AI Demystified: A Project Executive's Guide to the Language of AI

There's a lot of buzz around AI, and for good reason—it has the potential to dramatically improve how capital-intensive projects are managed. But if you're not fluent in AI terminology, it's tough to make informed decisions about where and how to apply it in your business.

This guide breaks down key AI concepts in straightforward terms, helping project executives understand what they mean, why they matter, and how they can impact your projects.

AI (Artificial Intelligence)

Definition: AI is the simulation of human intelligence in computers, enabling them to learn, reason, and make decisions.

How It's Used: AI can help project leaders in the capital projects industry automate workflows, optimize scheduling, and improve risk management —boosting efficiency and profitability.

AI Assistant

Definition: An AI-powered tool that helps users by answering questions, automating tasks, and providing insights based on data. Examples include chatbots, virtual project managers, and AI-driven reporting tools.

How It's Used: AI assistants can streamline decision-making by providing real-time project insights, automating administrative tasks, and reducing the time spent searching for information.

LLM (Large Language Model)

Definition: A type of AI trained on vast amounts of text data to understand, generate, and process language.

How It's Used: LLMs power AI assistants so they can streamline reporting, answer project queries, and improve communication across teams.

Customized LLM

Definition: A large language model that is tailored or fine-tuned to meet specific business needs, industry jargon, and data sets. It is trained on a more specialized collection of text or documents, making it more relevant and accurate.

How It's Used: Customized LLMs can be used to generate project-specific reports, automate communication, or provide insights based on company or industry-specific language and data, such as construction codes or project management terminology.

NQL (Natural Query Language)

Definition: A way of interacting with databases using everyday language instead of complex code.

How It's Used: Enables project managers to pull reports, analyze trends, and make data-driven decisions without needing technical expertise.

AGI (Artificial General Intelligence)

Definition: AI that can perform any intellectual task a human can, with reasoning, learning, and problem-solving abilities.

How It's Used: While AGI isn't here yet, understanding its potential helps businesses prepare for future AI-driven transformation.

Machine Learning (ML)

Definition: A method where AI learns from data and improves performance without explicit programming.

How It's Used: ML helps forecast delays, detect cost overruns, and optimize workflows by identifying patterns in past projects.

Generative AI

Definition: AI that creates new content—text, images, code, or even project plans—based on learned patterns.

How It's Used: Can generate project reports, assist in design iterations, and automate documentation, saving valuable time.

Deep Learning

Definition: A subset of machine learning using neural networks to analyze data and improve accuracy over time.

How It's Used: Powers AI applications like image recognition, predictive maintenance, and safety monitoring on job sites.

Neural Networks

Definition: A type of machine learning model designed to recognize patterns by mimicking how the human brain processes information. Neural networks consist of layers of nodes (or "neurons") that analyze data and learn from it to make predictions or decisions.

How It's Used: Neural networks are used in applications like predictive analytics, image recognition, and natural language processing. In construction projects, they can analyze visual data from job sites, detect anomalies, and improve safety measures or maintenance schedules.

Open Source AI

Definition: AI models and tools made publicly available for anyone to use, modify, or improve.

How It's Used: Open-source AI offers flexibility and lower costs, but may miss nuances of industry-specific data and concepts.

Agentic AI

Definition: AI that operates autonomously, making decisions and taking actions within defined parameters.

How It's Used: Can automate workflows, coordinate teams, and proactively solve problems—reducing project delays and inefficiencies.

Structured vs. Unstructured Data

Definition: Structured data is organized and easily searchable (like spreadsheets or databases), while unstructured data is raw and not easily categorized (like emails, PDFs, and images).

How It's Used: AI typically works with structured data to make predictions and provide insights. However, AI can also process unstructured data, transforming it into structured formats, making it easier to analyze and use for decision-making. This ability helps project managers gain value from diverse data sources, such as job site photos, meeting notes, or sensor data, improving tracking and real-time decision-making.

Data Readiness

Definition: Ensuring data is clean, structured, and accessible so AI can process it effectively.

How It's Used: AI is only as good as the data it learns from—poor data quality leads to inaccurate insights and bad decisions. Data readiness is the first step in preparing to implement AI.

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