



# ENGINEERING RESEARCH & DEVELOPMENT SERVICES (ER&D)

"Co-engineering the Future with Our Partners"





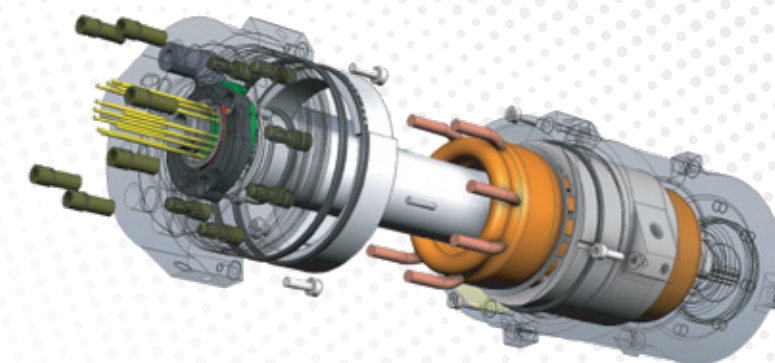
*"A Globally Focused, Pure-play  
Indian Engineering R&D Company"*

At KOOT, we are driven by a passion to engineer smarter, sustainable solutions that empower our customers, employees, and communities to thrive.

As a technology-focused engineering company, we foster a culture of collaboration, continuous learning, and innovation. Our commitment to precision, creativity, and a proactive mindset enables us to co-engineer the future.

Guided by our people's expertise and grounded in integrity and fairness, we relentlessly pursue excellence to deliver the best outcomes and exceptional customer experiences.

It is this unwavering dedication and shared purpose that fuel KOOT's mission for inclusive, sustainable growth and meaningful impact worldwide.



## KOOT AT A GLANCE

**22+**  
Global Clients

**550+**  
Employees Across the Group

**4+**  
Global Innovation Centres

**11+**  
R&D and Testing Labs

**2000+**  
Engineering graduates from Diverse  
disciplines readily available from the  
Group's technical university





# WHO WE SERVE

"With Expertise Spanning Multiple Industries,  
We Deliver Customized Solutions"

- |   |  |  |   |
|---|--|--|---|
|  Aerospace & Defence             |  Mining                                 |  Healthcare & Life Sciences |  IT & Technology       |
|  Automotive & Mobility           |  Oil & Gas                              |  Machinery & Equipment      |  Transportation        |
|  Aviation                      |  Forest Products<br>Paper & Packaging |  Media & Entertainment    |  Metals              |
|  Construction & Infrastructure |  |  |  Industrial Goods    |
|  Consumer Products             |  |  |  General Engineering |
|  Energy & Natural Resources    |  |  |  Pumps & Valves      |
|  Utilities & Renewables        |  |  |  Agri Equipments     |





