

MMD

# Madrid Monitoring Day.

*Inteligencia Operacional en la Industria 4.0*

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## Intelligent Automation for Manufacturing OEMs

June 2019

 Engineering a ***better world.***

# AGENDA

1. Introduction
2. Customer Challenges
3. Way Forward
4. Role of Artificial Intelligence for Manufacturing OEMs
5. Intelligent Automation Use Cases
6. Operational Intelligence Use Case

# TATA TECHNOLOGIES INTRODUCTION

Tata Technologies' aim is to become our client's preferred partner for **Digital Transformation**. Our manufacturing expertise, core service offering and wealth of knowledge, methodologies, tools and accelerators are key to achieving this.

## Domain Expertise



Automotive OEM &  
Component

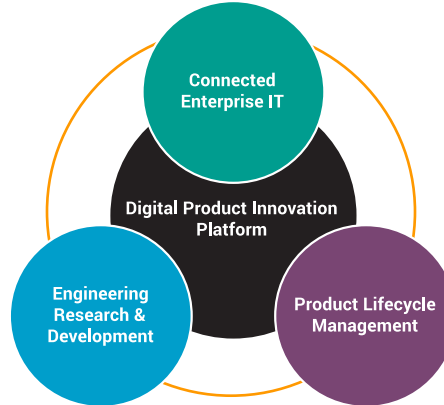


Industrial Heavy  
Machinery



Aerospace

## Core Services to Create Digital Solutions



## Methodologies, Tools and Accelerators to Drive Digital Transformation

Use cases and applications developed to solve business problems for manufacturing OEMs.

Tools, accelerators, **Machine Learning Platform (Tata NEURON)** to predict insights utilizing data and process parameters.

# CUSTOMER CHALLENGES

Organisations must seek ways to improve their response and remain competitive.

How do I ensure that we achieve **business driven outcomes** through digital technologies?

How do I **reduce operational costs** whilst improving customer service and loyalty?

How do I start my **Industry 4.0** journey?

How do I improve the **customer experience** journey using digital technologies?

How can I **expand my business** without increasing headcount?

How can I get **insights from the engineering data** generated from my business?

How do I create a **culture of innovation** and drive change in my organization?

How do I ensure that the **technological disruption** and new trends are not impacting my future growth?

How do I drive **measurable benefits** from intelligent automation ?

How do I **reduce repetitive tasks** from my business processes and operations with digital technologies?

How do I drive my **data strategy** to create a connected enterprise?

## The Tata Technologies Approach

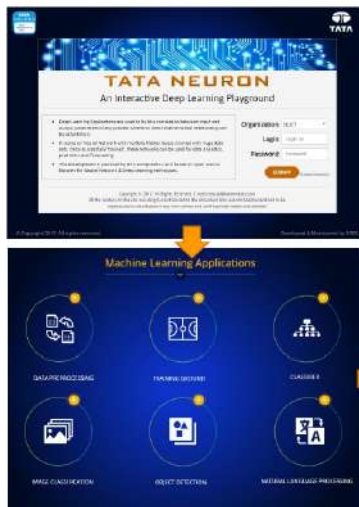
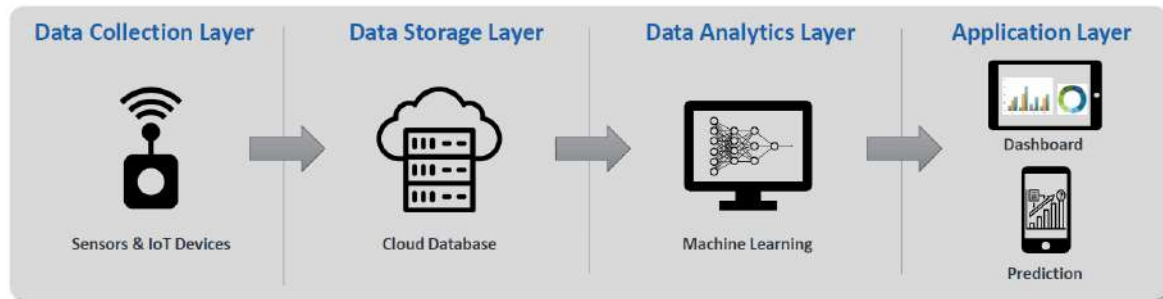
- **Understand** the customer business, ways of working and business shaping outcomes
- **Drive** Intelligent Automation
- **Accelerate** Change
- **Rapidly** release benefits
- **Continuous** focus on optimising services to drive efficiency

