TOP MACHINE LEARNING USE CASES IN MANUFACTURING INDUSTRY IN 2023

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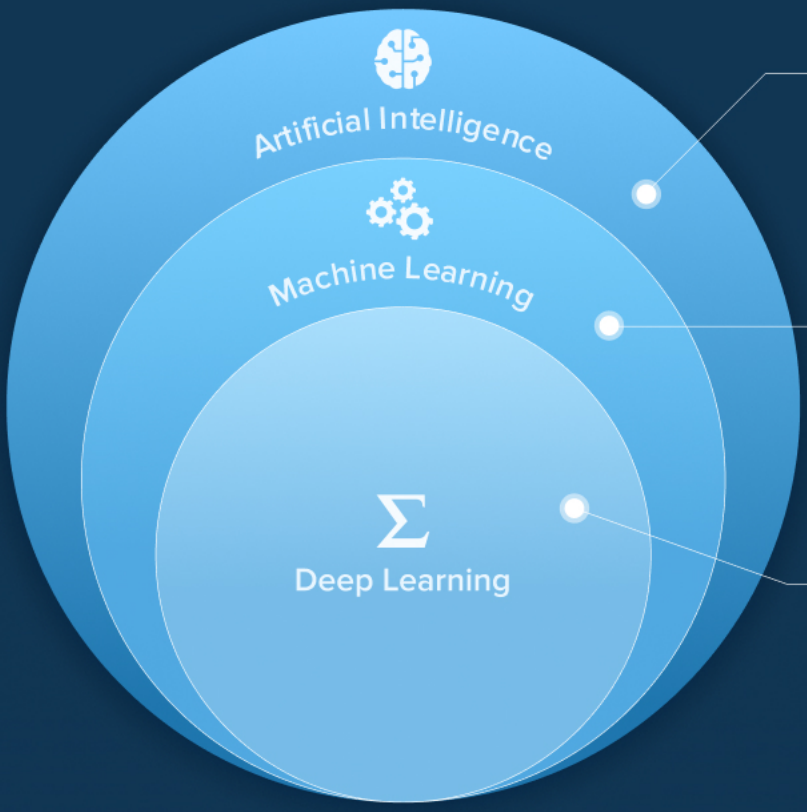
Big Technology Overview



ARTIFICIAL INTELLIGENCE

An umbrella term that refers to mimicking human intelligence processes by computer systems.

