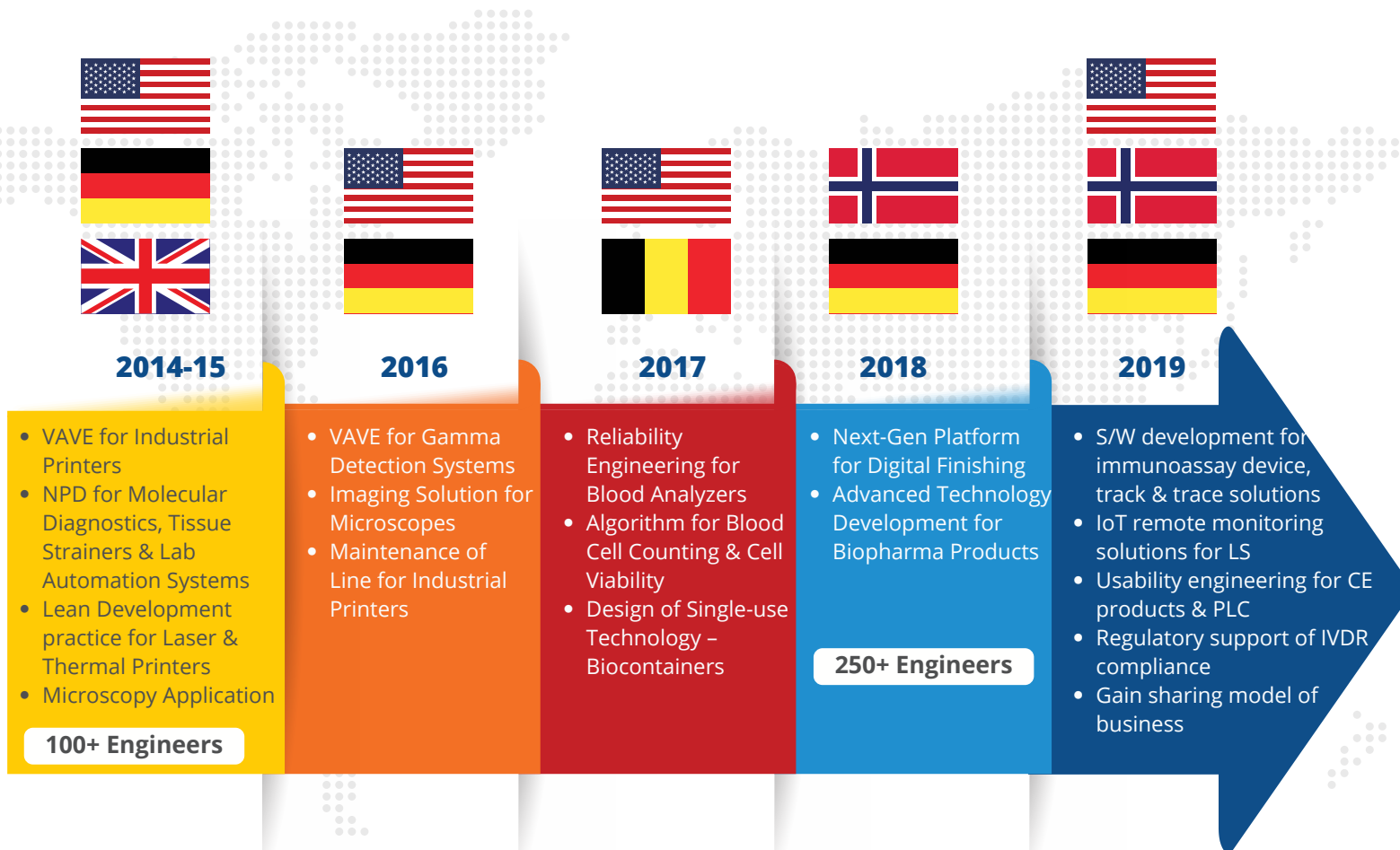
- Remote monitoring and operation of hospital beds
- Edge analytics on patients' vital signs for anomaly detection
- Software application stability under 150 different test scenarios



Airway Clearance Therapy

- Web based application that connects to a Therapeutic system for Cystic fibrosis
- Therapy data collected from the device used for insight and data visualization
- The therapy progress shared with Patient, Care giver, Healthcare professional
- HIPAA enabled

SCRIPTING SUCCESS FOR A MEDICAL SCIENCE & TECHNOLOGY GIANT



HIGHLIGHTS

- 16 Patents Filed
- 10+ New Products
- \$13 Million+ Savings through VAVE in 3 years



ENGAGEMENT

- New Product Development
- Value Engineering
- Sustainability Engineering
- Reliability Engineering
- Manufacturing Engineering

OUR LEGACY

1987

- L&T Medical established

2002/03

- L&T EmSys Medical Services established
- L&T Medical receives US FDA for PMS

2005/06

- L&T EmSys wins first order from leading MedTech firm

2012

- Imaging CoE & Lifesciences practice established
- L&T Medical sells manufacturing to Skanray retaining the design group
- Established engagements with more than 15 MedTech companies

2011

- Practices for Histopathology, Dental, Surgical, Diagnostic and Therapeutic established
- Engagements with top 5 MedTech companies

2009

- Emsys & GES merge to form L&T IES

2013

- Patient Mobility, Musculoskeletal & Surgical services practice established
- IEC 60601 -1 3rd edition compliant products design

2015/16

- Dedicated design & development labs in Bangalore established
- QARA practice established
- WET Lab facility started
- Achieved engagement with 30+ MedTech companies

2018-19

- Engagement with 40+ leading medtech firms and 3 out of top 5 R&D companies
- New practices established -
 1. Robotic Surgery
 2. IVDR-MDR
 3. Compliance & Labeling management
 4. Partnership established with Philips for HSDP



L&T Technology Services



ENGINEERING THE CHANGE