# WHAT WE DO

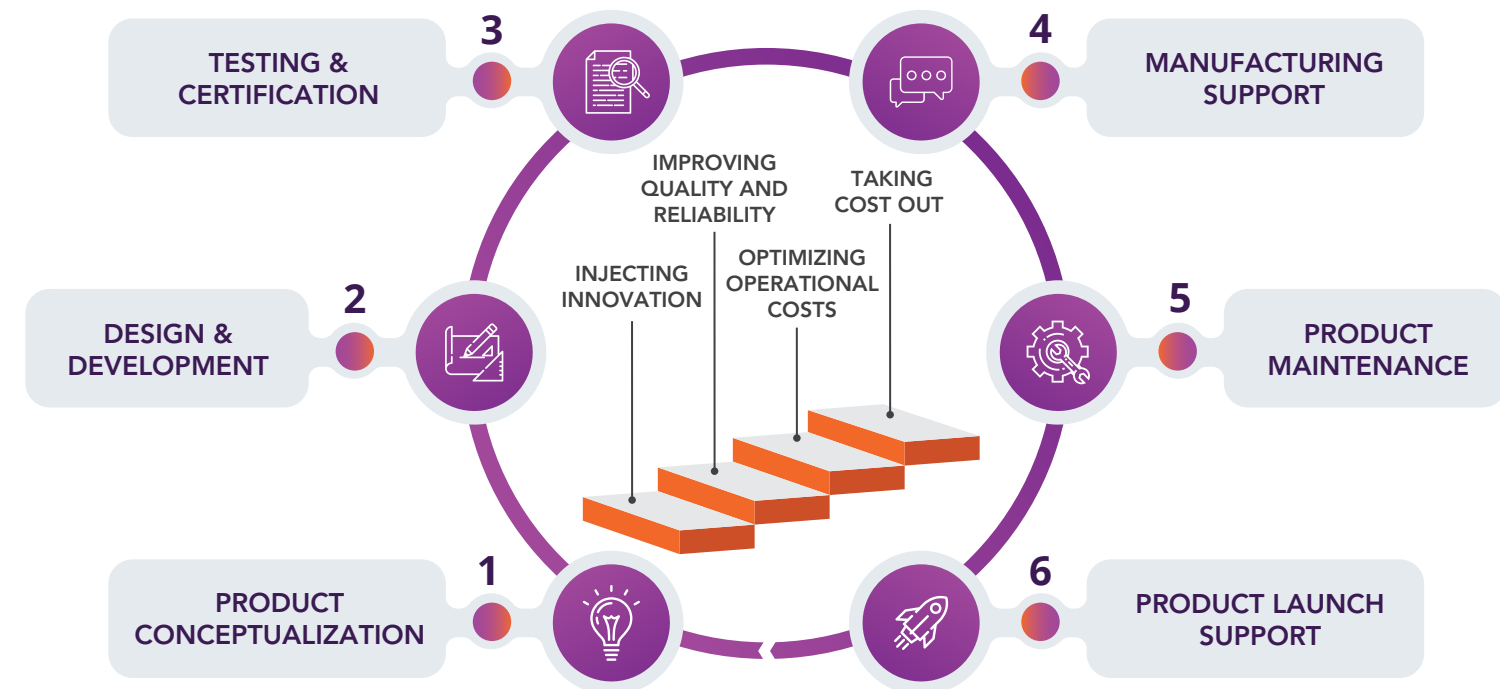
## ER&D Services for



# COMPREHENSIVE ENGINEERING ACROSS THE PRODUCT DEVELOPMENT LIFE-CYCLE

## From Conceptualisation to Final Product Support

A complete suite of services ensures seamless integration across the entire Product Development Life-cycle (PDLC)



REDUCE R&D COSTS

ACCESS GLOBAL ENGINEERING TALENT



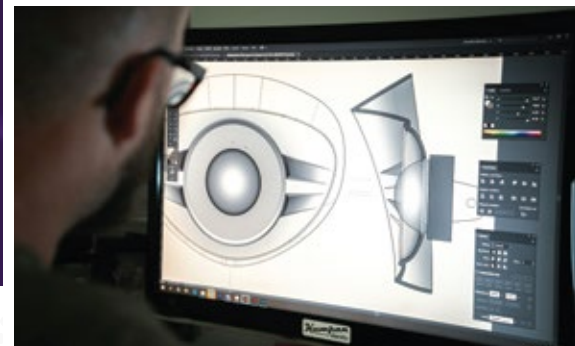
ACCELERATE TIME-TO-MARKET

INNOVATE SMARTER AND FASTER





# WHAT WE DO



## PRODUCT ENGINEERING

- Concept Design
- 3D Modeling (CAD)
- Detailed Engineering Drawings
- Design for Manufacturing (DFM)
- Design for Assembly (DFA)



## ELECTRICAL + ELECTRONICS & SOFTWARE DEVELOPMENT

- Sensor Integration & Real-Time Systems
- Product Software Architecture
- HMI (Human Machine Interface) Development
- Electrical Design



## PROTOTYPING

- 3D Printing
- CNC Rapid Prototyping
- Functional Mockups
- Design Validation



## VALUE ENGINEERING

- Cost Optimization
- Design Simplification
- Material Substitution
- Performance Improvement



## REVERSE ENGINEERING

- Recreating designs from physical products
- Scanning and digital modeling
- Benchmarking and improvement



## TESTING & VALIDATION

- Mechanical Testing
- Electrical Testing
- Compliance & Certification (CE, UL, RoHS, etc.)
- Field & Lab Testing



## SUSTENANCE ENGINEERING

- Product Upgrades
- Technical Documentation
- Spare Part Design
- ECO/ECR Management (Engineering Change Orders/Requests)