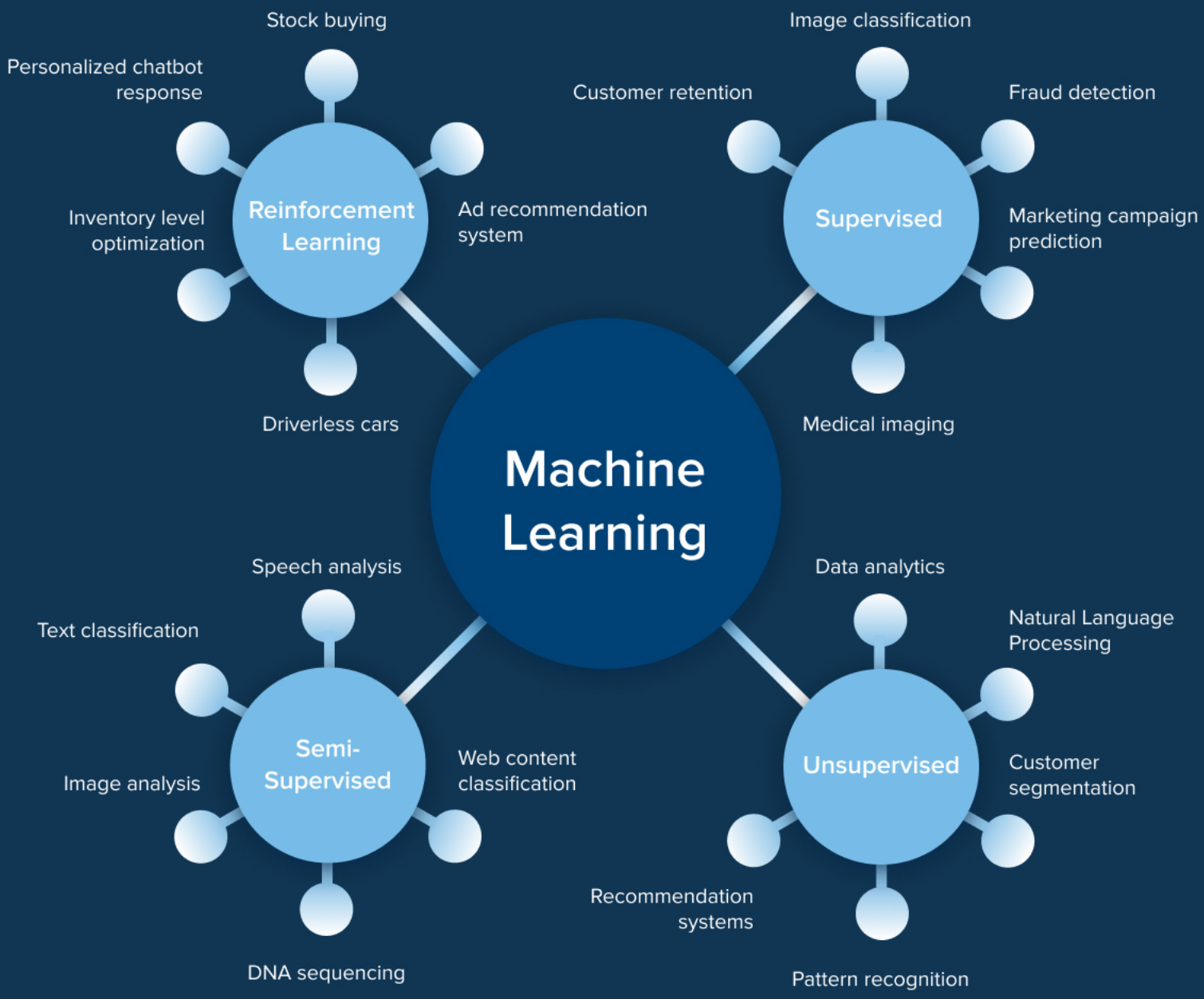
MACHINE LEARNING

A subset of AI that allows for designing and developing algorithms that can learn from data and make predictions.