*Enabled by AI and machine learning, by 2021, 15% of large manufacturers over \$3 billion will use generative design and innovation bots to enhance design and R&D options that improve speed to market by 50%.*



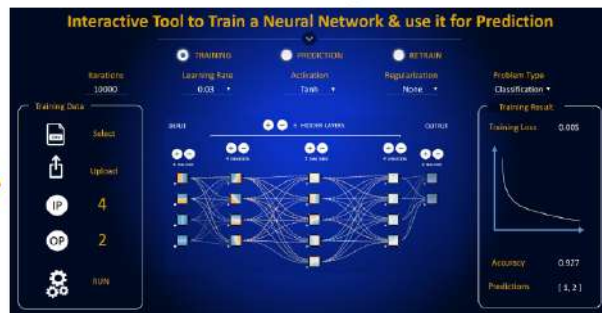


# WAY FORWARD - END TO END SOLUTION



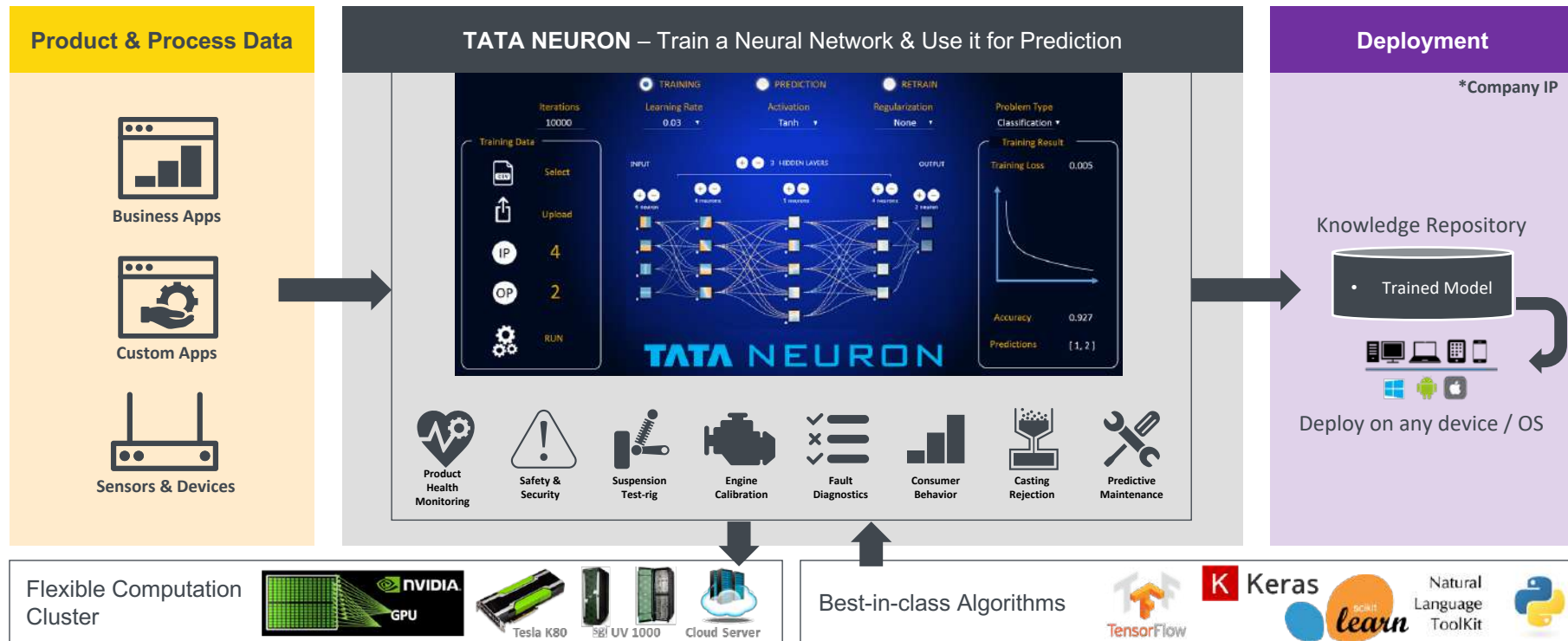
To provide an interface where ML experts may try out

- Various combinations of Machine Learning Parameters
- Train & retrain a Neural Network
- Store the model along with latest 'weights' into Digital Vault
- Retrieve any trained model and use it for prediction
- Works on Numbers, Texts and Images



Creating a framework and having the right platform & tools to create use cases to solve business problems is fundamental to drive digital transformation

# TATA NEURON – DEEP LEARNING PLATFORM





# INTELLIGENT AUTOMATION USE CASES



## Design

Identify **driving styles and terrain** for a particular failure and providing feedback to design and testing.



