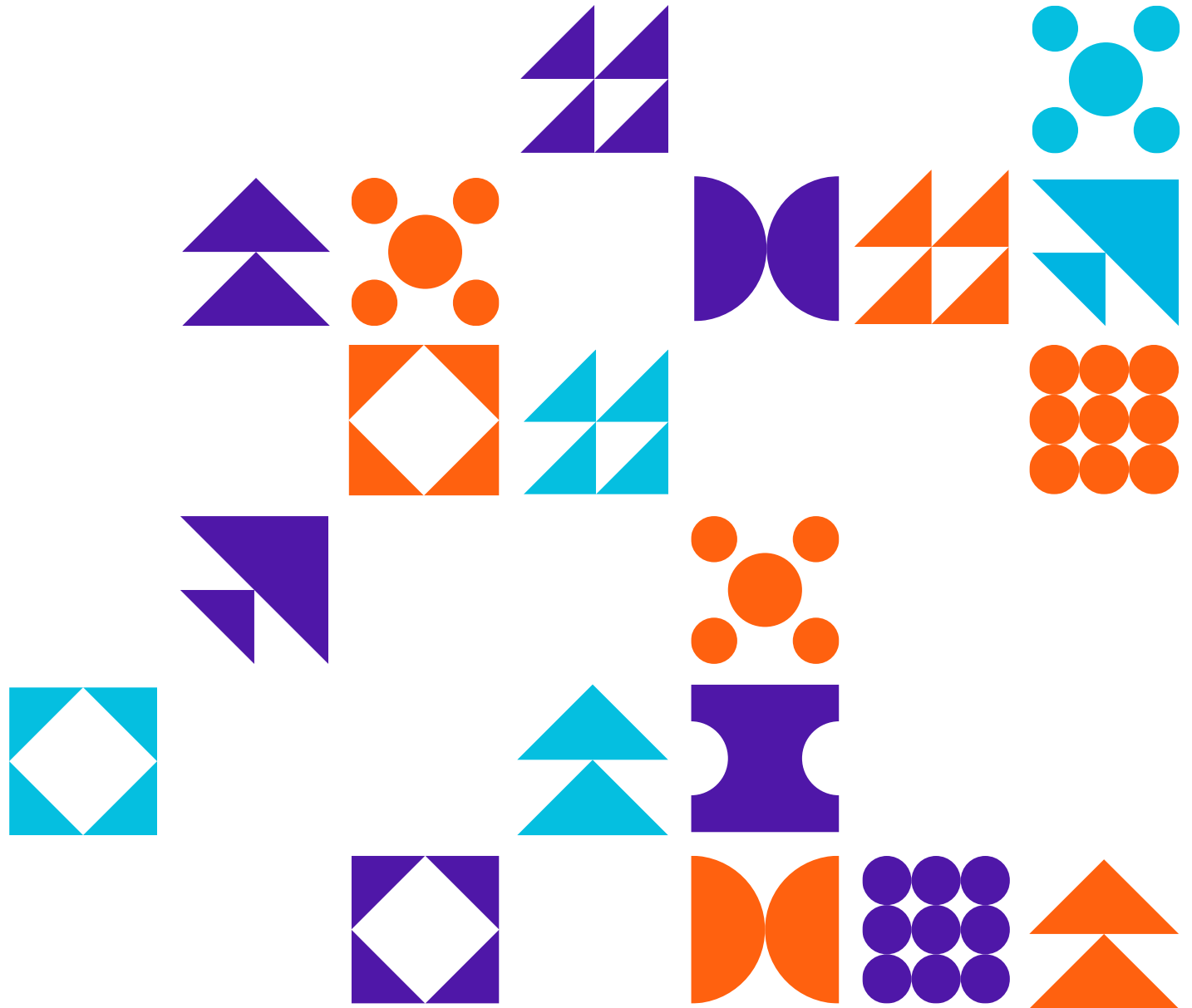# REVOLUTIONIZING PPM WITH AI

Harnessing Artificial Intelligence for Enhanced Project Outcomes

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PhD Candidate

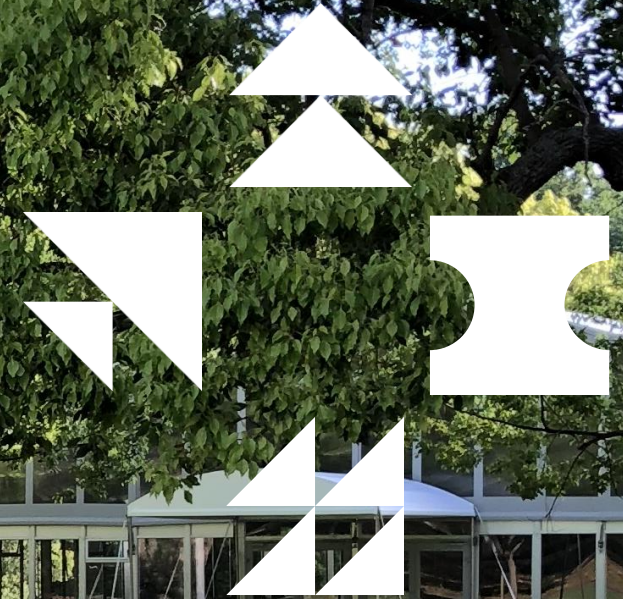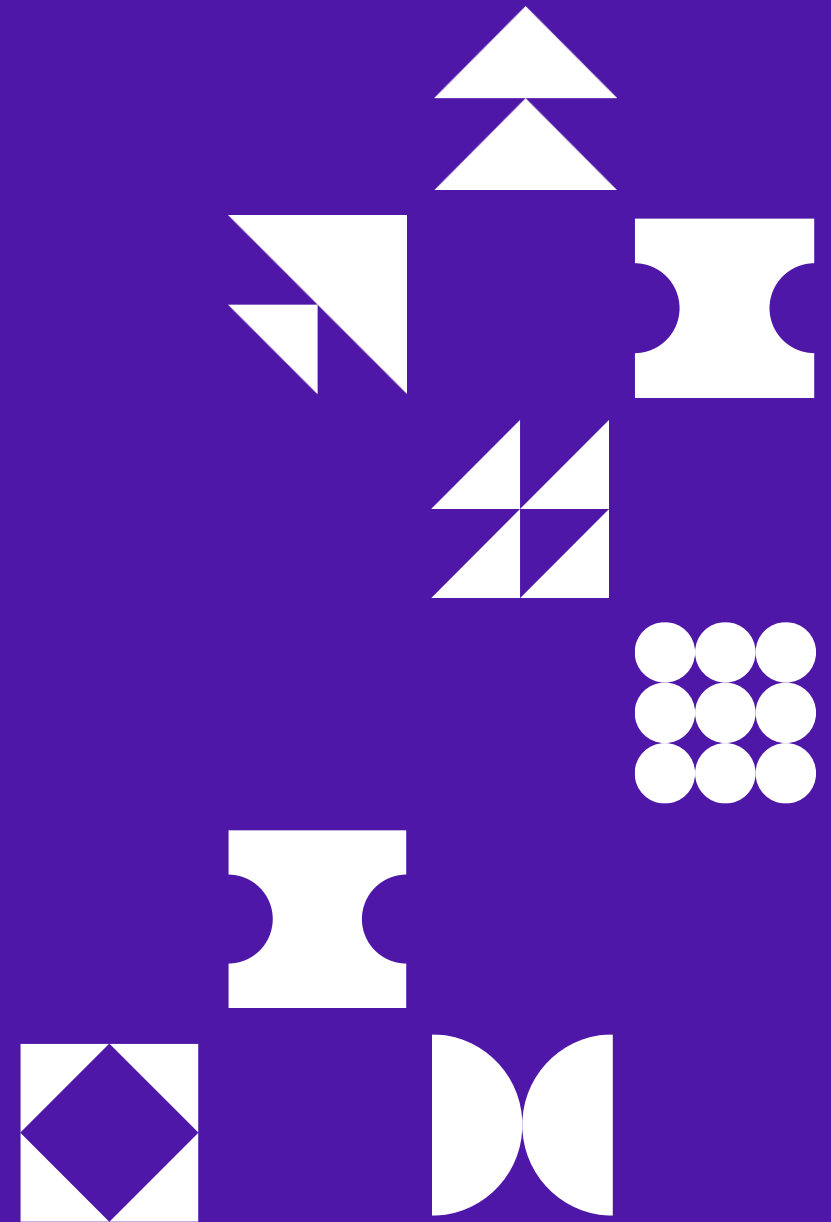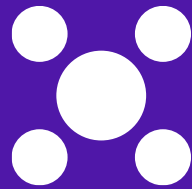Project Management Institute. Zimbabwe