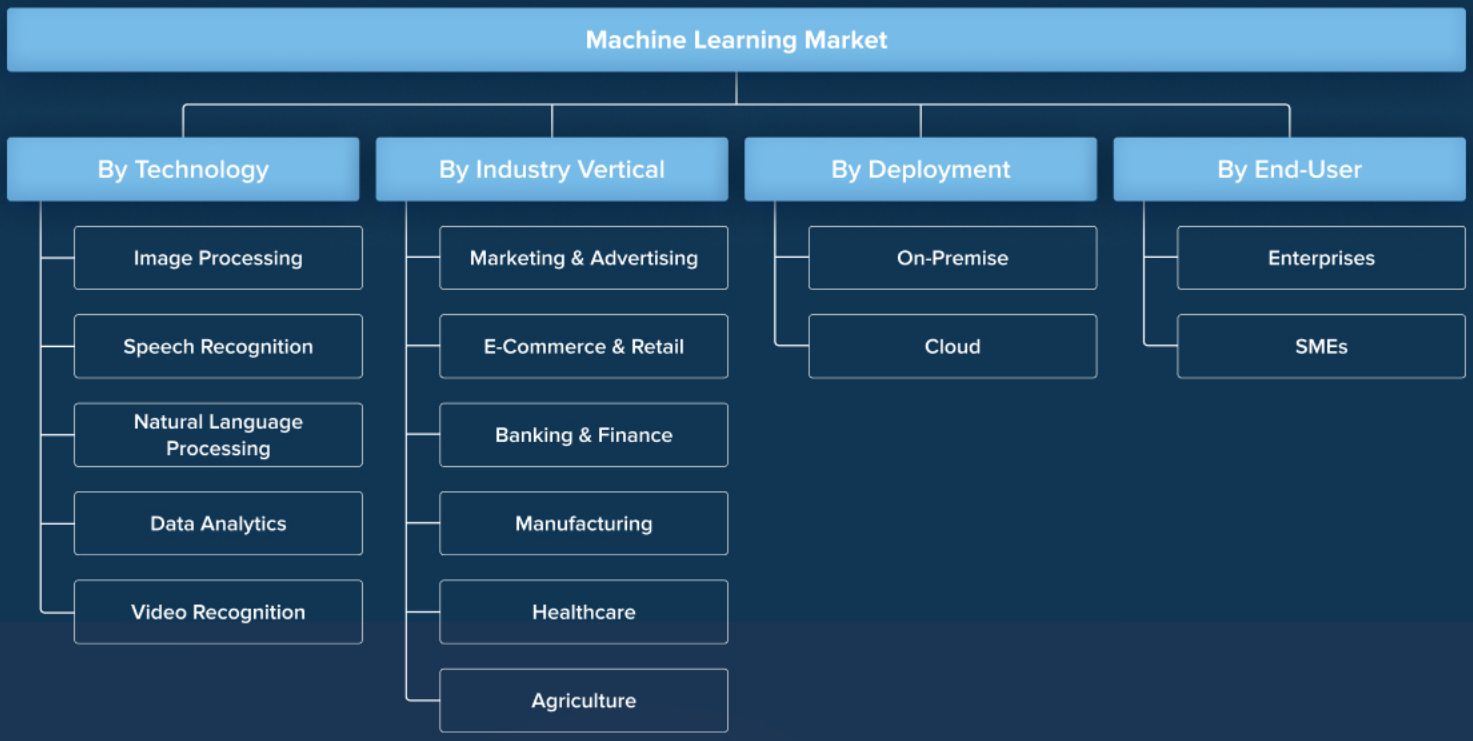
DEEP LEARNING

A branch of ML based on artificial neural networks that can emulate human-decision making capabilities.

Machine Learning Algorithms and Use Cases



Machine Learning Market



Machine Learning Market 2022 - 2030

Market Size	CAGR	Dominating Region	Forecast Period
$21.17 Billion	38.8%	North America	2022 - 2030

How Machine Learning Shapes the Manufacturing Industry

$2.3 billion
The market value of machine learning in manufacturing in 2022.
Globe Newswire

$16.3 billion
The market value of ML in manufacturing by 2027.
Globe Newswire

93%
Percentage of companies relying on AI to drive growth in the sector.
Deloitte

Key Drivers of Intelligent Automation in Manufacturing

- Big data
- Hardware advances
- Cloud computing
- Industrial IoT

Challenges Manufacturers Face Daily

- Growing amount of data silos
- Unplanned downtimes with associated production losses
- Incomplete view of business operations