## SIMULATION & ANALYSIS

- Finite Element Analysis (FEA)
- Computational Fluid Dynamics (CFD)
- Thermal & Structural Analysis
- Vibration & Fatigue Analysis



## EMBEDDED ENGINEERING

- Embedded Hardware Development
- Embedded Firmware Development
- IoT Solutions
- Control Systems
- PCB Design & Layout



## PLANT & PROCESS ENGINEERING

- Tool Design
- Jig & Fixture Development
- Automation & Robotics Engineering
- Process Optimization
- Materials Technologies



## DIGITAL ENGINEERING

- Digital Twin
- AR/VR for Product Engineering
- PLM Integration (Product Lifecycle Management)
- Cloud & Edge Engineering





# ADVANCED DESIGN, PROTOTYPING, TESTING & VALIDATION FACILITIES

**“Accelerate innovation  
Without Building from Scratch”**

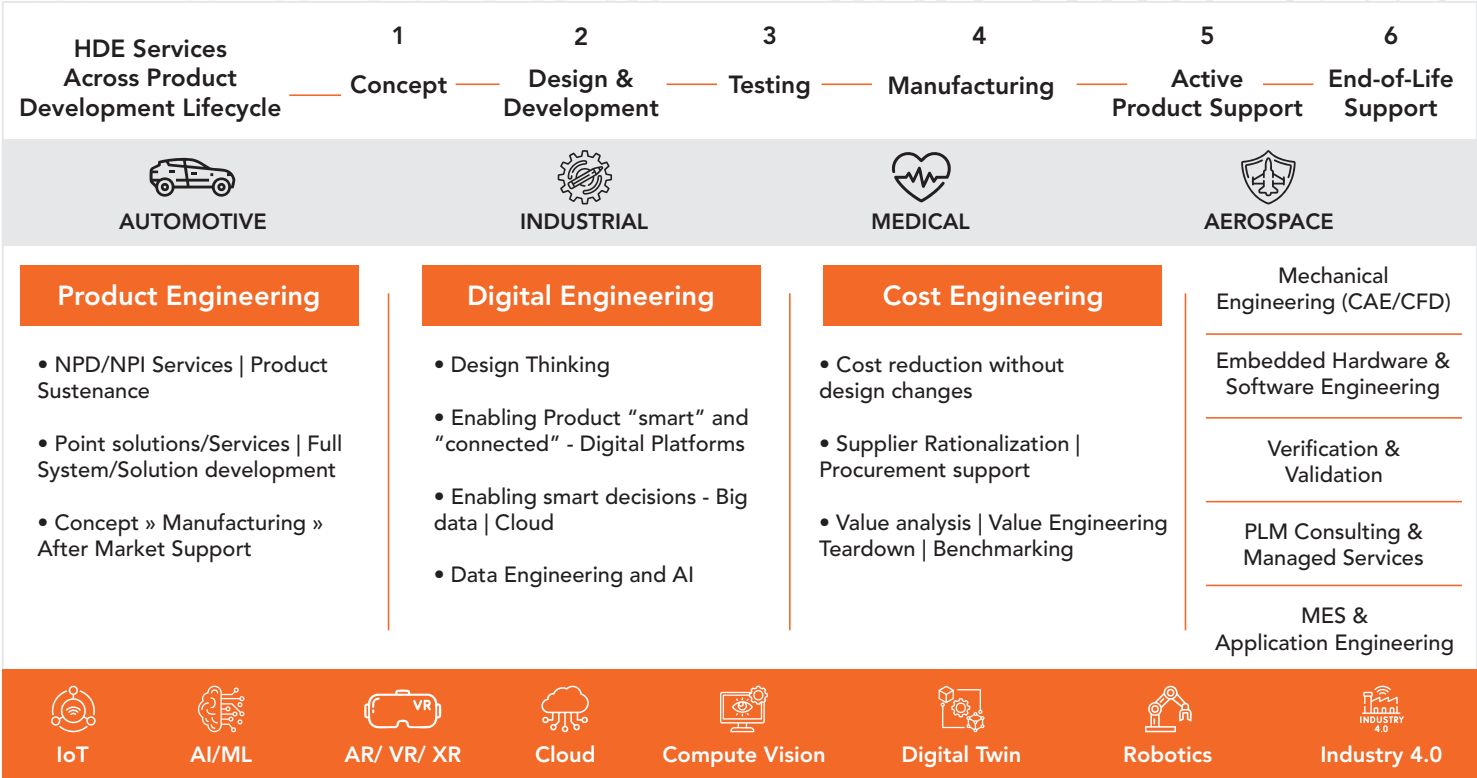
At KOOT, we offer R&D Labs as a Service (RDLaaS) - a game-changing model that gives your business on-demand access to world-class research, design and testing infrastructure without the capital burden of building it yourself.

