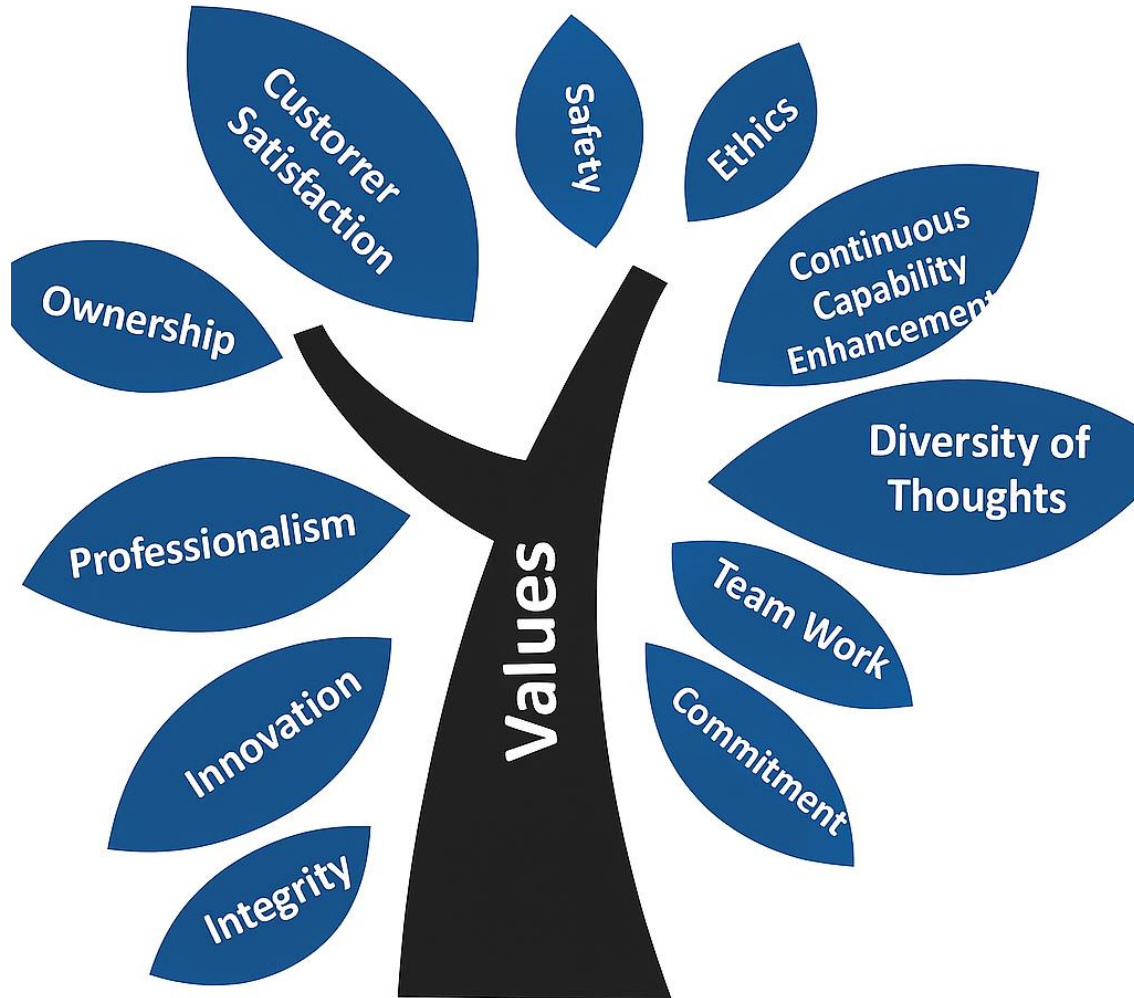


Automation & IIoT 4.0



Vision, Mission & Values



Vision

“To provide cutting edge automation solutions and resolute focus on customer expectations

Mission

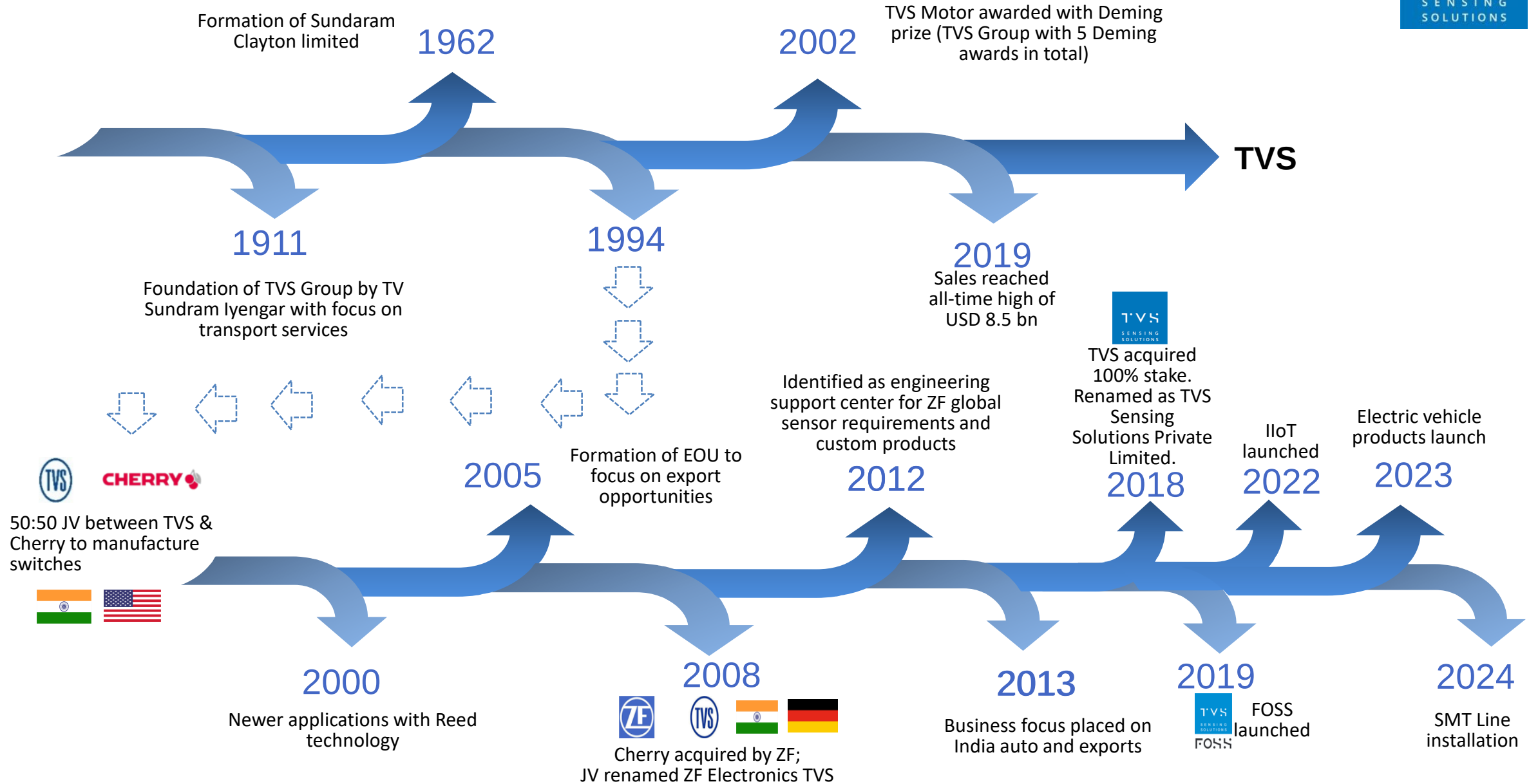
“To help customers with automation through innovation and deploying latest solutions & services”

AS TECHNOLOGY RAPIDLY EVOLVES, SO DO WE.