Data Types Residing in Manufacturing Siloed Systems

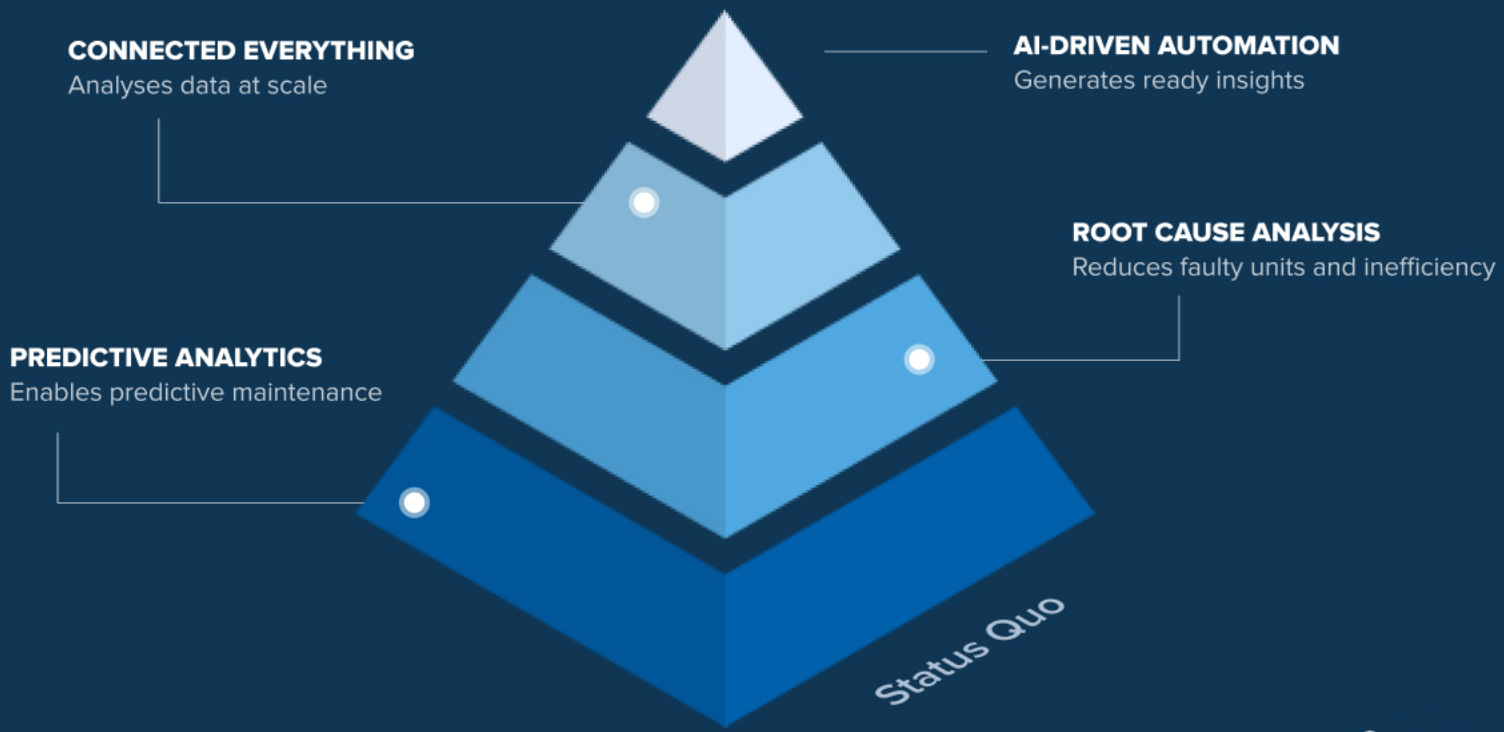
Structured data

- Production execution systems (MES)
- Business systems (ERP, PLM, CRM)
- Process monitoring technologies (HMI-SCADA)
- Order and inventory platforms