Whether you're a startup, SME or global OEM, our plug-and-play lab services empower your teams to innovate faster, validate smarter and scale sustainably.

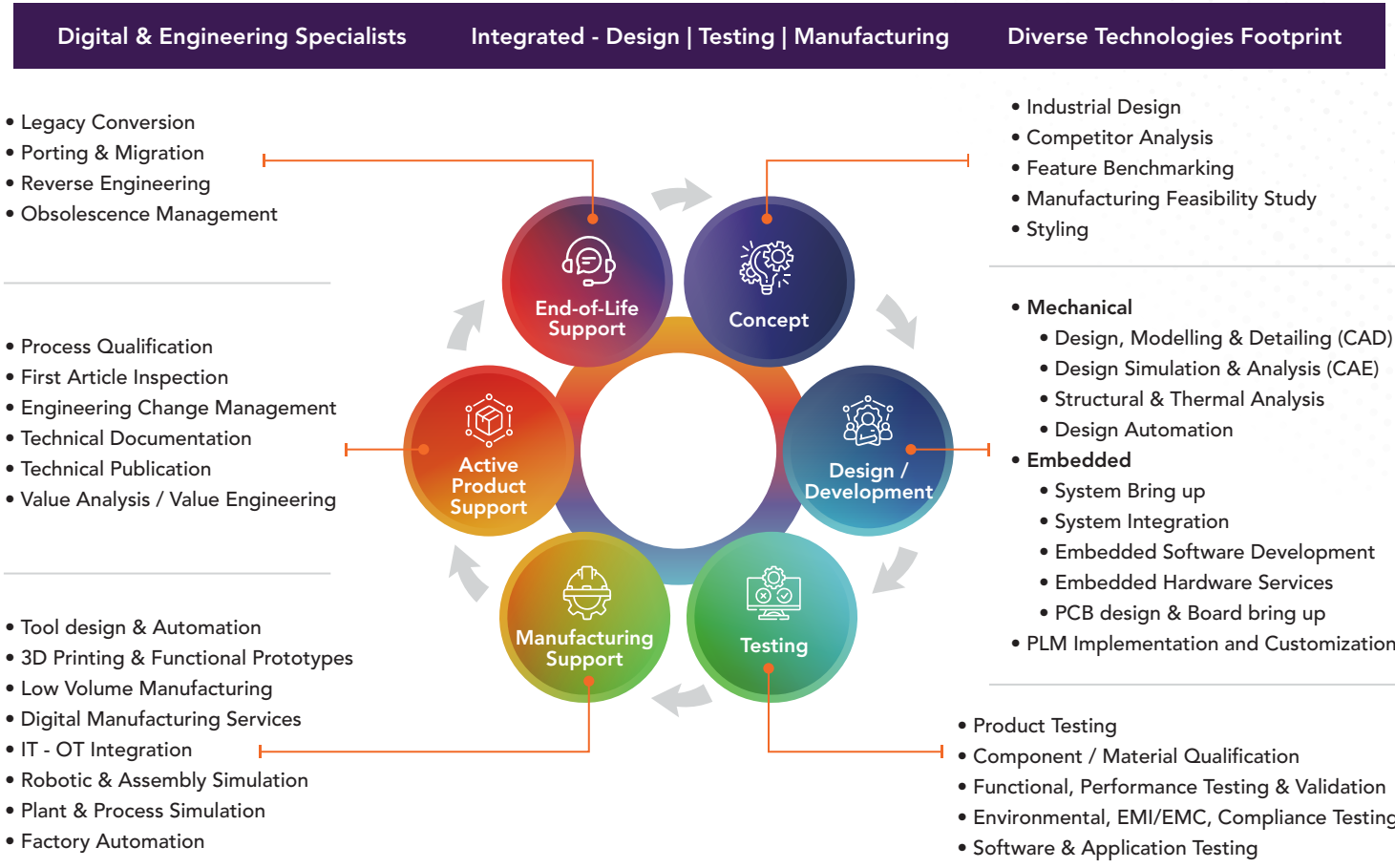


## R&D LABS AS A SERVICE

### HOLISTIC DIGITAL & ENGINEERING SERVICES



### OUR HOLISTIC EXPERIENCE @ VARIOUS STAGES OF PDLC OUTSOURCING AREAS





# ER&D SERVICES

## From Concept to Market - Smarter, Faster and Safer

### 1. PRODUCT CONCEPT DEVELOPMENT & PROTOTYPING

We work closely with engineering teams to transform ideas into functional product designs.

- End-to-end support from requirement gathering to conceptual design
- Rapid prototyping using 3D printing and additive manufacturing
- Localized prototyping facilities for faster iteration, validation and time-to-market

### 2. DESIGN FOR MANUFACTURING (DFM) & SCALABILITY

We engineer designs that are optimized for large-scale, high-quality and cost-effective production.

- DfM practices to simplify designs, reduce part counts and streamline assembly
- Design for Assembly (DfA), Cost (DfC) and Testing (DfT) support
- Scalability planning integrated early into the design phase

### 3. SIMULATION, MODELING & DESIGN VALIDATION

Ensure your product works as intended before building it.

- Structural, thermal, and flow simulation using advanced CAD/CAE tools
- Finite Element Analysis (FEA) for strength, durability and load validation