Company Overview

- Operational since 1994
- 100% export oriented unit in 2005
- Space: Land 450 K, Built up - 50 K Sqft
- Employees: (300 – On roll, 150 – Contract)
- Products: Switch assemblies, Sensor assemblies, Solenoids, Electronic component carrier & custom assemblies
- Annual Capacity: 20mn assemblies
- UL / VDE / ENEC approved for Switch manufacturing
- FOSS Launched in 2019
- IIoT Launched in 2022



TVSSS Industry 4.0 Offering

IIoT

- OEE
- Energy Monitoring
- Real time data capture
- Field data acquisition
- Location Tracking

Cloud Computing

- Any time Anywhere data
- Remote Monitoring and Control
- Notifications / Alerts

System Integration

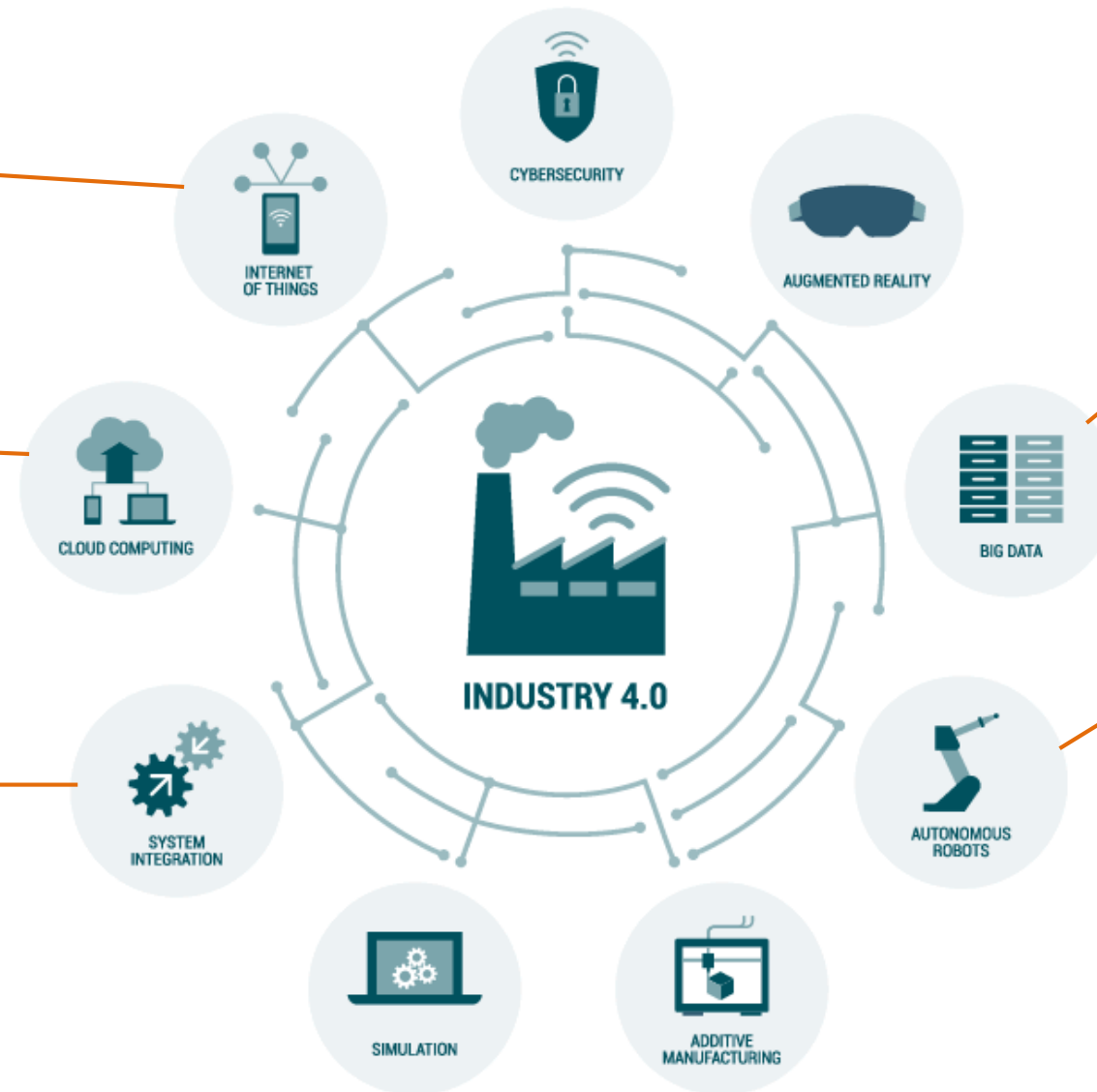
- Mistake Proofing
- IT / OT Integration
- End-to-end Traceability
- Production Planning & Control
- M2M Communication