DECISION MAKING

A billionaire bought this property

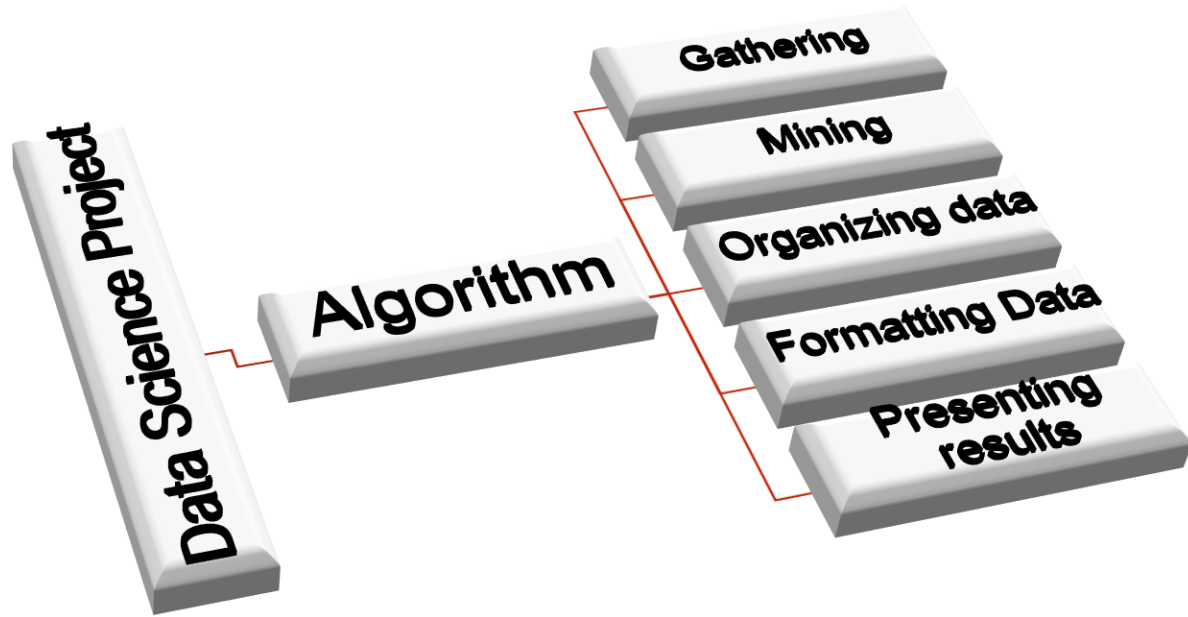Why do you think the billionaire bought this property?

DATA ANALYTICS & APPLICABLE AI

Data Science

Data is like an ore body – mineable & can be processed into several products

How can a company unlock the value of data?

Revolutionizing PPM with AI

Algorithm

Complex and often depend on machine learning (ML), artificial intelligence (AI), or both

The different types of algorithms are:

- **Classification algorithms** - that sort data into groups based on predetermined attributes (supervised learning).

- **Clustering algorithms** - sort data into groups based on attributes the algorithm discovers in the data (unsupervised learning)

- **Anomaly or outlier algorithms** - look for deviations from the normal distribution.

- **Regression algorithms** - predict data trends.

- **Compression algorithms -** reduce the data's physical size.

- **Pattern matching algorithms -** compare patterns in images and text.
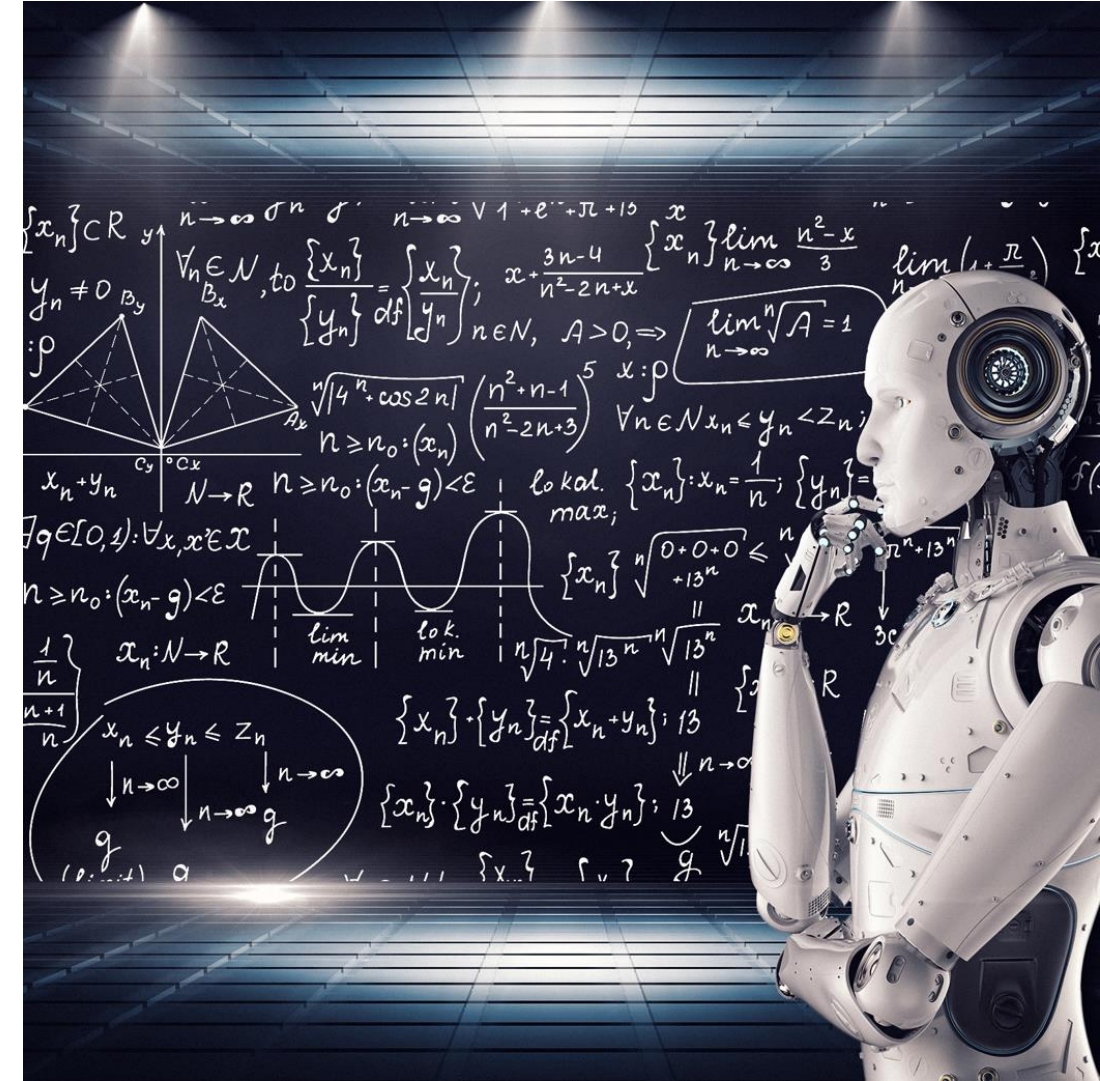
Artificial Intelligence

Human-like intelligence embodied in computers and other machines, and deployed at a massive scale

Machine Learning, Deep Learning, Data analytics, Neural Networks, Big Data

- **Challenges/Risks** - loss of control over private data, relegating decision-making to machines, and the probability of building human biases into AI algorithms

- **Requires Practice** – AI application is fed massive amounts of data and then asked to do something based on the patterns it discovers in the data.