- Early detection of potential failures or design inefficiencies through digital modeling

### 4. TESTING, RELIABILITY & FAILURE ANALYSIS

We help verify product performance under real-world conditions.

- Full-range testing: electrical, thermal, mechanical, chemical
- Environmental reliability testing (humidity, vibration, salt spray, UV, drop)
- Advanced diagnostic tools: X-ray, CT scan, SEM and Shadow Moiré analysis

### 5. MICROELECTRONICS & ADVANCED PACKAGING

We engineer high-density, compact and high-performance electronic assemblies.

- Expertise in system-in-package (SiP), miniaturization, and thermal design
- Advanced assembly: fine-pitch flip chip, wire bonding and die attach
- Focus on reliability, efficiency and scalability

### 6. DESIGN FOR AUTOMATION

We prepare your products for smart, automated manufacturing environments.

- Automation-friendly design using Digital Design for Automation (DDFAUT) tools
- Digital simulation and line validation for automated assembly
- Early tooling verification to eliminate manufacturing surprises

### 7. END-TO-END PRODUCT LIFE-CYCLE ENGINEERING

Seamless engineering support from concept through commercialization.

- Engineering input across the product life-cycle
- Continuous improvements based on real-world performance and feedback
- Support for scaling products across regions and markets with flexibility and speed