Big Data

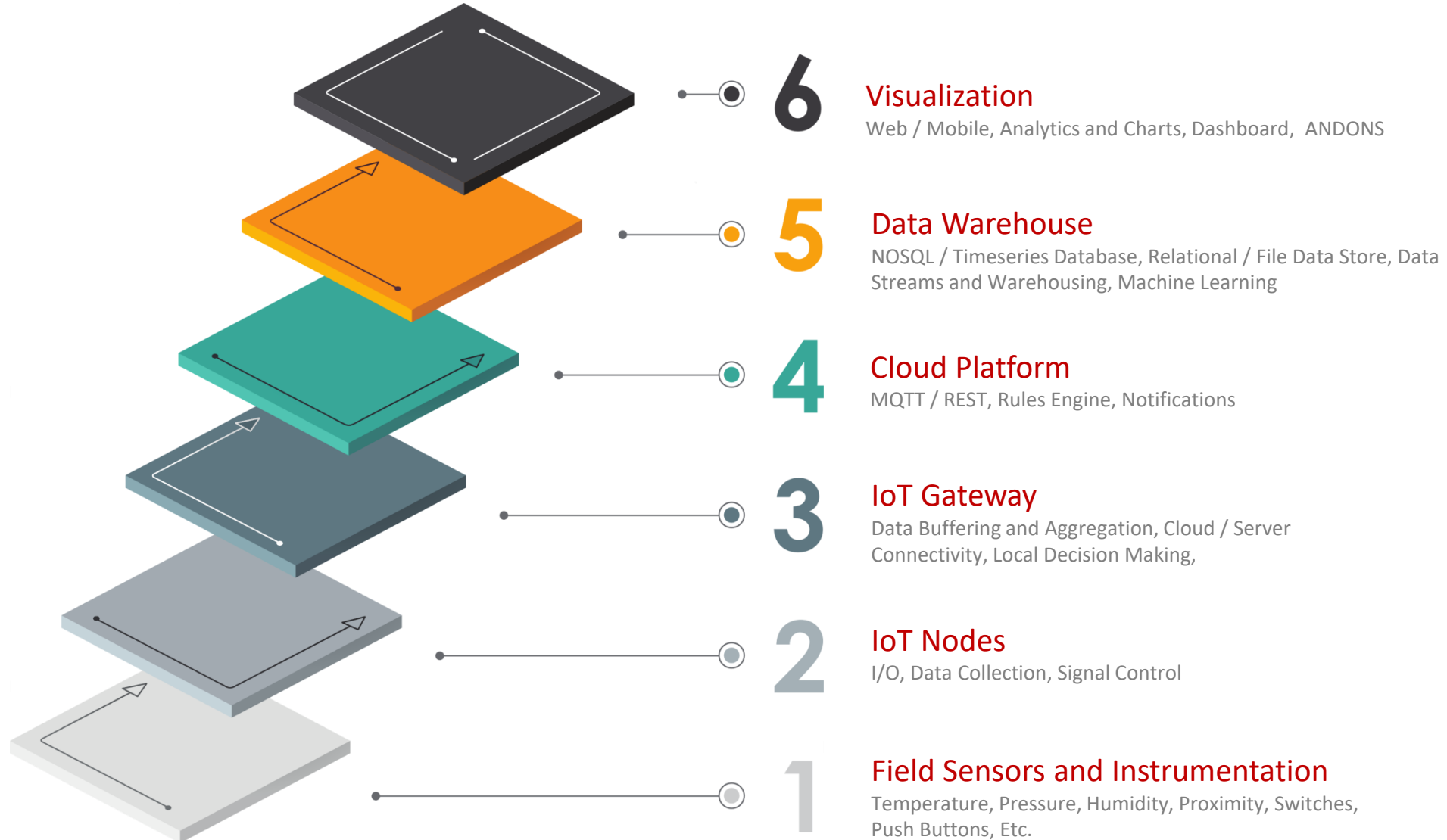
- Historian
- Genealogy
- *Machine Learning*
- Artificial Intelligence

Robotics

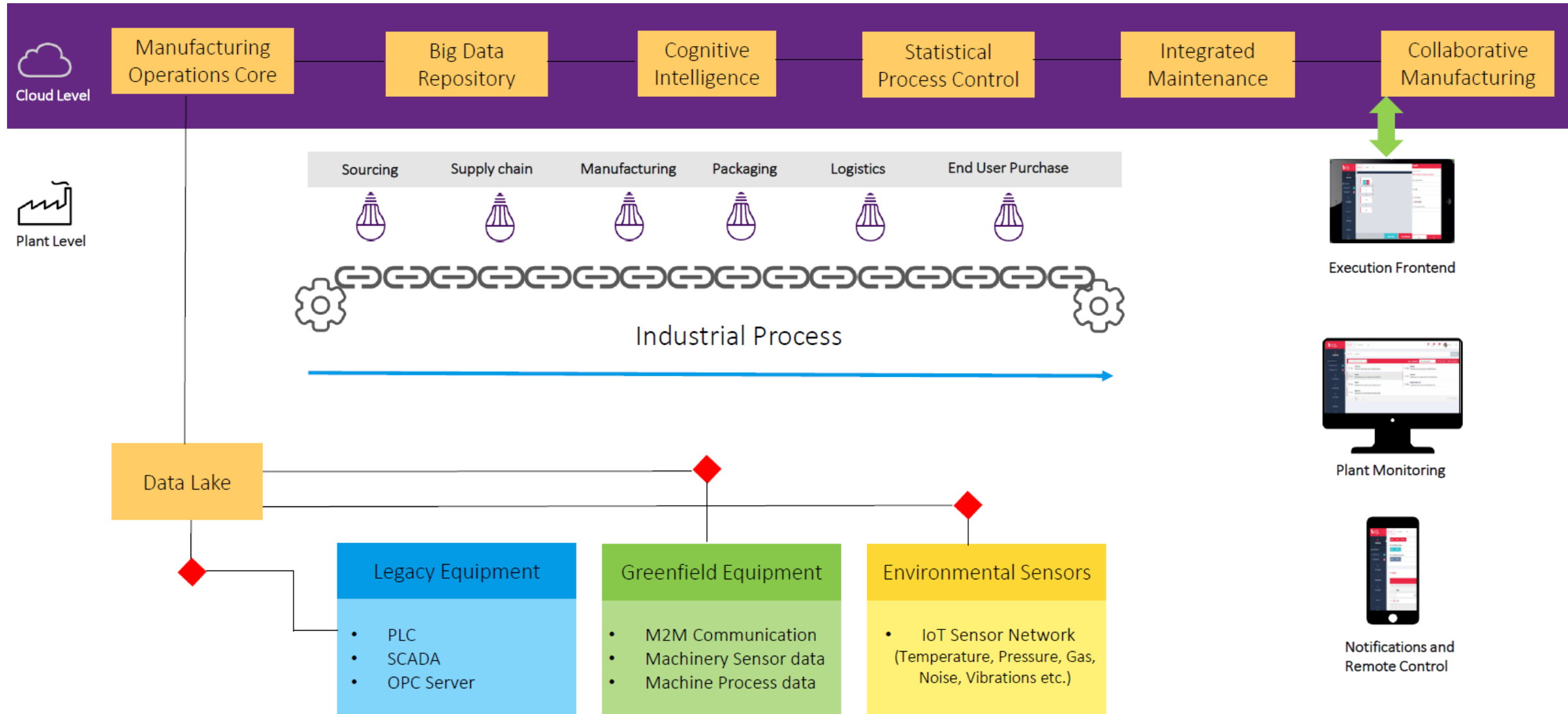
- Collaborative Robots
- Articulated/SCARA Robots
- End Effectors
- Turnkey Solutions