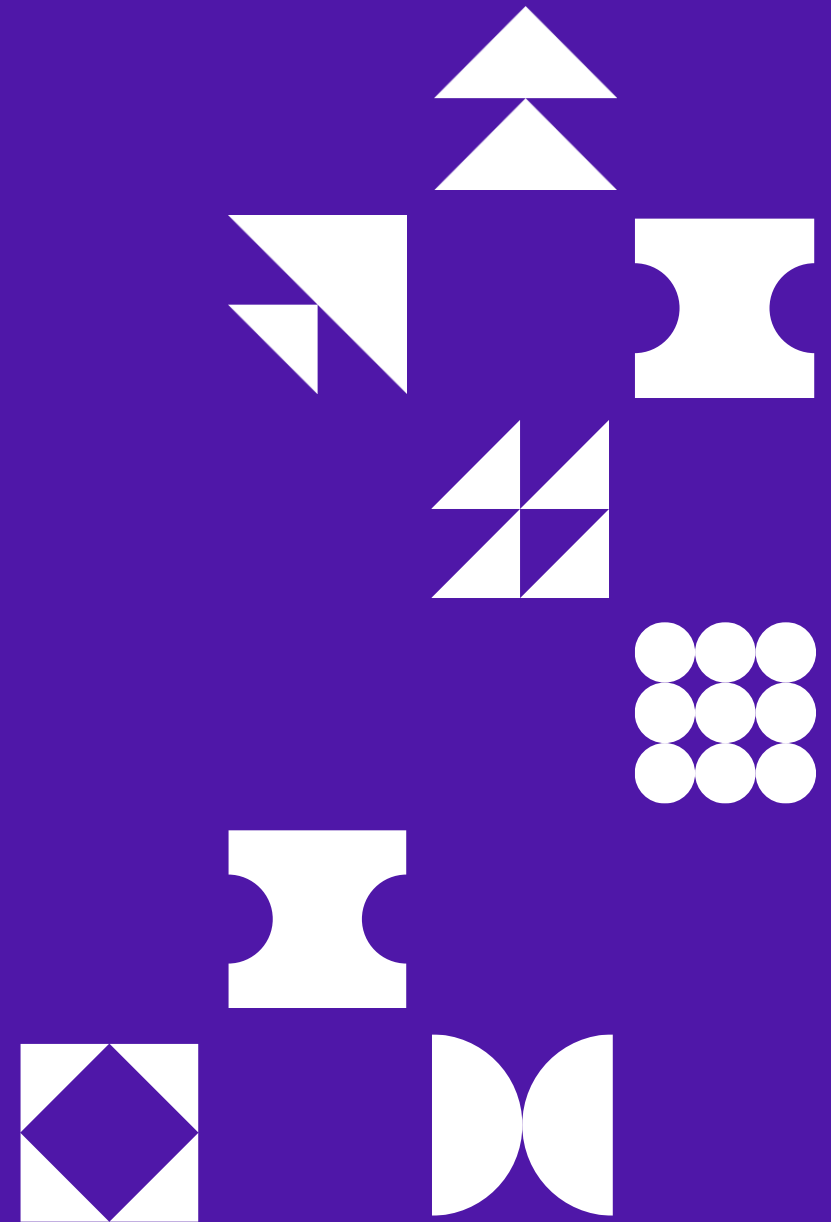- Algorithms essentially improve the AI's capabilities with practice

Machine Learning & Deep Learning

Image by 7wData
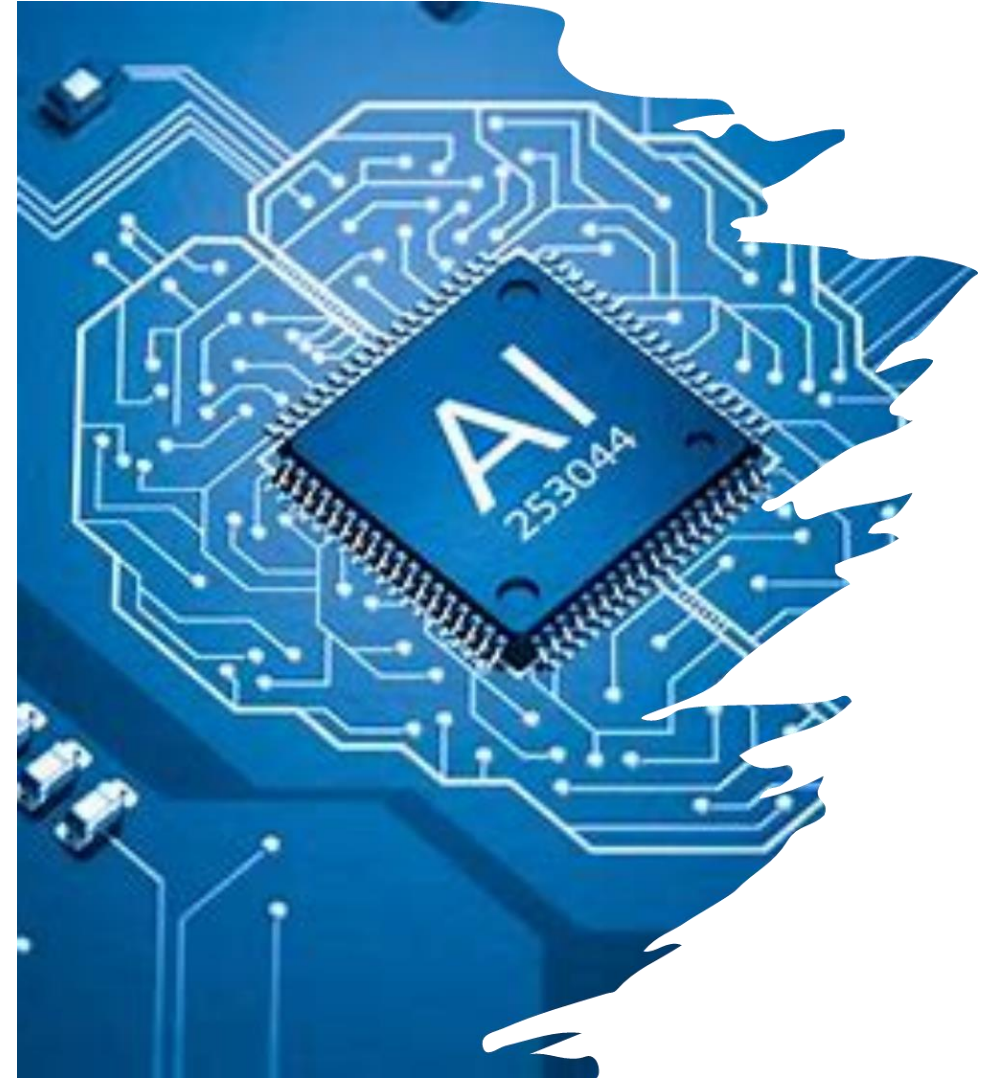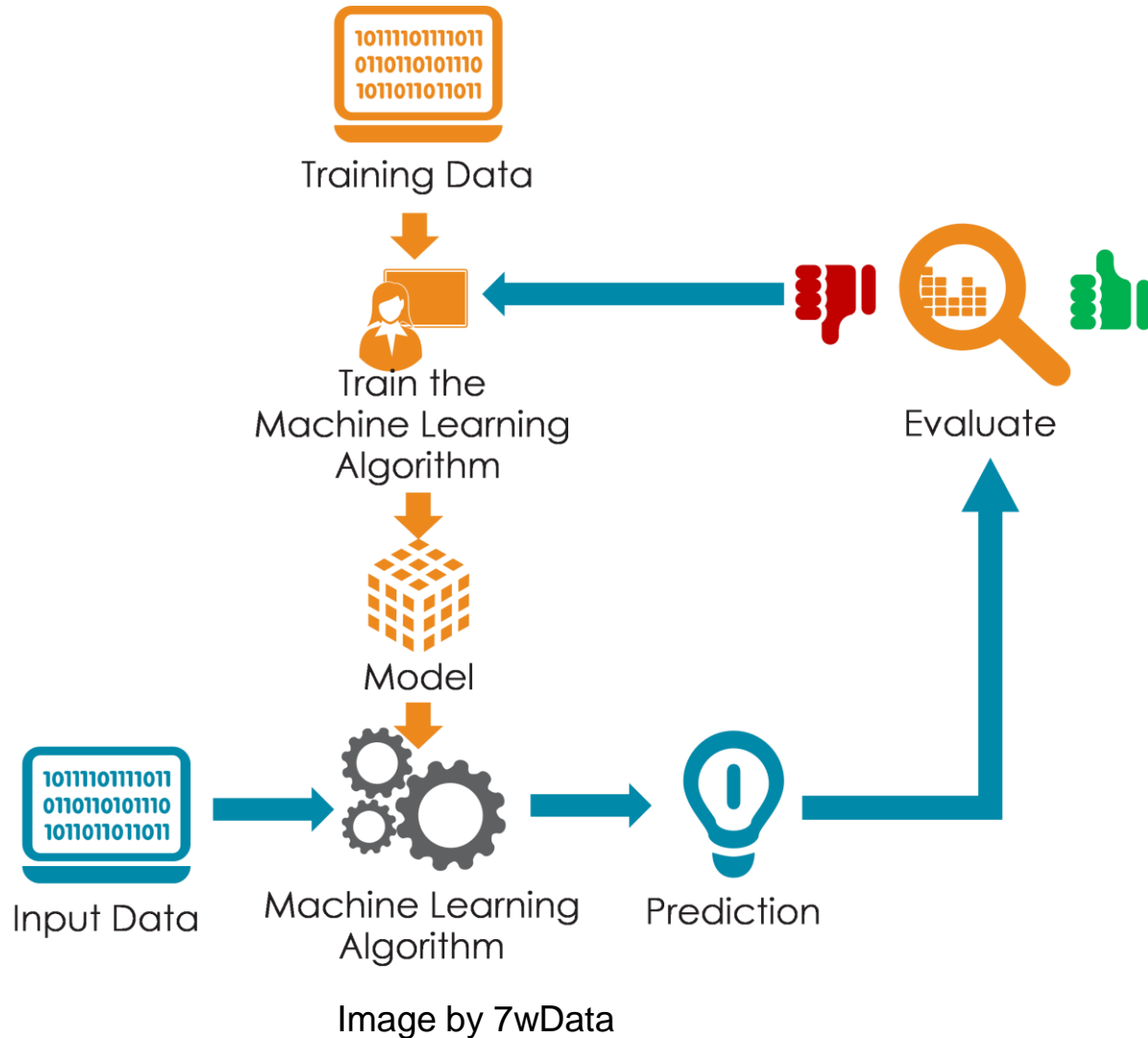
- **Machine learning** - AI application is fed massive amounts of data,
  - Asked to do something based on the patterns it discovers in the data (Unsupervised learning).
  - Asked to do something based on known patterns (supervised learning)