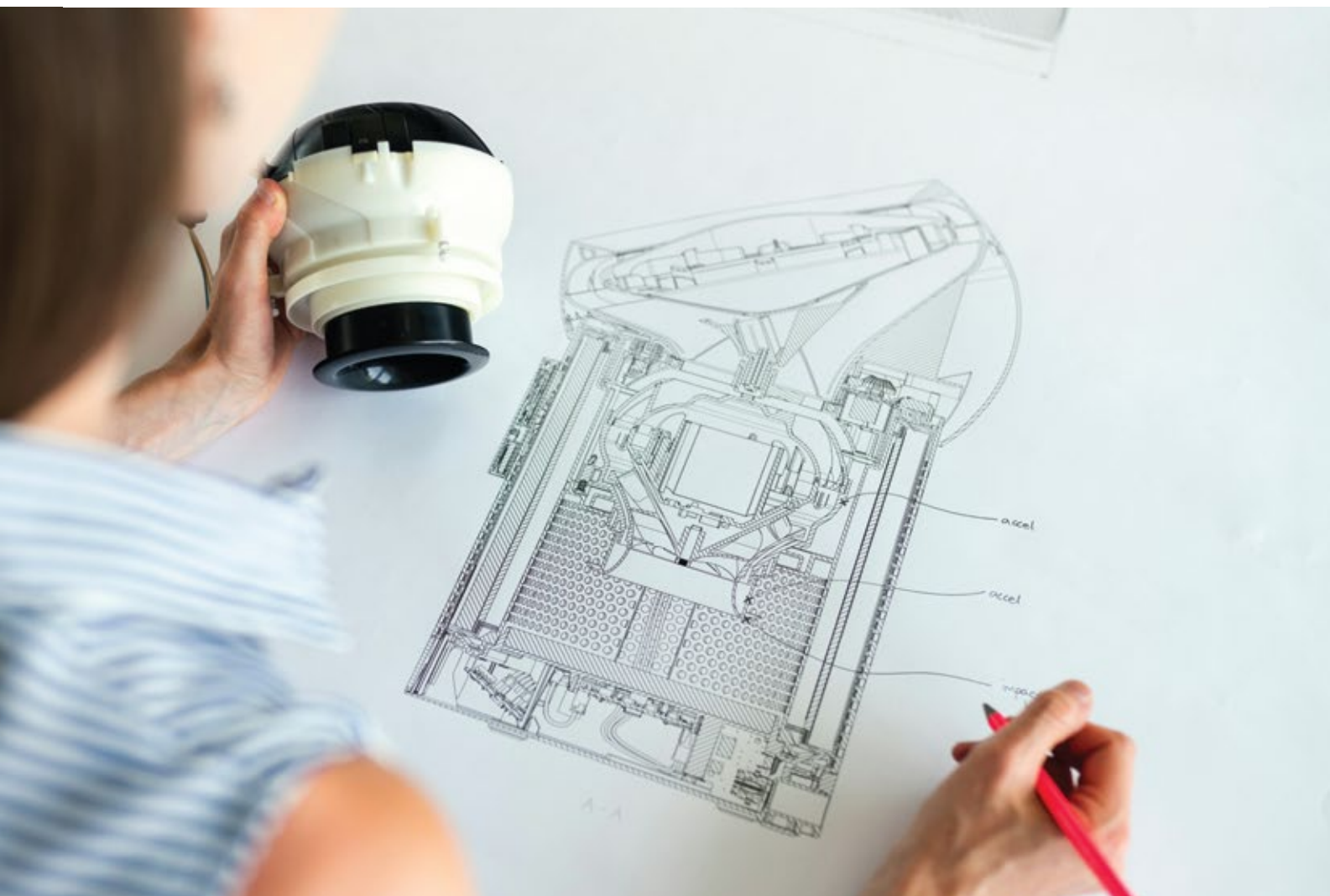
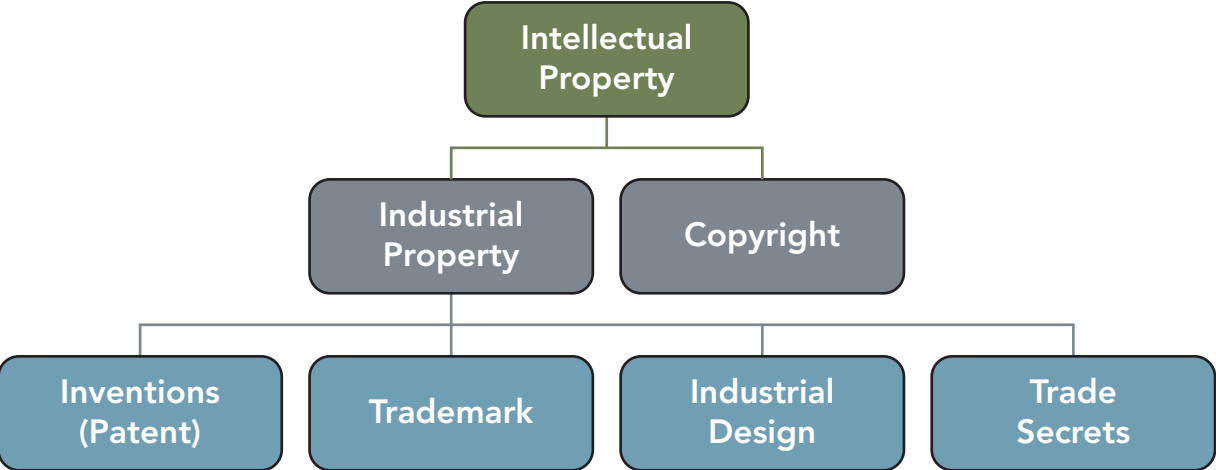