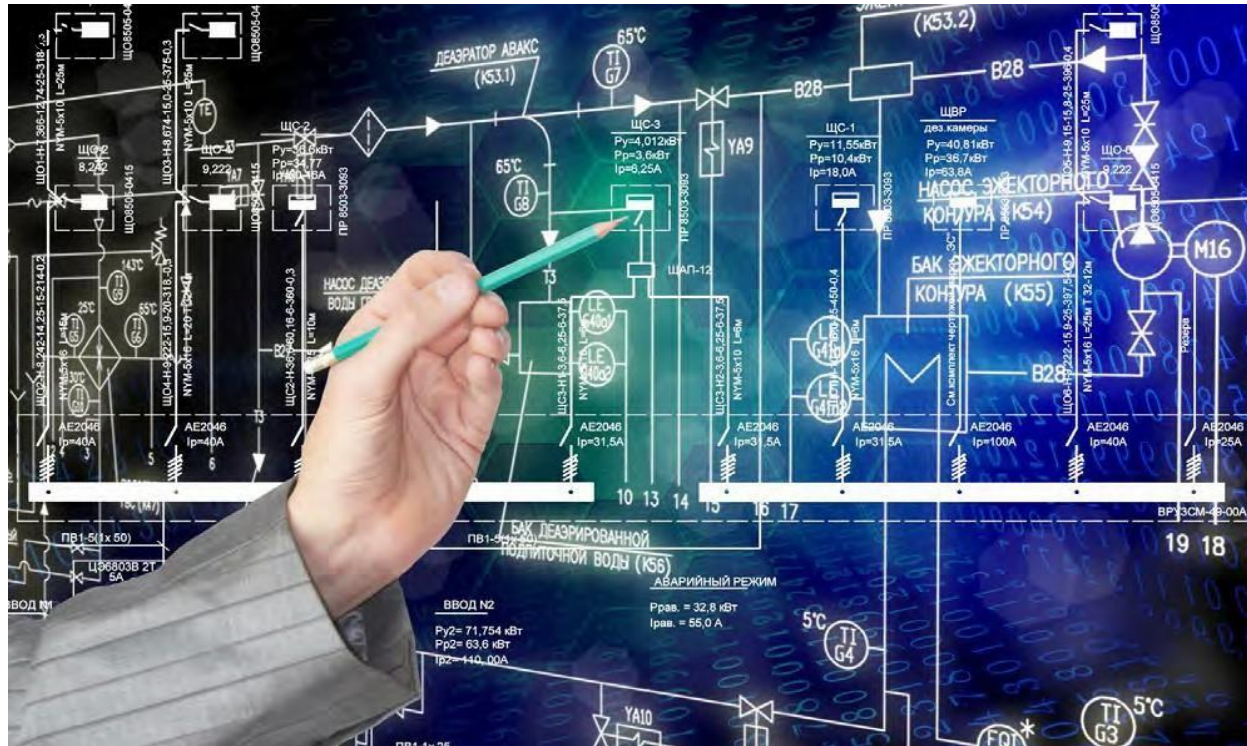


TVSSS - IIoT Solutions across the Stack



Smart Factory - IIoT Solution Overview





- Electrical Design & Drafting
- PLC/SCADA Program Development
- Robot Programming & Simulations
- Production Monitoring & Supervision
- Instrument Configuration & Installation
- Field Engineering
- Mechanical Engineering
- Analysis & Simulation

Specialization

E-Plan
Auto Cad
Solid Works

NI Lab View Automation
Special Purpose Machine(SPM)
Special Test Rigs / Test Benches

Robot Studio
EOL Automated Test Equipment's
Traceability & Realtime Statistical Analysis Industrial Software

IIoT- Serviceable Business Verticals



Automotive



Tyre Industry



FMCG



Energy & Utilities



Food Industries



Textile Industry



Electronics Industry



Supply Chain Industry



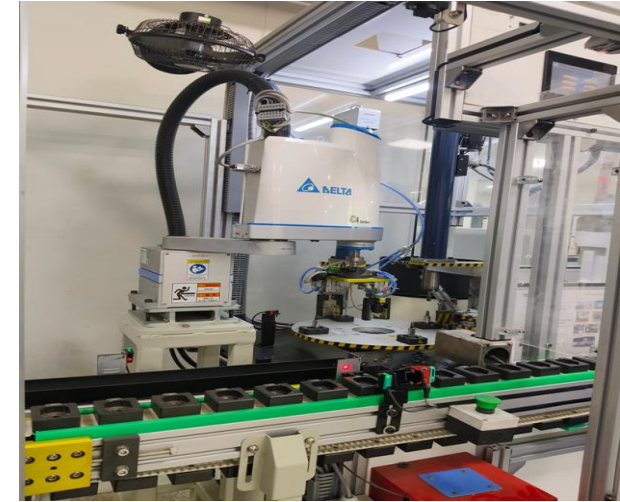
Pharmaceutical

Other
manufacturing

Line Automation (Assembly Line)



Robotic Solutions



Special Test Rigs / Test Bench (SPM / EOL)



Conveyor Solutions



Optical Vision Solutions



Traceability Solutions



Smart Bin Solutions



Energy Management



Independent Stations



Portable Test Kit



Digital Solutions



Line Automations (Assembly Line)



Concept Design

- ✓ 3D Designing
- ✓ 2D Detailing

Validation

- ✓ Feasibility study
- ✓ Verification

Manufacturing

- ✓ Fabrication
- ✓ Assembly

Testing

- ✓ Integration
- ✓ Trial Running

Commissioning

- ✓ Installation of system
- ✓ Prove out at site



- Machine Tending
- Material Handling
- Dispensing & Deburring
- Foundry & Forging
- Palletizing & Part Transfer
- Inspection – CMM/Vision

Concept Design

- ✓ 3D Designing
- ✓ 2D Detailing

Simulation

- ✓ Feasibility study
- ✓ Cycle-time study

Manufacturing

- ✓ End of Arm Tooling
- ✓ Mechanical System

Interfacing

- ✓ Control System
- ✓ Programming

Commissioning

- ✓ Installation of system
- ✓ Site prove out



- NI LabVIEW Automation
 - Special Purpose Machine (SPM) - Customized
 - Special Test Rigs / Test Benches - Customized
 - End Of Line (EOLT) Automated Test Equipment's
 - PLC/SCADA/LabVIEW Program Development
 - Traceability & Realtime Statistical Analysis
- Industrial Software**

Design

- ✓ 3D Designing
- ✓ 2D Detailing

Validation

- ✓ Feasibility study
- ✓ Verification

Manufacturing

- ✓ Fabrication
- ✓ Assembly

Testing

- ✓ Integration
- ✓ Trial Running

Commissioning

- ✓ Installation of system
- ✓ Prove out at site



- Roller Conveyors
- Chain Conveyors
- Pallet Conveyors
- Belt Conveyors
- Elevating Solutions
- Balancing Solutions
- Structural Systems
- Customized Conveyor Solutions