- **Deep learning** - uses artificial neural networks.
  - Traditional computing systems are linear,
  - Neural networks use layers of interconnected computing nodes—similar in structure to human brain neurons—
  - The network is used to create understanding and identify patterns.

PROJECT PORTFOLIO MANAGEMENT (PPM)

Project Portfolio Management (PPM)

Definition

Centralized management of processes, methods, and technologies used to analyze and collectively manage a group of current or proposed projects based on numerous key characteristics.

Purpose

PPM - senior leadership discipline

- Drives strategic execution and maximizes business value delivery through the selection, optimization,

- Oversight of project investments which align to business goals and strategies.

Importance of PPM in Strategic Business Planning

• Aligns projects with an organization's strategic objectives

• Enabler for effective strategy, serving as the true traction point for strategic execution.

• Good resource allocation, prioritization of projects, and balancing the project portfolio to achieve strategic business outcomes.

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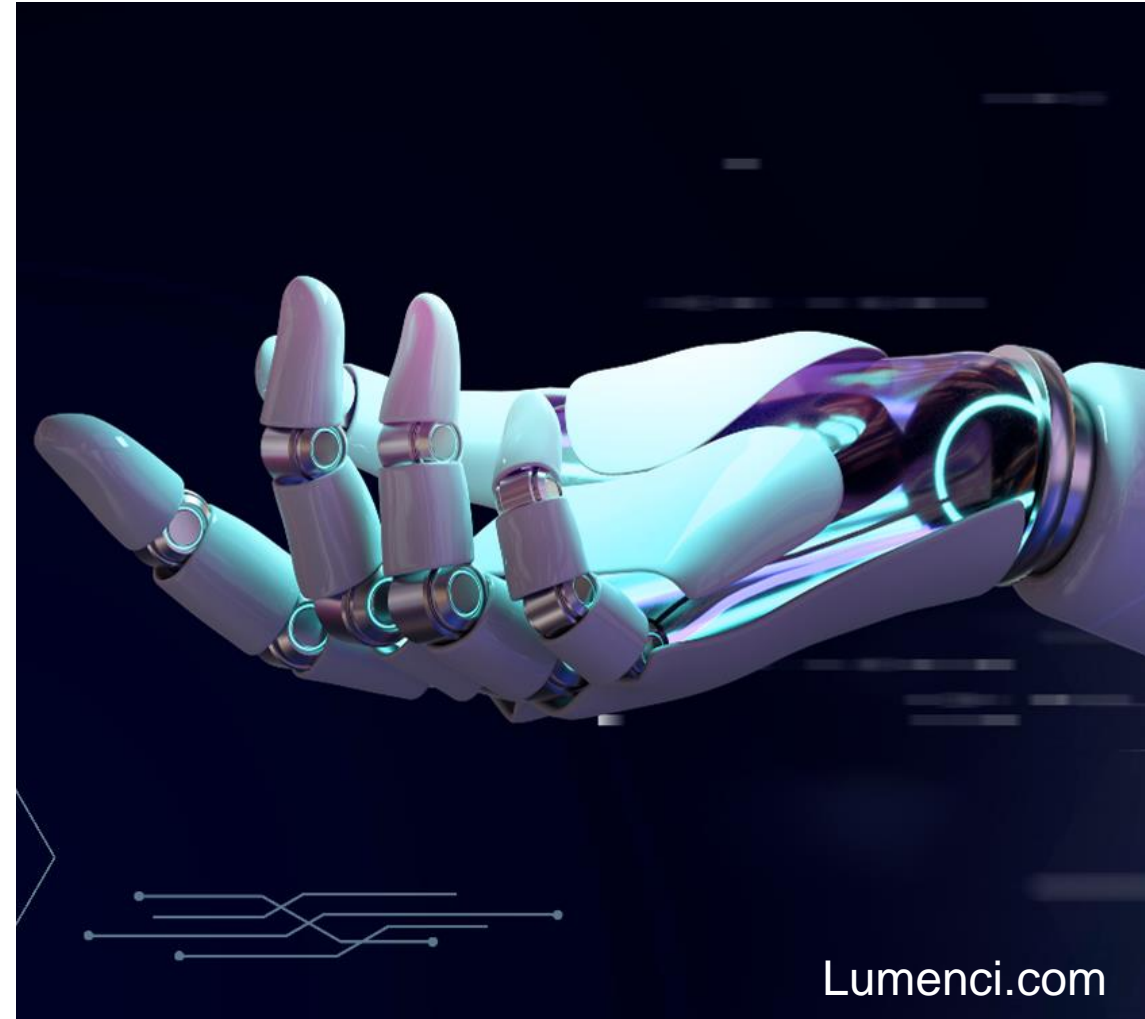
Challenges in Traditional PPM

Common Challenges and Limitations of Traditional PPM Methods

- **Inflexibility**: Difficulty adapting to changes in real-time.
- **Time-Consuming:** Manual processes lead to delays.
- **Lack of Visibility:** Limited insights into project performance.

The Need for Innovation and Technology Integration:

