

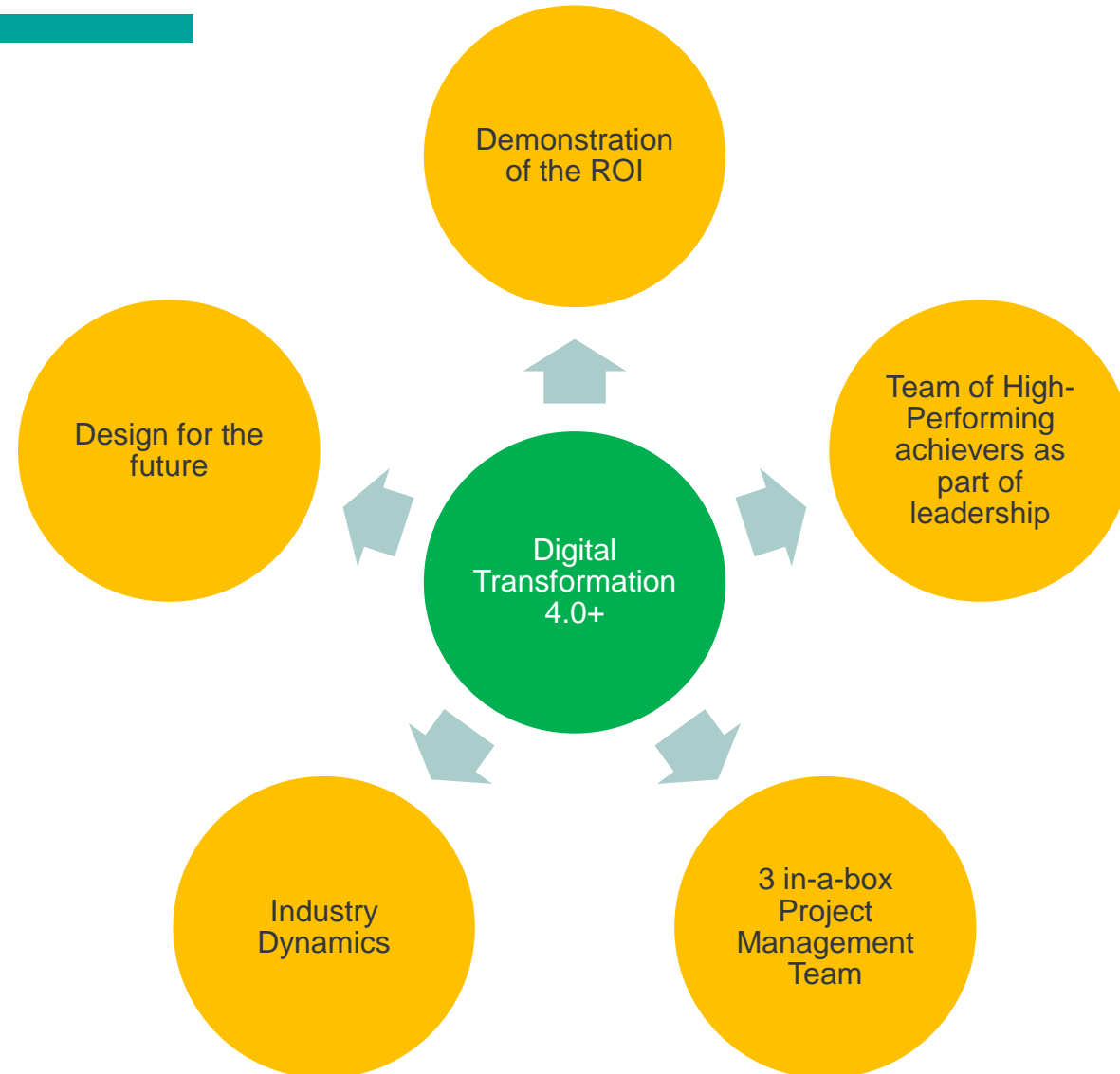
Smart Manufacturing



About Us

Performatica LLC provides professional advisory services including Strategic Planning, Operations Management, Technology Transformations and Digital Platform Alliances in select industry verticals such as Energy & Sustainability, Power & Renewables, Manufacturing & Industrials, Transportation & Logistics, Healthcare