Design

- ✓ 3D Designing
- ✓ 2D Detailing

Validation

- ✓ Feasibility study
- ✓ Verification

Manufacturing

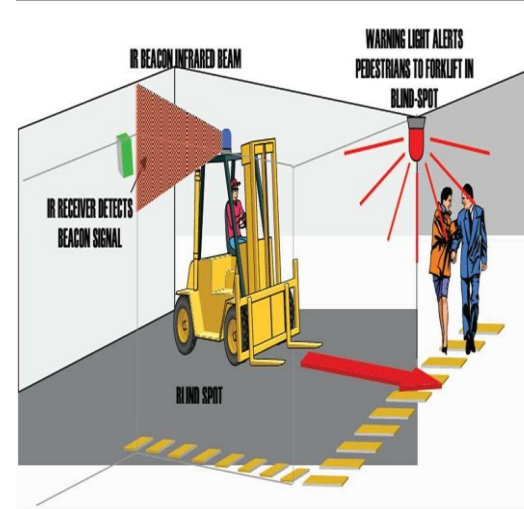
- ✓ Fabrication
- ✓ Assembly

Testing

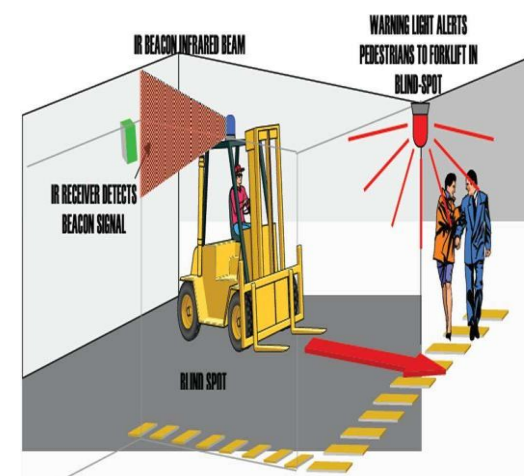
- ✓ Integration
- ✓ Trail Running

Commissioning

- ✓ Installation of system
- ✓ Prove out at site

Man – Vehicle Collision :**Man – Vehicle Collision Points:****Sign Projectors – STOP****Alert System – Indication with Buzzer****Man – Vehicle Collision :**

Safety system detects the Man and vehicle, “STOP” sign signal projector for floor display. This System detect possibility of collision gives alert Light with buzzer.

Vehicle – Vehicle Collision :**Vehicle – Vehicle Collision Points:****Sign Projectors – STOP****Alert System – Indication with Buzzer****Vehicle – Vehicle Collision :**

Safety system detects the Vehicle and vehicle, “STOP” sign signal projector for floor display. This System detect possibility of collision gives alert Light with buzzer.

Traceability solutions:



- ✓ Track and Trace Solutions (Barcode & RFID)
- ✓ Mistake Proofing / Poka Yoke / Digital Walls and Dashboards
- ✓ Real Time Manufacturing information (Machine Monitoring /OEE /Energy Monitoring)
- ✓ Handheld and Mobility Solutions
- ✓ ERP and Third Party Integration / Warehouse and Stores Management

- ✓ Smart bins can significantly lower operational costs.
- ✓ Real-time data / Timely alerts and optimized collection prevent overflowing bins.
- ✓ Smart bins provide valuable data on waste generation patterns, enabling better planning and resource allocation.
- ✓ Smart bins have safety features like sensors that prevent compaction if a hand is detected or alert authorities in case of fire.

Smart Bin solutions:



Energy Management:



- ✓ Cost Savings
- ✓ Improved Efficiency
- ✓ Sustainability and Environmental Impact
- ✓ Increased Return on Investment (ROI)
- ✓ Improved Compliance
- ✓ Data-Driven Decision Making

Independent stations



**AI Vision System - Hydraulic
Cylinder Pressing Machine**



Performance Test Machine



ABS Wheel Speed Sensor



**Roller Jamming Machine
- Tyre Industry:**



Welding Machine



IC Forming Machine



**Servo Based Pressing
Machine**



4 Axis Robot

Portable Test Kit

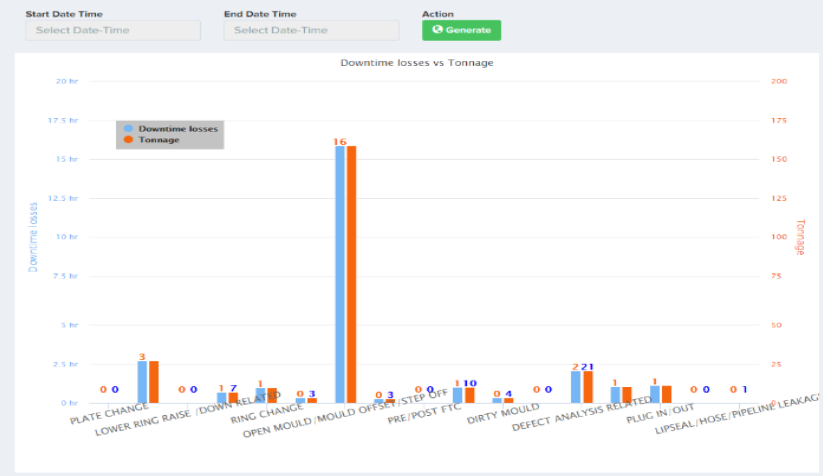
Gear Position Sensor (GPS) – Test Kit



Dashboards (Digital Solutions)

Loss Categorization

DowntimeLoss vs Tonnage



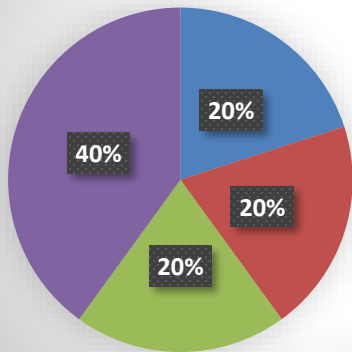
Downtime Category List

Search: Show 10 entries

S.No.	Category Code	Category Name	Active Status	Action
1	1	MOULD CHANGE	Yes	
2	2	BLADDER CHANGE	Yes	
3	3	PRE / POST FTC	Yes	
4	4	ASSEMBLY LEAKAGE	Yes	
5	5	OPEN MOULD/ MOULD OFFSET / STEP OFF	Yes	
6	6	DIRTY MOULD	Yes	
7	7	PLATE CHANGE	Yes	
8	8	VCL RELATED	Yes	
9	9	TOP RING RAISE / DOWN RELATED	Yes	
10	10	LOWER RING RAISE / DOWN RELATED	Yes	