- **Automation:** Implementing tools for real-time data analysis and reporting.
- **Flexibility:** Adapting methods to fit diverse project needs.
- **Enhanced Insights:** Utilizing technology for deeper project understanding.
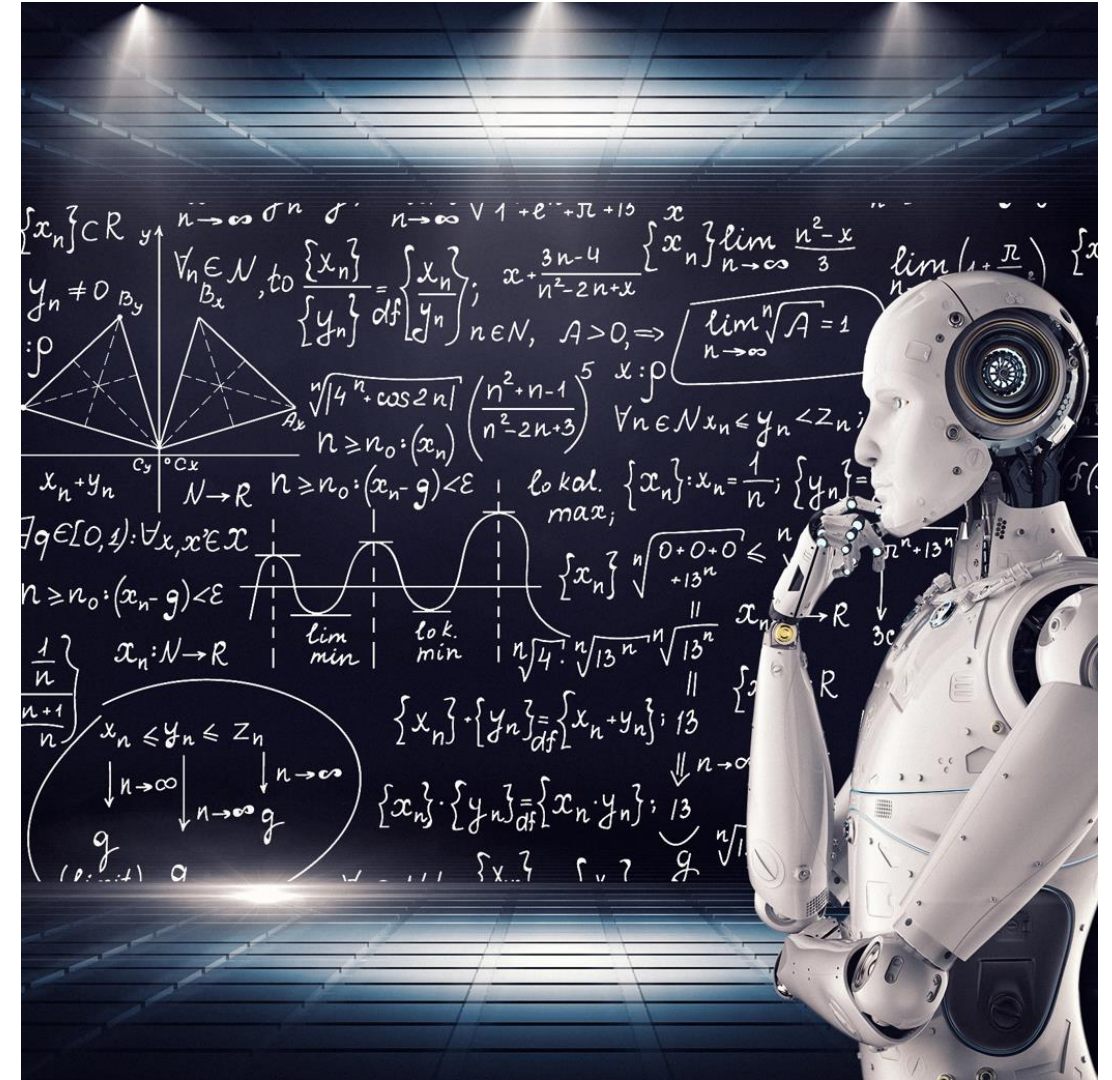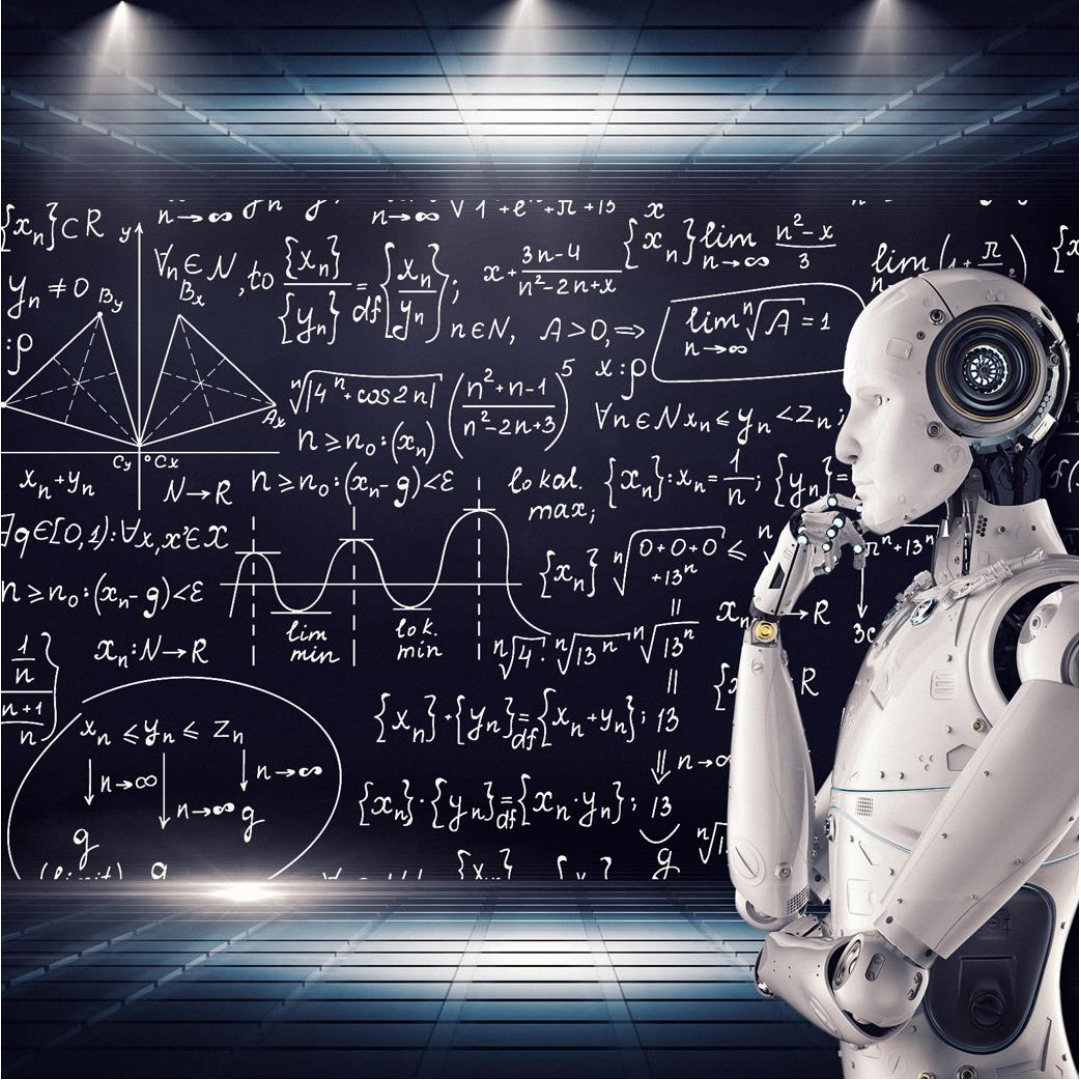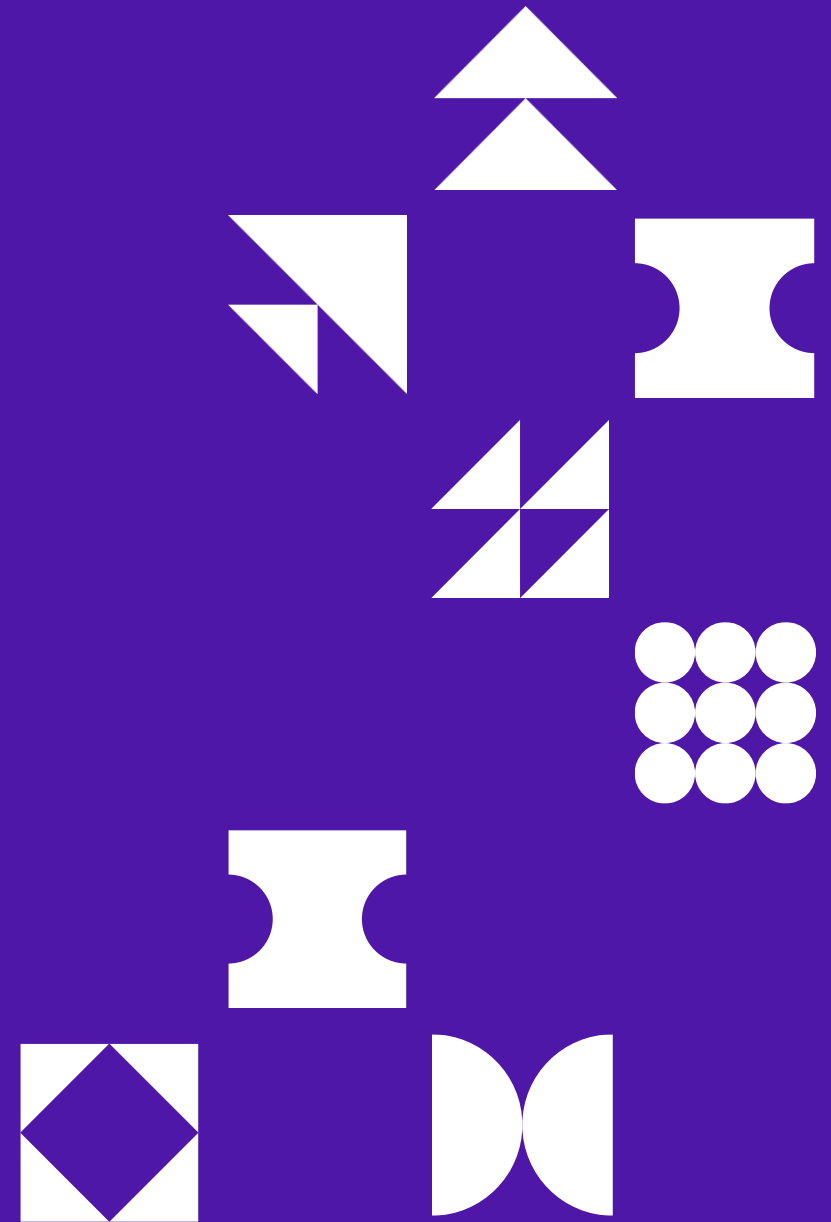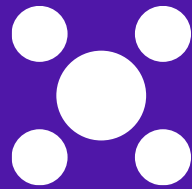
PPM vs Strategic Objectives