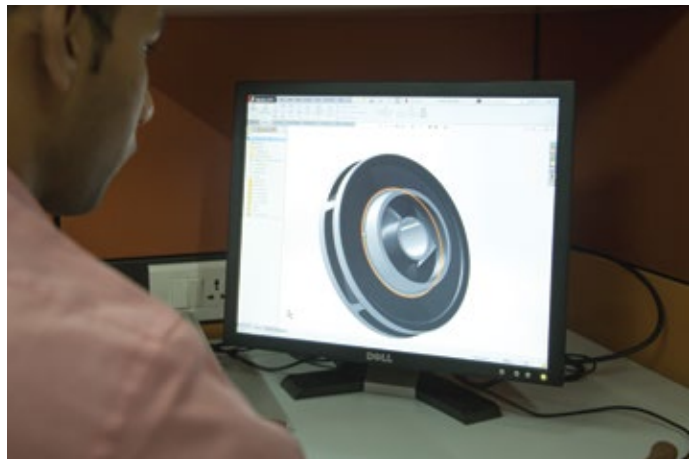
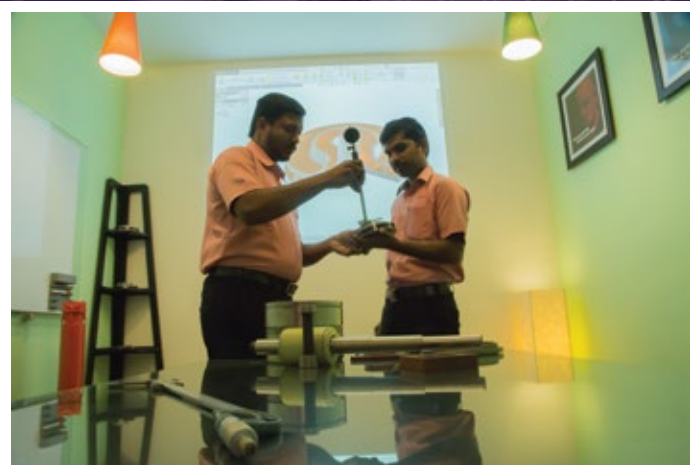
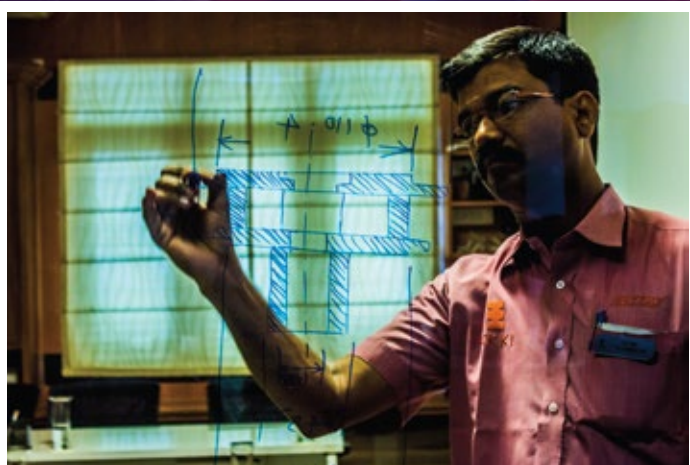
# YOUR INNOVATION. OUR RESPONSIBILITY.

At KOOT, we understand that your ideas are your most valuable assets. We are deeply committed to safeguarding your intellectual property and ensuring complete confidentiality throughout every stage of engagement.