Management + Technology Consulting



Our Advantage



Consulting+
Technology solutions
team from Fortune
500 and Tier I
IT/ITES Firms

Members from
consulting,
technology and
operations provide
an **all-inclusive
perspective at an
engagement level**



**Design thinking
and Change
Management** at the
core of any proposed
solution

Leveraging **low-
code/no-code
platforms for MVPs**
as part of our
engagements



Key Services

Transformation Strategy

Baseline Transformation KPIs - Map to enterprise goals and functional/department KPIs

Platform Architecture and Analysis

Identify and validate technology tools for the program. Feature configuration, infrastructure, security and scalable architecture

Center of Excellence (CoEs)

Identify and validate digital technology platform, process and services for the program. Feature configuration, infrastructure, security and architecture

Digital Solution Design & Development

Designing the Deployment pipeline from sandbox, dev, production and change management, software acceptance standards

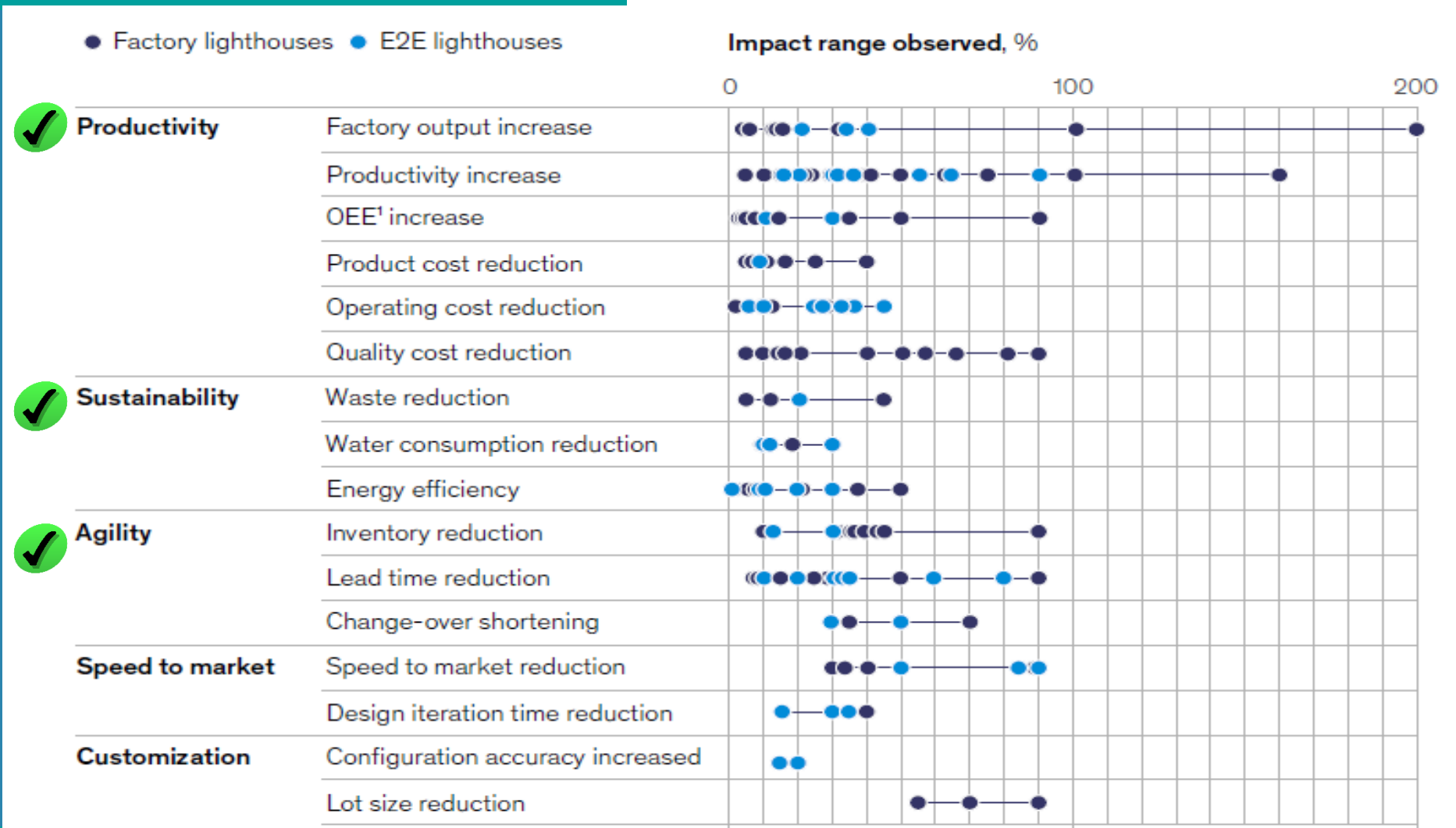
Service Experience Design to Deploy

To be Process design, RACI, SLA baselining, Data and reporting, Exceptions, Human-Bot interactions

Business Process Reengineering

Lean process redesign, systems integration, continuous improvement metrics, tech strategy for change management

Target Improvements



¹Overall equipment effectiveness

Source - Mckinsey & Co.

Focus Areas



Productivity

- OEE Monitoring and Analytics
- MT Connect

