

AI IN MANUFACTURING

The Problem

- High volume of Industrial Data.
- Higher Computing Power needed.
- Complex Market demands and Limited time.

Envisaged solution

AI Implementation with a focus on Cost Efficient Pilots

The Result

- Improved OEE
- Better designing
- Increased revenue
- Faster cycle times
- Lower maintenance

ANOMALY DETECTION AND SOFT SENSORS

AI detects blade dulling via drive torque
schedules replacement
Predicts quality for longer shelf life

SERVICE BASED AUTOMATION

- Connected Devices
- Swarm Intelligence
- Data Mining and enable (Equipment)
- EAAS (Product) PAAS

EFFICIENCY BASED AUTOMATION

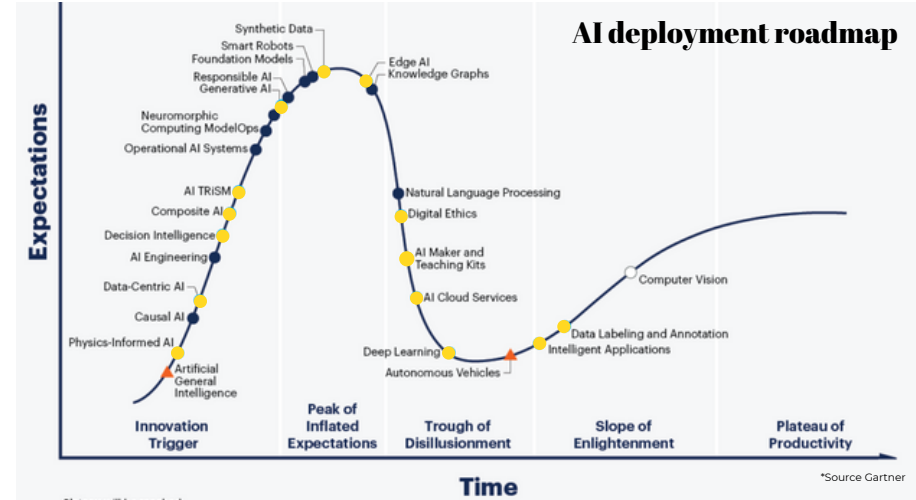
PLC,DCS, HMI, SCADA, COBOTS Increase OEE and generate cost efficiencies

OUTCOME BASED AUTOMATION

- Data Science
- Advance robotics
- Predictive Analytics
- Pay-Per-Outcome

FULLY AUTONOMOUS

- E2E automation
- Demand sensing
- Machine Vision, motion sensors
- Edge Computing



NEAR TERM


Speech and Image Recognition
Smart Sensors
Machine Learning

LONG TERM

Neural Networks
Deep Learning
Decision Intelligence
Cognitive Machines

Gradual AI Based Transformation

		Human Support	Automation of Repetitive tasks	Understanding context and Learning	Self Awareness
Data Type	Structured Numerical Analysis	BI, Visualisation & Hypothesis analysis	Operational Analytics, scoring & Model Management	ML, Neural Network, & deep learning	Convergence and Sensitivity analysis
	Unstructured Text and Image Analysis	Speech Text Recognition	Machine Vision and recognition	Cognitive learning and NLP	Metacognition & Feedback Loops
Function	Digital Functions	Business process management	Rule based engine and Process Automation	Swarm Intelligence	Platform-Specific Adaptation
	Physical Functions	Remote Equipment Management	Industrial Collaboration Robots	Autonomous Robots and Vehicles	Autonomous Warehouse and Inventory control

Level Of Intelligence 

Benefits of AI in Manufacturing

Use Cases



Started to research AI-based car design using the generative AI. Designers can leverage publicly available text-to-image generative AI tools as an early step in their creative process.



uses artificial intelligence (AI) to understand customer behavior and brand effectiveness through its next-gen vending machines.



Pharmaceutical AI can help automate the production of information, which comes from clinical research organizations, for regulatory requirements



Currently uses AI in more than 400 applications. Majorly for development of new vehicles and technologies. It also forms the basis for automated driving and the most natural user experience possible in the car itself – natural interaction.



Cement plant digital twin. utilizing real-time 3D virtual modelling. Integrating sensors, data analytics, and machine learning ensures faster, more efficient, and reliable manufacturing.



In just one quarter during 2020, they generated more data than in the company's entire 300-year history, by using AI they are enabling predictions for patient impact.

Invisible Benefits

Immediacy and efficiency

Processing of data becomes easier with AI. You can translate that to faster and efficient production of goods

Solve For Complexity

Shop Floor use cases where a lot of complexity is involved in designing or processing can benefit from AI. Eg- smart QA machines that require ultra speeds

Plant Safety and NVH Planning

Robots powered by AI such as Boston Dynamics dog, can help scan for Digital twins at areas which might be hazardous for humans

Performing Diverse tasks

Edge to Cloud computing require diverse task handling capability at the ground level of the factory, AI can become an enabler.

Reliability and Accuracy

Cognitive robots that can harmonise human and robot interaction are the future of Factories. Mimicking and learning from human movement is another key asset.

Industry Penetration Matrix (of AI)

	Sales	HR	Supply Chain	Ops	IT	Finance
Building Material	NLP for contractual sales	HR Operations and Administration	Feature Extraction & Classification	Texture and Color Analysis Material Yield	Risk Assessment & cybersecurity	Book keeping Automation
Food & Beverage	Sales Forecasting	Real time Pre-Screening and BGV	Compliant Quality Standards	Contamination prevention and palletisation	Performance Optimization	Cash Flow Forecasting
Pharmaceuticals	Targeted conversations and MR chatbots	Performance Management	QA, Feedback mechanism	Composition analysis	Automated information extraction	Regulatory Compliance
Automotive	Demand forecasting & Distributor analysis	Training and development of Line workers	Unstructured Machine Data Analysis	Auto Parts Fault Detection Predictive Maintenance	Automated Monitoring and Alerts	Long Range Planning
CPG	Sentiment Analysis and Product Development	Video Interview Analysis	Automated Palletizing inventory opt.	Clustering and Unsupervised ML	Self-Tuning Databases	Decision Intelligence & Risk Assessment



Low Maturity



Mid Maturity



High Maturity

To Know more click here