## Analysis

Prediction of **in-cab noise in vehicle** at driver's ear using trimmed vehicle's benchmark data.



## Testing

Prediction of **ideal "drive"** for 4 poster / suspension test-rig to achieve 'on-road' conditions on rig.



## Manufacturing

Prediction of **optimized range of 'sand parameters'** for reducing casting rejection in foundry.



## Quality

Prediction of **on-field engine failure** on the basis of test data from plant and service report.



## Maintenance

Prediction of the **number of days to experience the fault** in the vehicle using telematics data.



## Sales

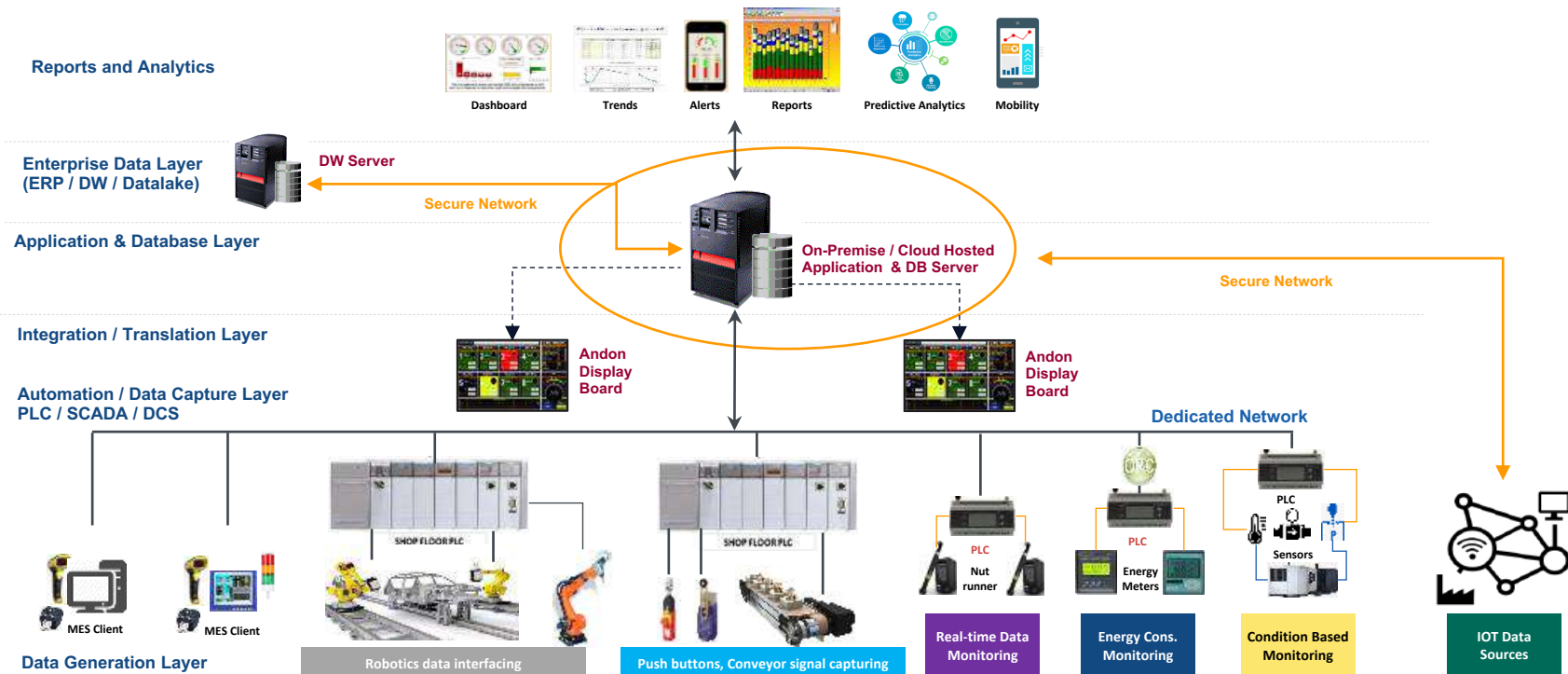
Prediction of **customer visiting authorized service station** for servicing or not.



## Service

Prediction of **warranty defect code** based on investigation report using NLP.

# NEXT GENERATION SHOP FLOOR MONITORING SYSTEM





Engineering a *better world.*

For more information about Tata Technologies and what we can do to help create better products for your customers, visit: [www.tatatechnologies.com](http://www.tatatechnologies.com)



Gracias por su atención.