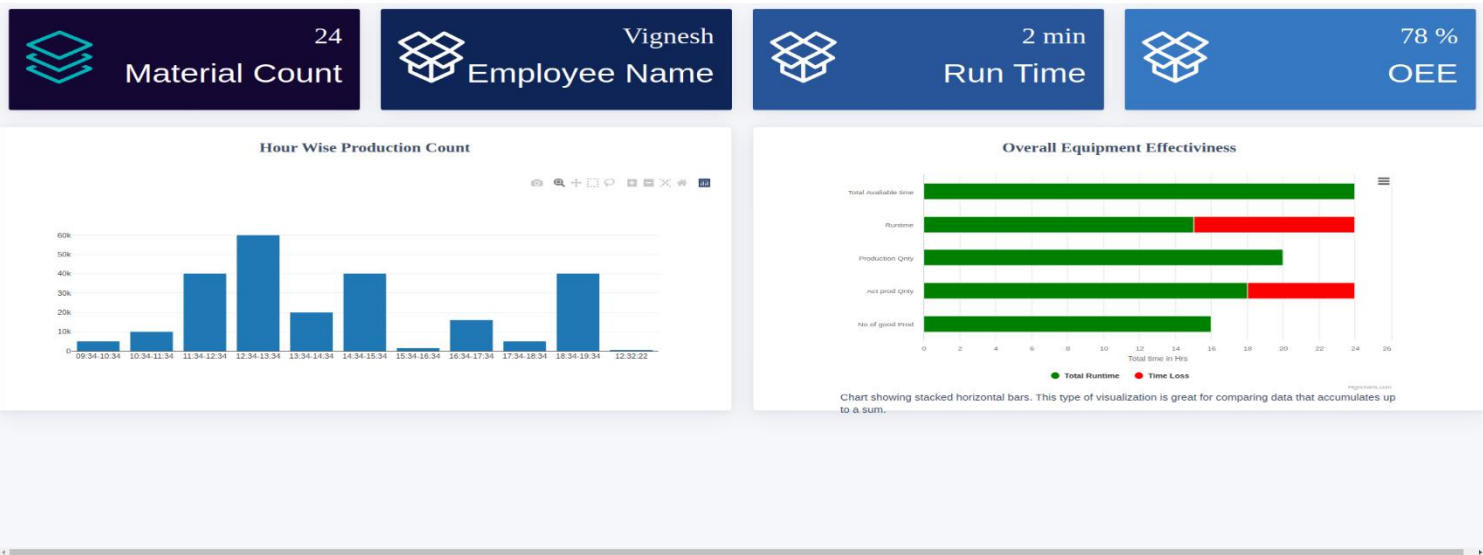
Showing 1 to 10 of 26 entries

LOSSES PHENOMENON WISE

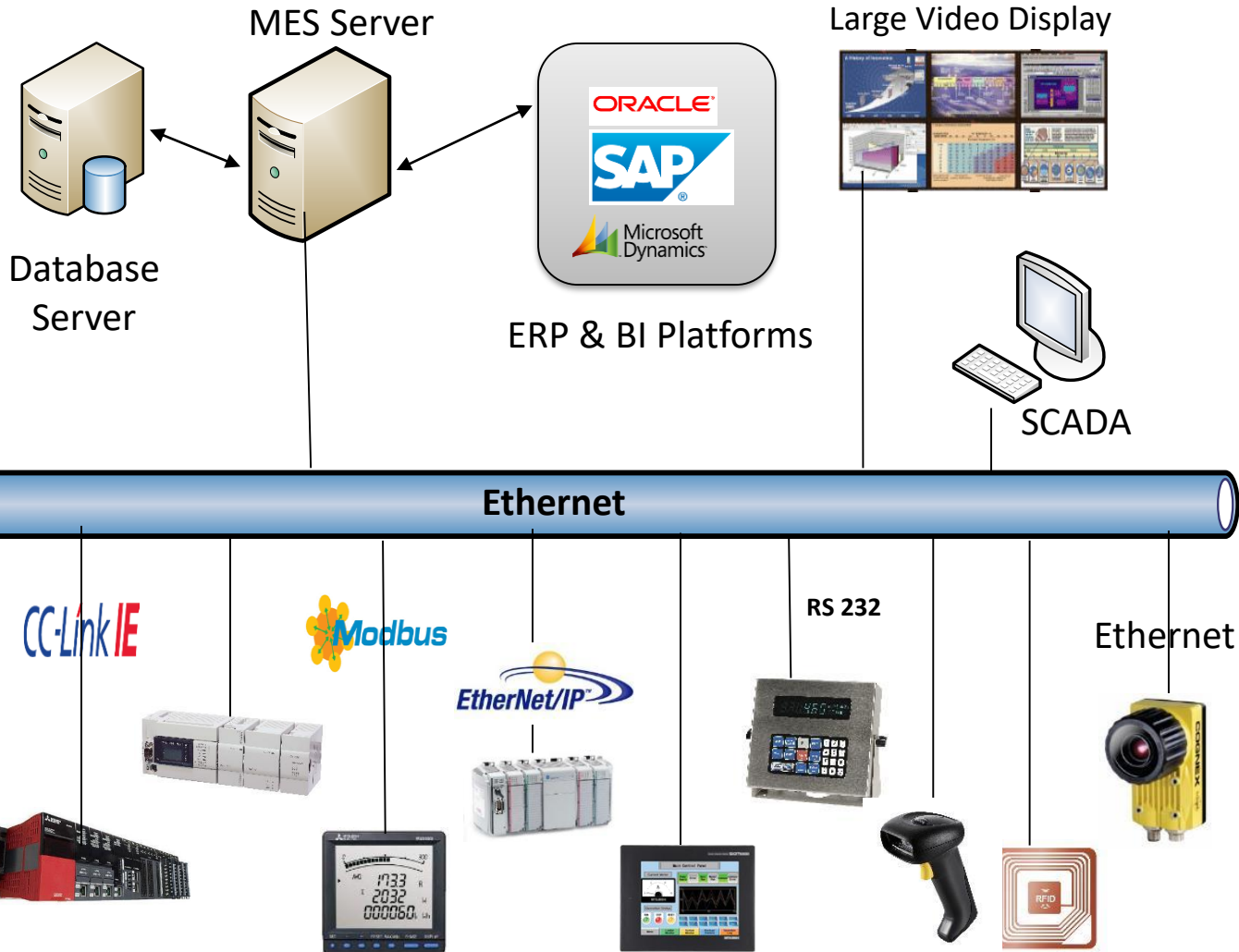


- Bladder Change
- Dirty Mould
- PLC Related
- Tyre Struck In Mould

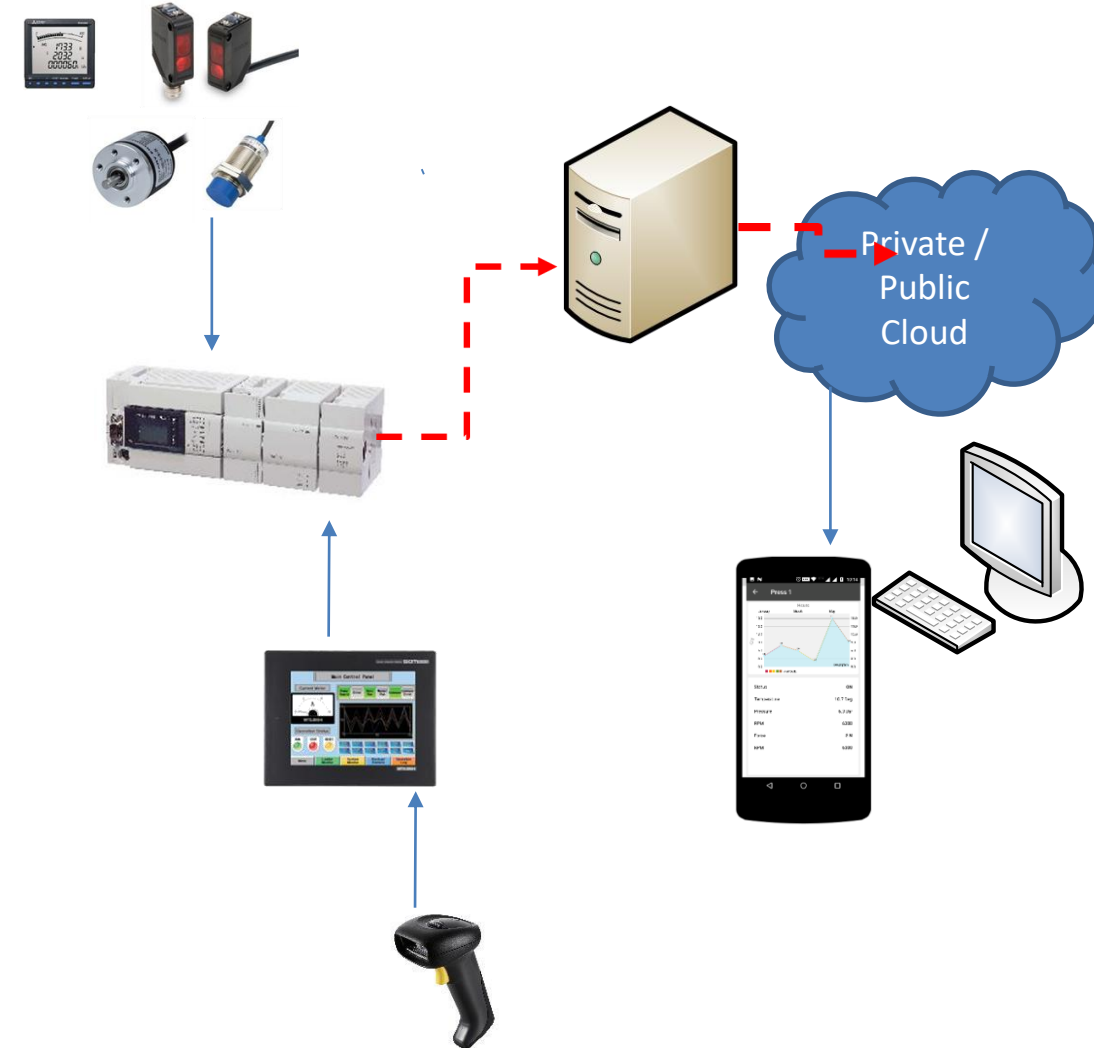
OEE Monitoring



Typical OT Network



Typical Architecture



Partners

Robot

ABB

Fanuc

Motoman

Epson

Mitsubishi

PLC / SCADA

Siemens , ABB

Mitsubishi, Omron

Allen Bradly (Rockwell)