Sustainability

- Failure Prediction
- Waste Reduction

Agility

- Remote Visual Insights
- Inventory Analytics

Manufacturing Digitization

Operational Management/Productivity

✓ OEE Dashboard

Maintenance/Sustainability

Predictive Analytics

Quality/Agility

Remote Visual Inspection



Monitoring & Prediction of OEE (Overall Equipment Effectiveness)

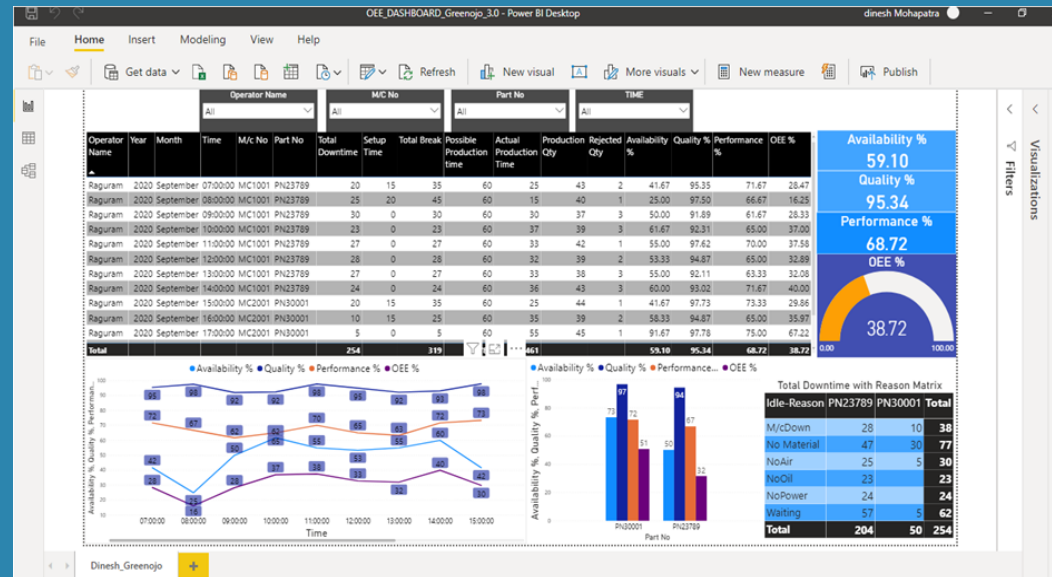
Solution is built on Microsoft PowerApps which helps in instant visualization as well as predictive analysis of production runs at customized intervals.

- ✓ The real-time dashboard shows availability, quality, and productivity by - Machine, Product, Order, Shift, and Operator
- ✓ Solution supports for OEE analytics – for trends/outliers, forecasts by Machine, Product, Order, Shift, and Operator between any production period.
- ✓ Solution also supports for MT Connect application using Agents to analyze machine/component health status.
- ✓ We also assist in floor improvement projects using tools such as Six Sigma, Lean and TOC

Operational Management (Productivity)

Data-based Equipment Analysis

- ✓ How can you maximize the value of your equipment? One of the essential factors for increasing productivity is the optimization of overall equipment effectiveness (OEE). This is made possible by the cloud-based solution OEE
- ✓ Analytics, which allows you to record and analyze your equipment data and acquire company-specific knowledge.
- ✓ Using the OEE Monitor you can view the current status of your OEE KPIs at any time.