The importance of PPM in strategic business planning lies in its ability to:

- ❑ Align Projects with Strategy

- ❑ Optimize Resource Allocation

- ❑ Enhance Decision-Making

- ❑ Improve Project Outcomes

- ❑ Drive Change and Innovation

ARTIFICIAL INTELLIGENCE IN PPM

AI in PPM - An Overview

AI and its Relevance to PPM

- AI, or Artificial Intelligence, refers to the simulation of human intelligence in machines.

- AI can streamline processes, enhance decision-making, and predict project outcomes.

Key AI Technologies Impacting PPM

- **Machine Learning**: Improves predictive analysis and risk assessment.

- **Data Analytics:** Offers valuable insights through data visualization and trend analysis.

Note
Machine learning, a subset of artificial intelligence, focuses on programming machines to perform tasks more efficiently. By utilizing large datasets, machine learning methods can uncover hidden relationships between input and output parameters, providing accurate and efficient solutions

AI in PPM

Introduction of advanced capabilities for managing and optimizing projects.

- ❑ **Enhanced Forecasting and Decision-Making**: informed project management decisions

- ❑ **Optimized Project Selection**: AI can process large volumes of data to help eliminate biases.

- ❑ **Real-time Monitoring and Collaboration**: real-time monitoring of projects, facilitating better collaboration among team members and stakeholders.

- ❑ **Portfolio Optimization**: AI's progressive capabilities complement the efforts of the PMO to generate more optimal portfolios by considering factors like value scores, risk assessment, project timelines, and resource allocations.

- ❑ **Data-Driven Strategy**: AI enables a data-driven approach in PPM, allowing for pattern recognition, future trend prediction, and the analysis of intricate project data

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Enhancing Decision-Making with AI (Examples)

How AI Improves Forecasting and Risk Assessment

a. **Weather Forecasting:** AI has significantly improved the accuracy of predictions, leading to better preparedness for natural disasters.

b. **Financial markets:** ML is used for risk assessment, helping investors make informed decisions and manage investment risks.

c. **Healthcare Sector:** benefits from AI in predicting disease outbreaks and assessing patient risks, improving public health responses.
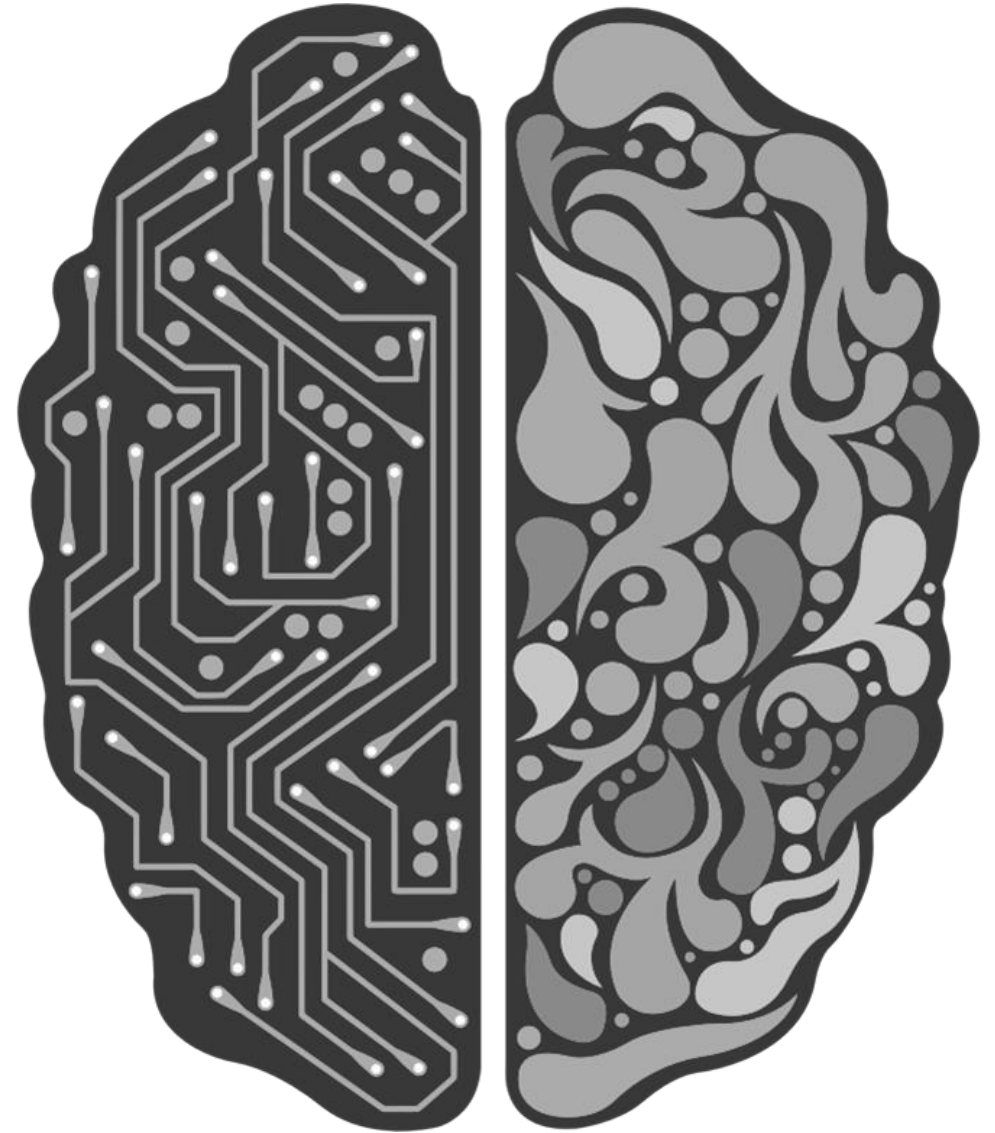

Image by GDJ Clipart (https://openclipart.org/)

Enhancing Decision-Making with AI (Examples)

Case Studies of AI-Driven Decision Support

a. **Operations Management**

AI-driven forecasting in operations management can reduce errors by 20 to 50 percent,   leading to significant improvements in supply chain efficiency and cost reductions.

b. **Risk Assessments**

AI technologies like user and event behavior analytics (UEBA) can detect, analyze, and   respond to threats, reducing false positives and improving risk scoring accuracy.