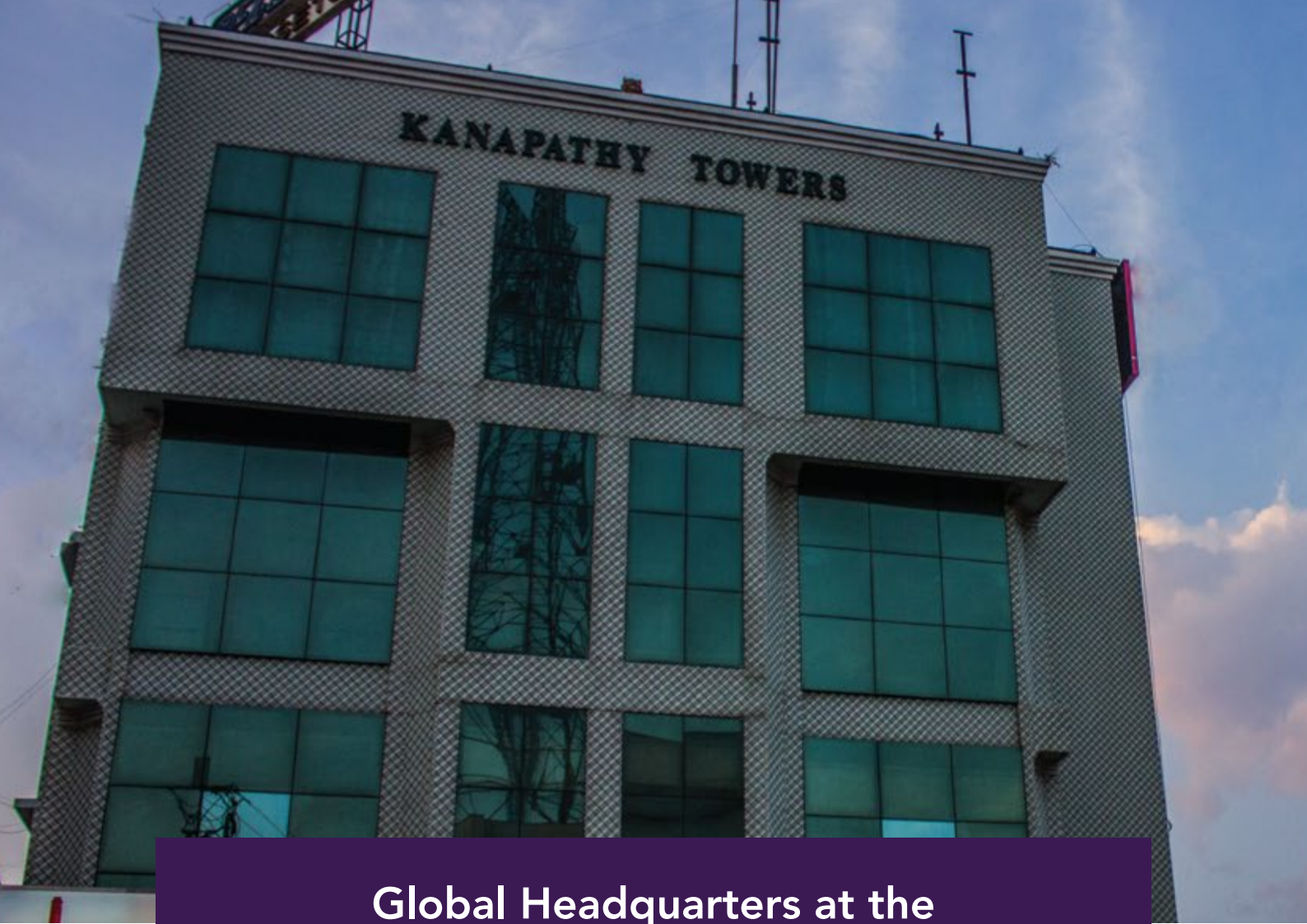
Strict IP Protection Protocols: From NDA execution to secured data handling, we follow robust IP management practices to ensure your concepts and technologies remain protected. With KOOT, your innovation is in safe hands. We don't just help you build better we help you build securely.



“WE HELP GREAT COMPANIES  
CREATE GREAT PRODUCTS”







## Global Headquarters at the Heart of Innovation - Coimbatore, India

Situated in Coimbatore, India, our global headquarters sits at the epicenter of talent and innovation. Surrounded by over 200+ engineering institutions and a vibrant young, tech-driven population, Coimbatore powers our R&D, design and engineering excellence-making it the ideal launchpad for global innovation.

KOOT operates on a Global scale. Our presence across three continents enables us to deliver high-quality solutions and foster innovation to meet the diverse needs of our international clients.

### Global Headquarters



**INDIA**  
1391 A-1, Kanapathy Towers, Sathy Road,  
Ganapathy, Coimbatore, Tamil Nadu, India.



**GERMANY**  
Neunkirchen-Seelscheid, Germany



**UNITED STATES**  
Texas, USA