Concept & Connectivity

- ✓ Data acquisition through Operator interface very similar to his current state of data entry but through a mobile/tab.
- ✓ Connected to Cloud for immediate data transfer storage and analysis

Maintenance

Manufacturing Digitization

Operational Management/Productivity

OEE Dashboard

Quality/Agility

Remote Visual Inspection

✓ Maintenance/Sustainability

Predictive Analytics

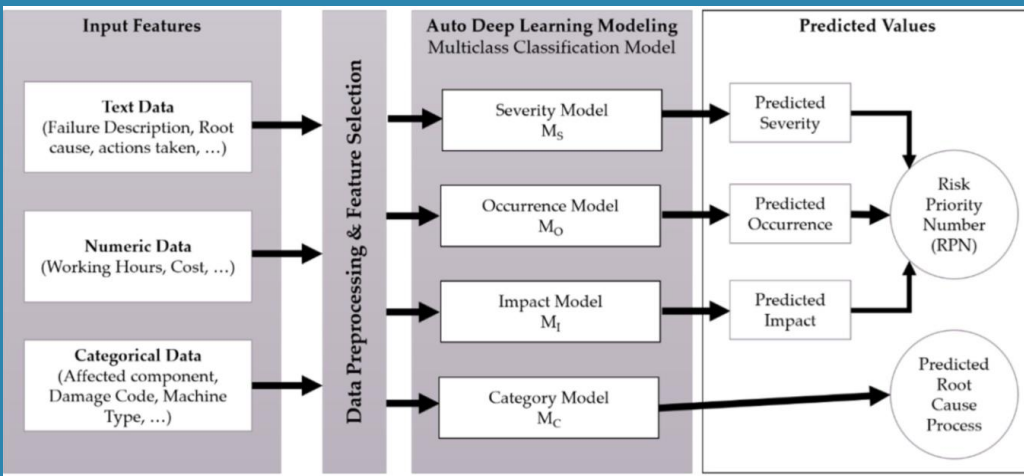


Predictive Maintenance APA (Asset Performance Analyzer)

Solution is built on a Sandbox model using IBM Watson for asset performance analysis - for Asset Health Prediction (e.g., ESP, BOP, Boiler, Flowlines, Pipelines, Drill bits, Pipelines, etc.)

- The solution supports a customized ESP Data Template on top of the ESP- RIFTS Dataset
- Generates Asset Health prediction reports at regular intervals, leverages notification engine for E-mail/SMS for the possible failures, support Forecasting/Trends for next 72 hrs. (Planned vs Actuals last 24 hrs.)
- Solution also supports for What-If Analysis, Reliability Analysis, Mean Time to Failure (MTTF) Prediction, Failure Distribution.

Operational Management (Maintenance)



Pump ID	Pump Name	Location Name	Mode	Prob of Failure	Prob of Stoppage	Recommendations
252	ESP401	South Plains - Site1	Mode4	0	0.157	Impact
253	ESP201	North Plains - Site2	Mode1	0	0.031	NR
254	ESP301	North Cowden - Site3	Mode0	0	0.04	NR
205	ESP101	South Cowden - Site4	Mode1	0	0.031	NR
225	ESP102	Berkeley - Site5	Mode2	0.10009	0.154	Maintenance / Repair
207	ESP103	Kirsham - Site6	Mode1	0	0.031	NR
241	ESP501	Felham City - Site7	Mode1	0	0.031	NR

Status	KPI	Actual	Target	Variance
↓	PM Performance (%)	12.73	95	-82.27

Manufacturing Digitization

Operational Management/Productivity

OEE Dashboard

Maintenance/Sustainability

Predictive Analytics

Quality/Agility



Remote Visual Inspection



Operational Management - Quality RVI (Remote Visual Inspection)

Solution is built using an open-source computer vision platform to perform remote inspections and detect deviation from specifications (as defects) during production.