c. **Financial Forecasting**
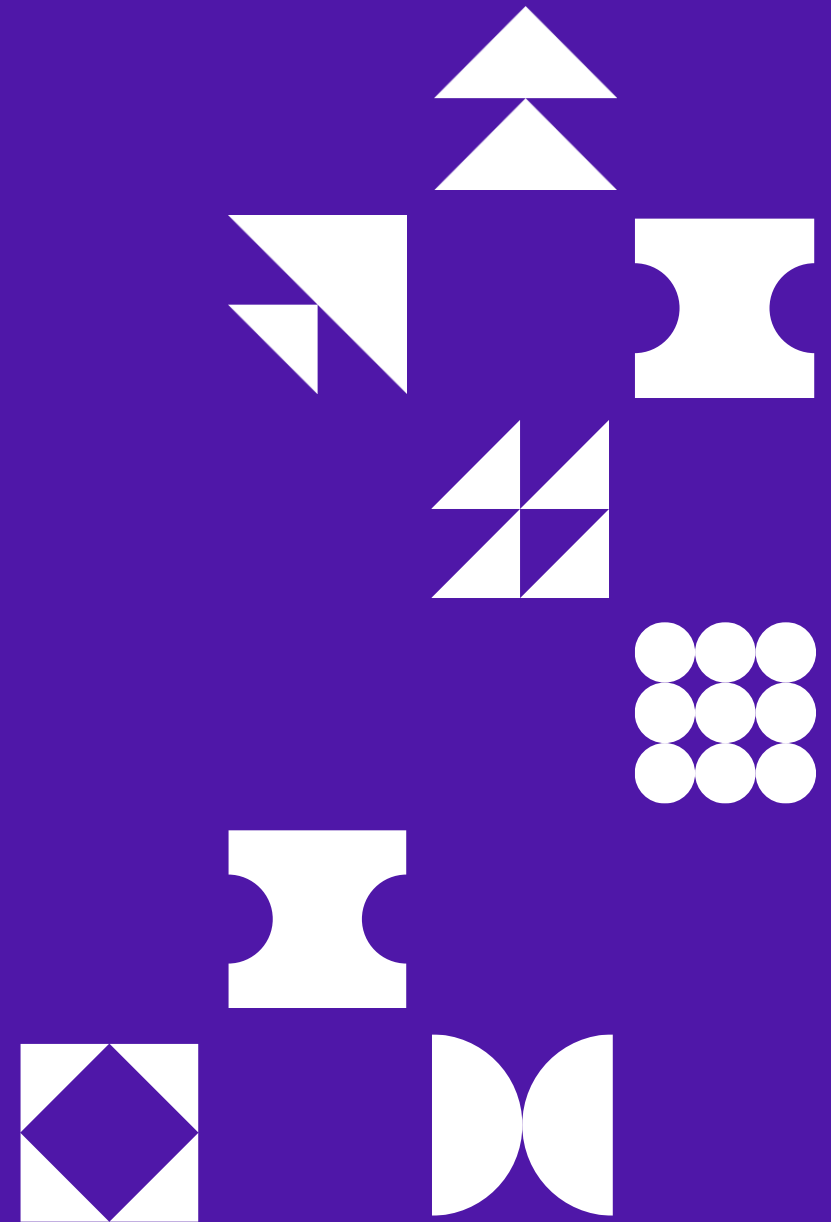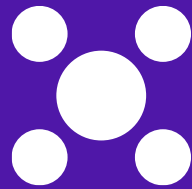
AI-powered models in financial forecasting evaluate complex risk factors and provide early warnings, enhancing risk management strategies.

d. **Healthcare**

A study on integrating AI-driven cardiotography (CTG) into clinical decision-making highlights the importance of accurate, efficient, and personalized risk assessments

AI DRIVEN PROJECT SELECTION & OPTIMIZATION

AI-Driven Project Selection and Optimization

1. Transforming Decision-Making

- AI enhances data-driven decision-making, analyzing vast datasets to identify the most impactful projects.

- ML algorithms predict project success, helping prioritize projects with the highest potential ROI

2. Eliminating Bias

- AI tools process large volumes of data, removing human biases and enabling more objective project selection.

3. Streamlining Portfolio Management

- AI-driven tools provide a comprehensive view of the project landscape, ensuring alignment with strategic goals. Optimizing Resource Allocation and Timelines through AI
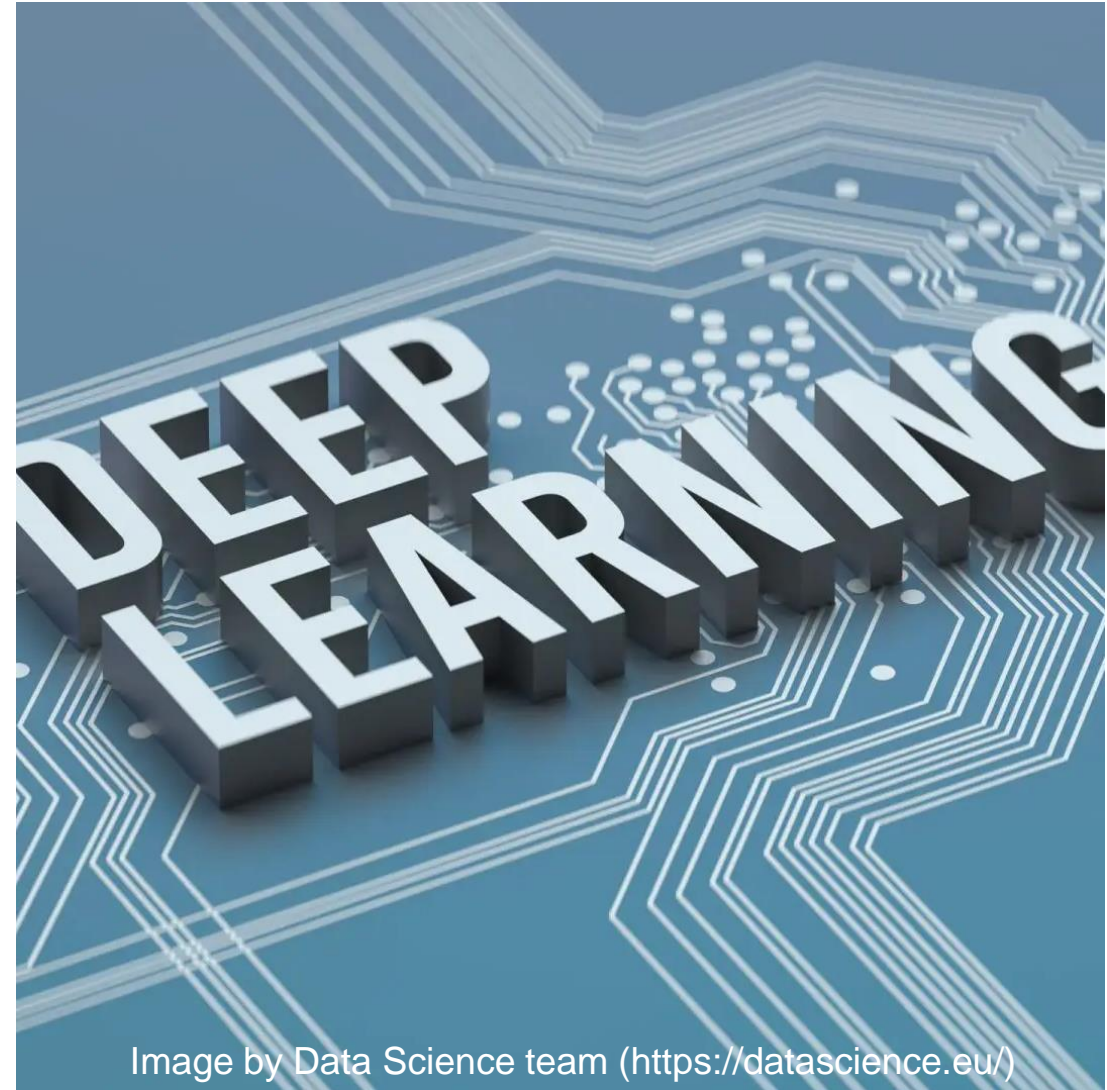

Image by Data Science team (https://datascience.eu/)

AI-Driven Project Selection and Optimization

**4. Predictive Resource Planning**

- AI forecasts resource demands, allowing for strategic allocation and reducing wastage.

- It considers factors like skill requirements, workload, and availability to optimize team assignments.

5. Enhancing Efficiency

- AI-driven optimization leads to continuous improvement in production systems and market demand adaptation.

- Real-time data integration from IoT devices enables dynamic resource allocation as conditions change.

6. Improving Project Outcomes

- AI assists in aligning resources with project needs, ensuring timely completion and maximizing productivity.