Movicon, Schneider

National Instruments –
Lab View**Mechanical
/Electrical**

Solid works

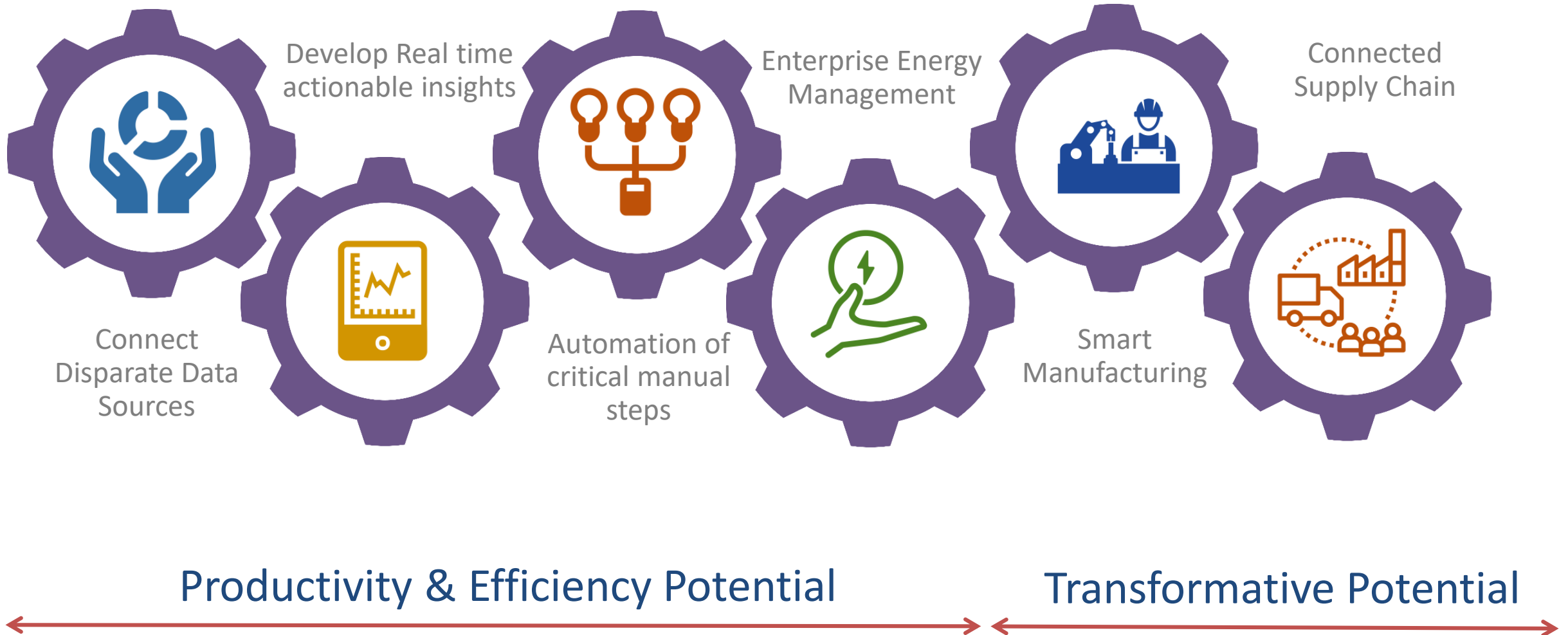
AutoCAD

Draft Sight

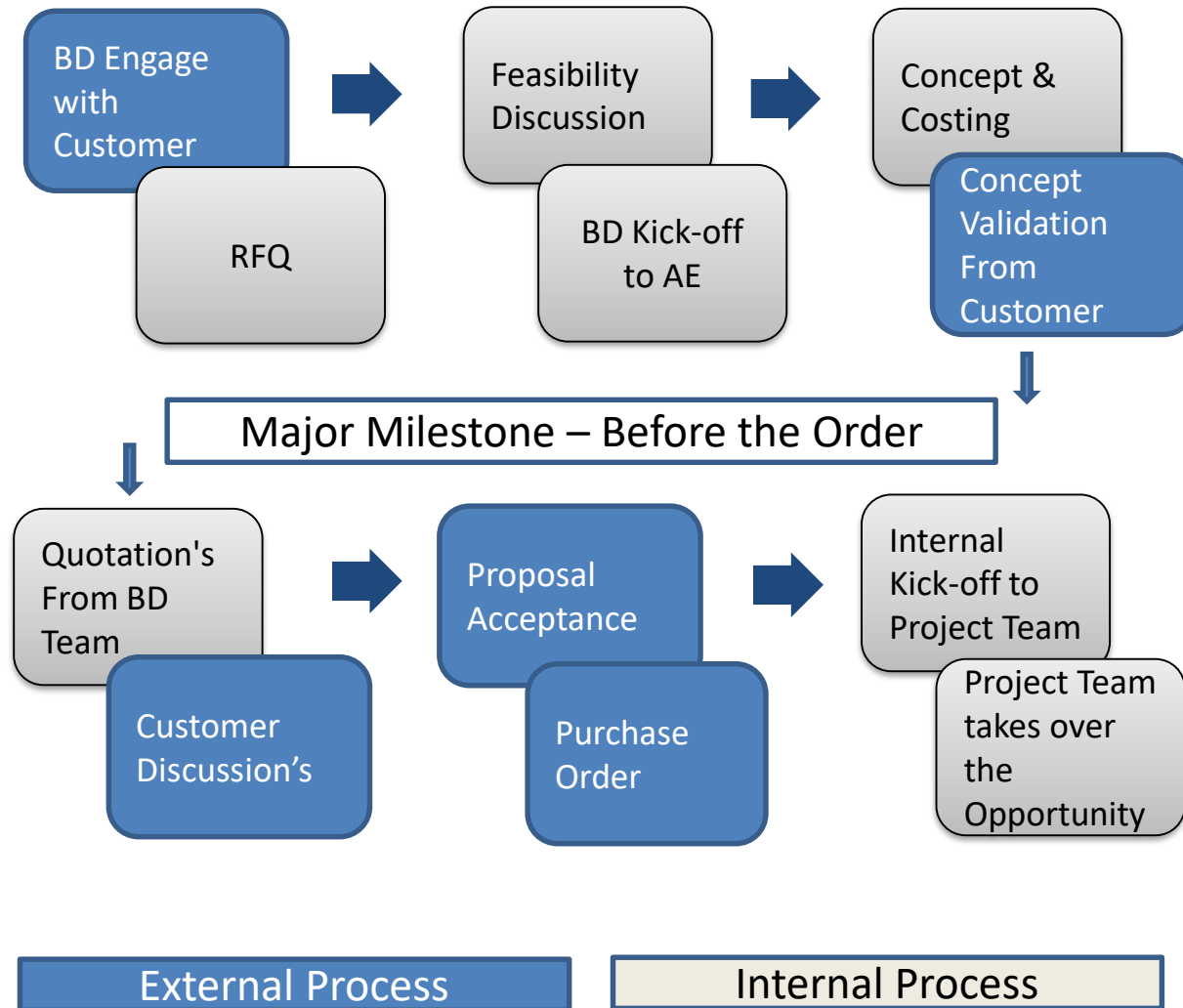
CATIA,AUTODESK INVENTOR

e PLAN

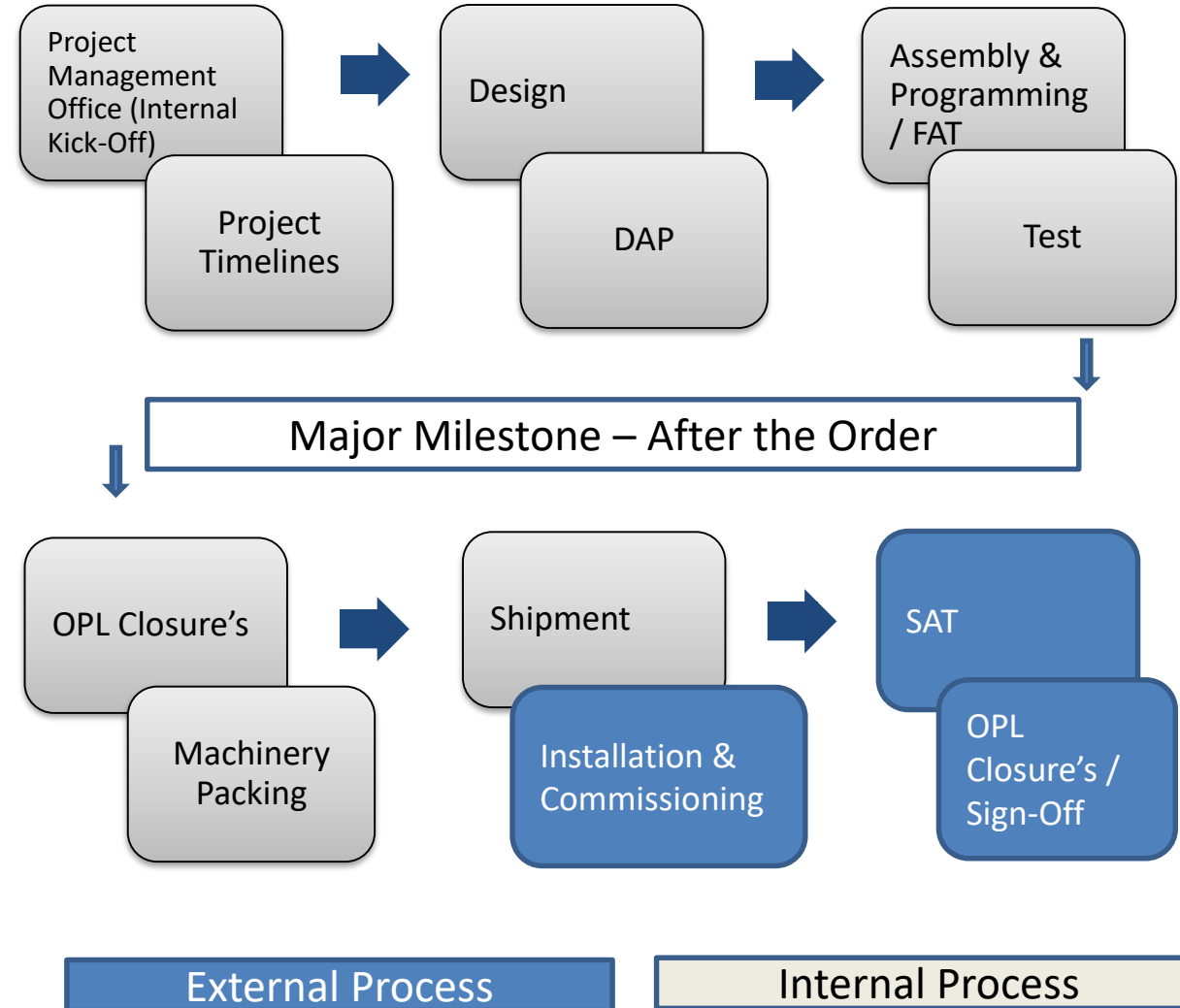
From Efficiency to Transformation



RFQ Stage



Implementation Stage



Few of our major customers



Contact us:

THANK YOU!

Madurai - Corporate Head Office:
TVS Sensing Solutions Private Limited.,
(Project and Product Development Division)
Madurai-Melur Road, Vellaripatti, Madurai – 625
122, TamilNadu, India

Mohan Kumar. R
Mobile +91 99946 73093
Mailto: mohankumar.r@tvsss.co.in