- Defects detection using CNN (Convolution Neural Networks)
- App-based streaming on inspected items is shared in real-time to the QC team at production site
- Solution also supports for 3D and AR (Augmented Reality) models

Operational Management (Quality)

Applying Deep Learning/Computer Vision

- Detect Flaws/Defects using CNN (Convolution Neural Networks)

Data Streaming using RVI apps to QC team at onsite

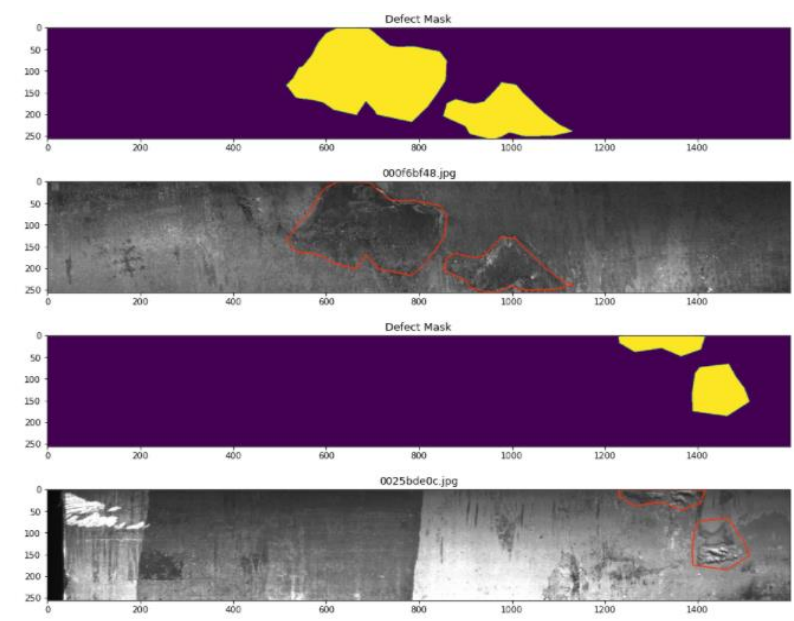
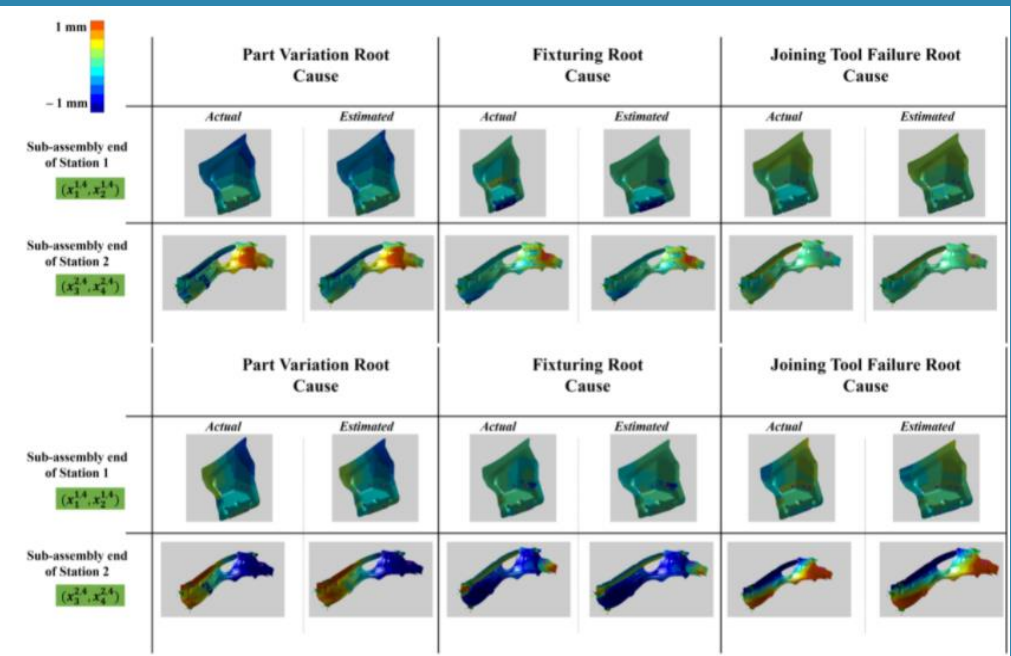
- Using 3G/4G (5G in future), we can use app-based streaming on inspected items to the QC team at onsite
- Examples - SGS QIIQ Remote Industrial Inspections; Intertek's Remote Video Inspection (RVI)