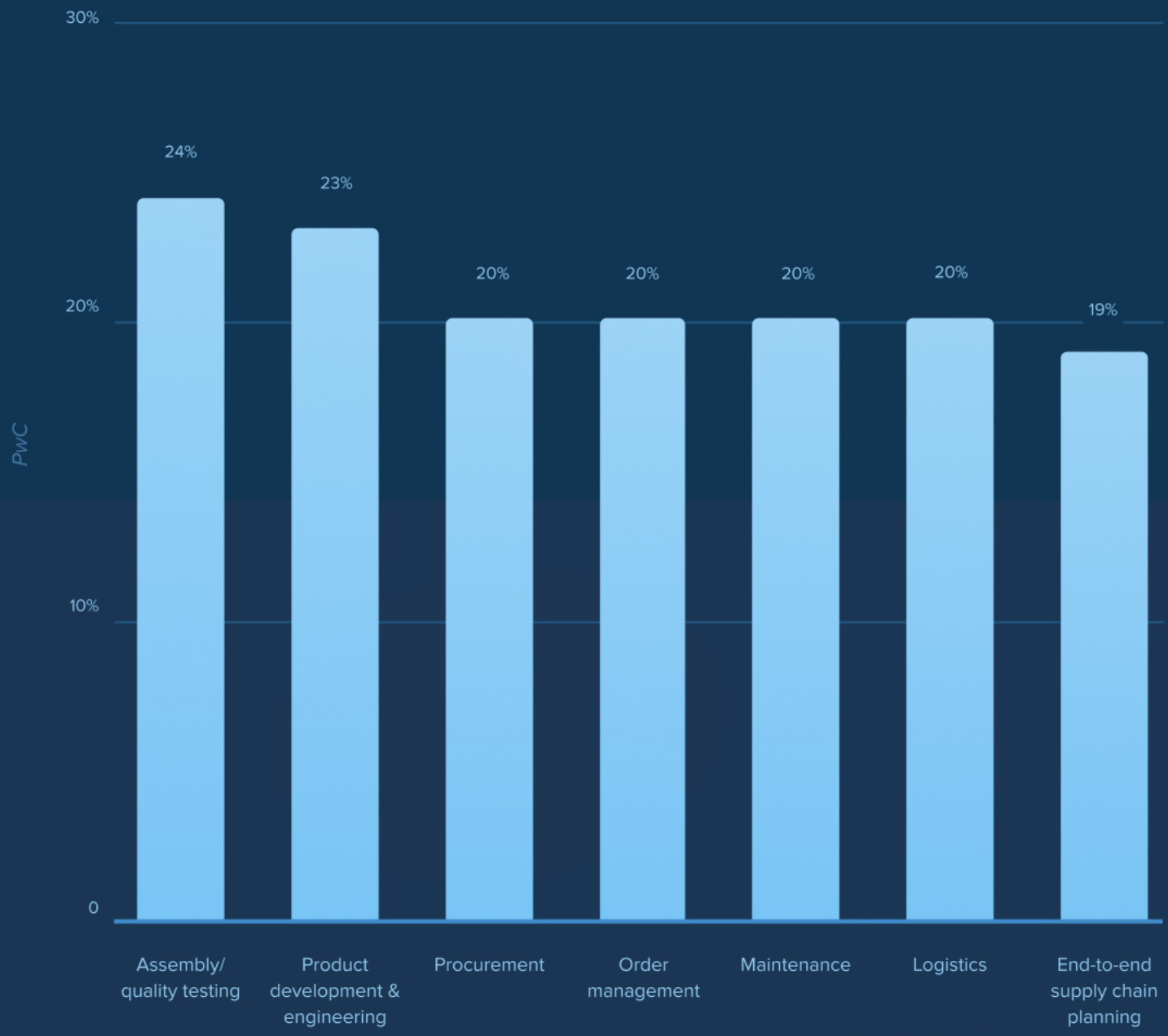
Unstructured data

- Industrial IoT data
- Text documents
- Video
- Images

4 Analytics Capabilities Machine Learning Brings into Manufacturing



Machine Learning Use Cases in Manufacturing



Business Use Cases for Machine Learning in Manufacturing

Grow revenue

- SALES AND MARKETING AUTOMATION
- ML-GENERATED PRODUCT DESIGN

Reduce costs

- DESIGN TO COST
- DEMAND FORECASTING
- BACK-MID-/FRONT-OFFICE PROCESS AUTOMATION
- LABOR AUTOMATION

Optimize expenses

- DIGITAL SUPPLY CHAIN / INVENTORY
- DETAILED SCHEDULING/ NETWORK PLANNING

Case Study

Using ML to predict equipment failures

01

DATA GATHERING

- Connect sensors to assets
- Clean and preprocess sensor data from the machine

02

ANALYSIS

- Identify baseline and set parameters
- Assess the historical data of the equipment over a fixed period of time

03

ANOMALY DETECTION

- Detect anomaly outside the parameters
- A work order is created for the equipment

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