- It leverages data-driven insights for foresight in project planning, mitigating risks and streamlining task tracking.
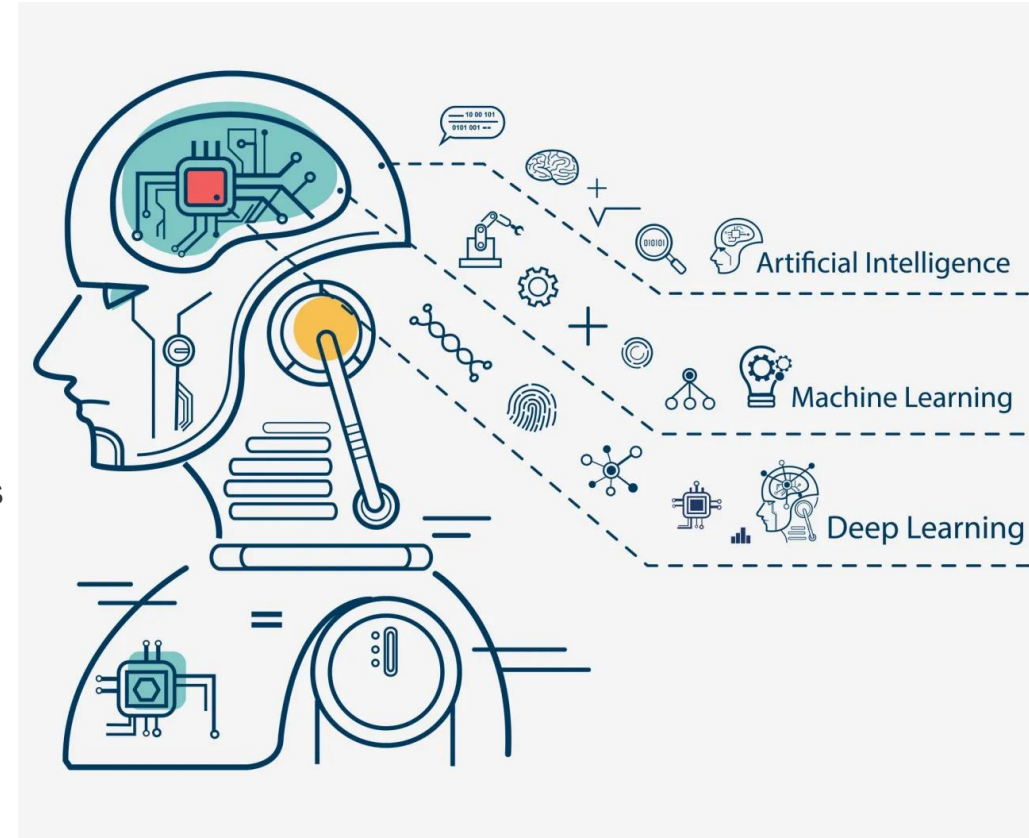
Real-time Monitoring and Collaboration

AI Tools for Real-Time Project Tracking and Team Collaboration

Enhancing Team Dynamics

- ❑ **Taskade and Asana**: Offer real-time collaboration with instant synchronization across devices.

- ❑ **ClickUp:** Provides an AI-powered assistant tailored to streamline workflow and automate tasks.

Communication and Coordination

- ❑ **Slack and Microsoft Teams**: Break down language barriers with real-time translation and transcription.

- ❑ **Zoom:** Facilitates global collaboration with tone and sentiment analysis for effective communication.

Project Management Efficiency

- ❑ **Airtable and Trello**: Utilize predictive analytics to anticipate roadblocks and adjust schedules proactively.

- ❑ **Nuclino and Confluence**: Automate resource allocation, maximizing team efficiency.

Real-time Monitoring and Collaboration

Improving Stakeholder Engagement with AI Insights

Personalized Engagement Strategies

- ❏ AI platforms suggest personalized strategies to enhance stakeholder relationships and drive meaningful outcomes.

Data-Driven Decision Making

- ❏ AI turns data into actionable intelligence, providing insights for informed strategic moves and innovation.
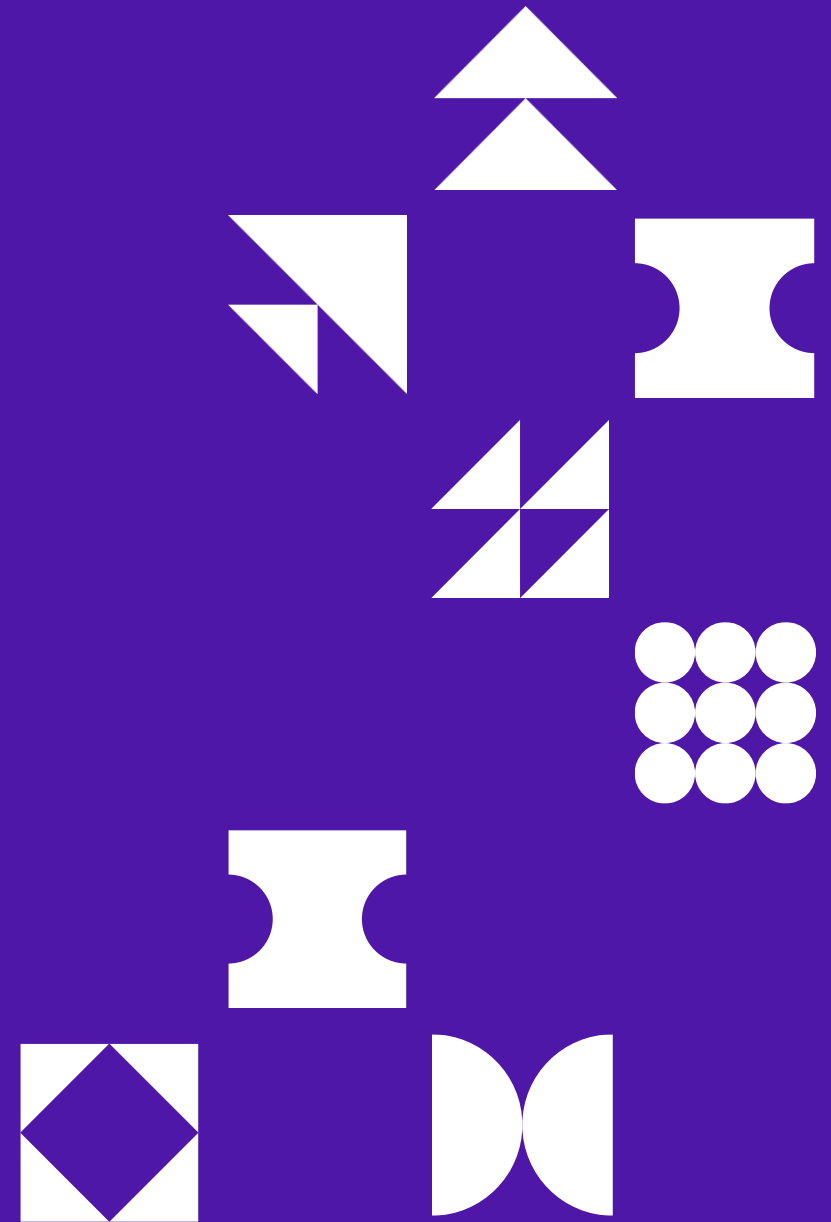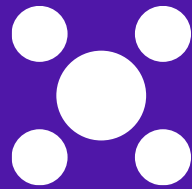
Streamlining Communication Processes

- ❏ AI automates the analysis of stakeholder feedback, sentiment, and engagement metrics, saving time and resources.

Continuous Strategy Optimization

- ❏ AI-driven recommendations refine and optimize engagement strategies based on real-time data.

FUTURE OF PPM WITH AI

The Future of PPM with AI

Predictions for AI's Role

- **Enhanced Decision Making:** AI will process vast amounts of data to facilitate quicker, more accurate decisions.

- **Automation:** Routine and repetitive PPM tasks will be automated, leading to increased efficiency.

- **Risk Management:** AI will effectively predict and mitigate risks, ensuring higher project success rates.

- **Project Scheduling and Forecasting:** AI's impact on project scheduling and forecasting will be transformative, allowing for more dynamic and responsive project planning.

The Future of PPM with AI

Closing Thoughts on Embracing AI for PPM Success

❑ **Adaptation is Key:** Organizations must integrate AI into their PPM practices to stay competitive and agile.

❑ **Continuous Learning:** Embracing a culture of continuous learning is essential to harness the full potential of AI capabilities.

❑ **Strategic Advantage:** Utilizing AI and big data analytics will provide a significant advantage in innovation and efficiency.

THANK YOU

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