Developing 3D and AR models for automated visual inspection system

- Leverage 3D and AR (Augmented Reality) models in lines with 3D BIMs used in the construction/EPC Industry

PMO for 3rd party inspection from firms like SGS

- Manage the PMO services related to quality management (performed by 3rd party inspection firms) at contract manufacturing units as part of buyer/EPC firms

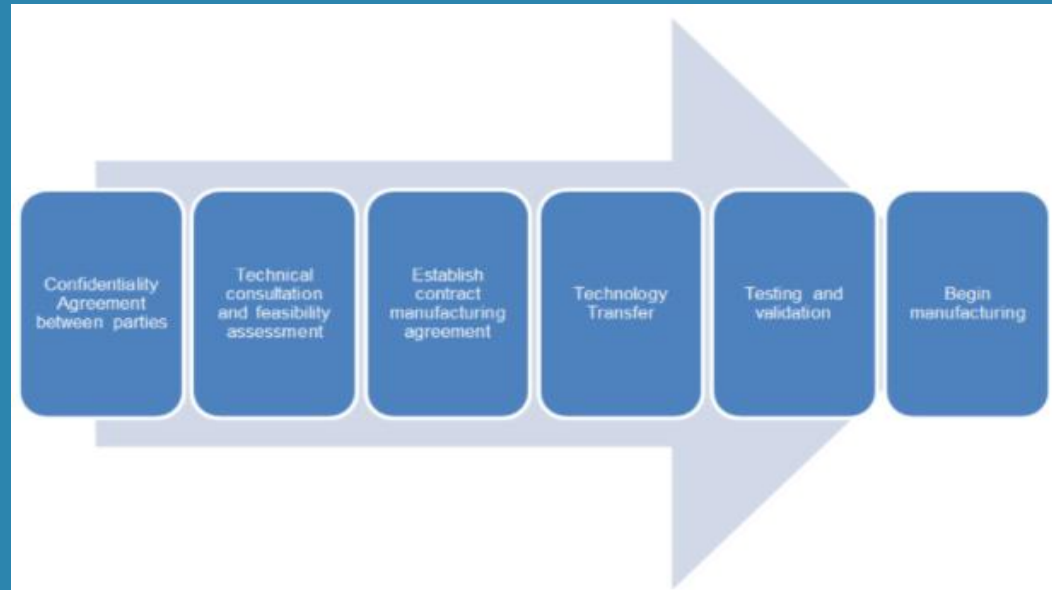


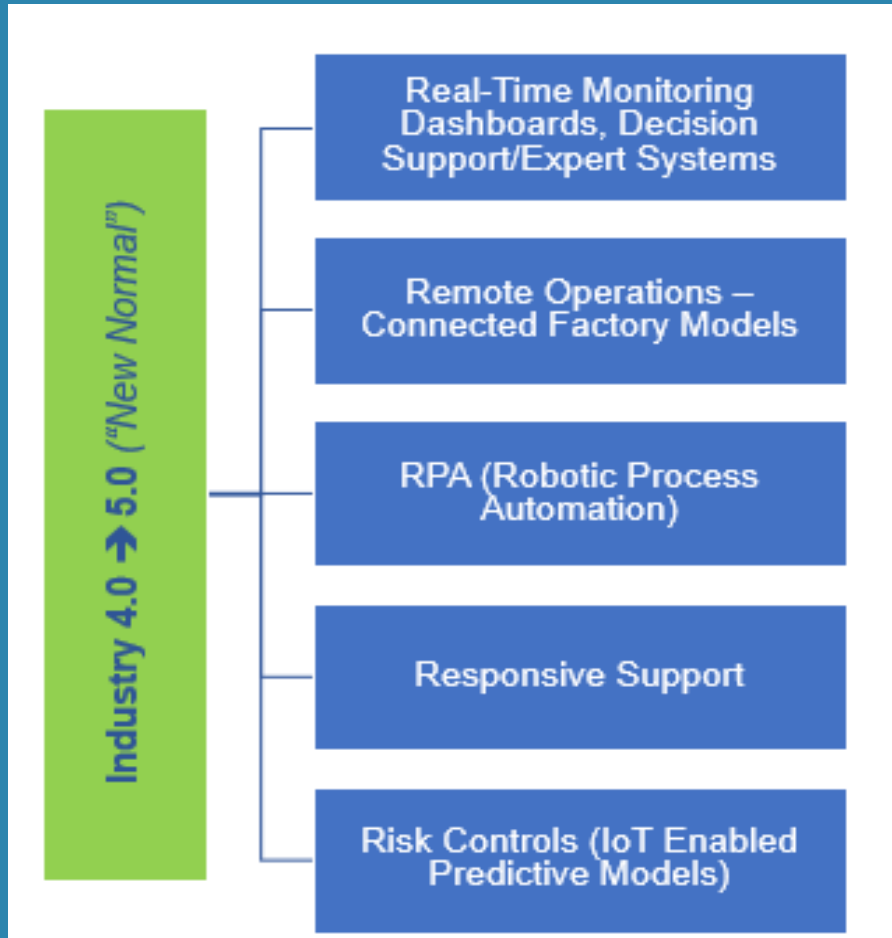
Operational Management – Production Outsourcing BOT (Build, Operate and Transfer) for Contract Manufacturing

Our Partners from Industrial Manufacturing Practice can help to set up

- Digital Procurement Services
- Establish Contract Manufacturing Practice with outsourcing partners from India/Southeast Asia
- Production Monitoring and PMO Support
- QC/Testing at Contract Manufacturer's sites
 - Our partner facilities are run in strict compliance with international quality standards such as - cGMP, WHO-GMP, ISO, ANVISA, etc.
- Logistics & Transportation services

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Consulting for 5R Services

(Real-Time Monitoring, Remote Operations, RPA, Responsive Support, Risk Controls)

- **Strategic Planning** - Design use-cases, technical and domain related market research, open innovation, agile R&D
- **Operations Management** - Drive business transformation, program management, metrics management/business performance
- **Technology Transformation** - Develop prototyping, applied analytics in these 5R services
- **Digital Platform Alliances** - Discover industry alignment to post covid-19 era, sustainability goals and industry 4.0+ demands by building a responsive digital ecosystem.

Key Engagements

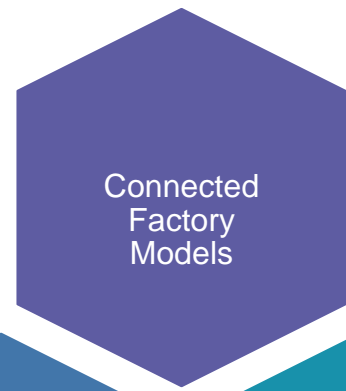


- ✓ Asset Performance Insights
- ✓ Predicting cyber-security Incidents using AI/ML
- ✓ Connected Factory Models
- ✓ HSE/Safety Risk Analytics
- ✓ Design Digital Twins
- ✓ Asset Reliability Analysis

Designed & developed MTConnect data models with real-time OEE dashboards.



Designed and developed CFM models with real-time KPI dashboards.



Automation, Analytics and AI Projects for Manufacturing Customers



Remote inspections and detect defects during production using CNN models.



Solution delivered as an AI driven model based on the refinery incident model.



Designed a solution using MS Azure to analyze streaming data from a Process Historian.



Discover for Innovation

Identify opportunities and classify capability baseline from client stakeholders

Prioritize high impactful/ROI areas where we need to go for digital transformations to align business with Industry 4.0+ initiatives

Design for Transformation

Design use-cases, perform technical research and create specifications on areas for innovation

Study data related to earlier business transformations, in-flight projects, and current performance level KPIs to benchmark against the industry

Develop for Performance

Develop an industry alignment to post covid-19 era, sustainability goals and industry 4.0+ demands

Build a responsive digital ecosystem built on **5R** -
Real-time Monitoring, Remote Operations, Robotic Process Automation, Responsive Support & Risk Controls



Thank You

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