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Winning with CPMAI: A Modern Framework for AI-Driven Project Success

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 Project
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RefineM's AI Initiatives

RefineM is established as a leader in the Generative AI space

- Our 2-day GenAI workshop for POs and PMs

https://trainings.refinem.com/index.php/Home/genai_course_schedule

- Our AI POC group

- Our AI tools, Intellidoc.AI and DBQuery.AI

<https://dataanalytics.refinem.com/generative-ai/>



POCs completed:

- Earned Value Management,
- Project Status Reporting
- Project Risk Management
- AI Charter

POCs in progress:

- Testing
- CPMAI
- AI Implementation
- AI Alignment and Governance

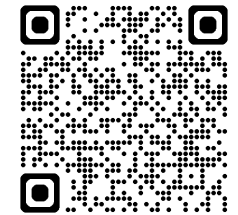
Contact us if you would like to join our AI Group

The CPMAI Team



Kevin Davis, CSSGB, SAFe Agilist – PO/PM, and a former developer who pivoted into project management. He specializes in IT and Generative AI.

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Sobha R Chittila, PMP, has over 20 years of experience in digital transformation, cybersecurity, and manufacturing systems. She specializes in aligning technology with business strategy to drive impactful, data-driven results.

<https://www.linkedin.com/in/sobha-r-chitilla/>

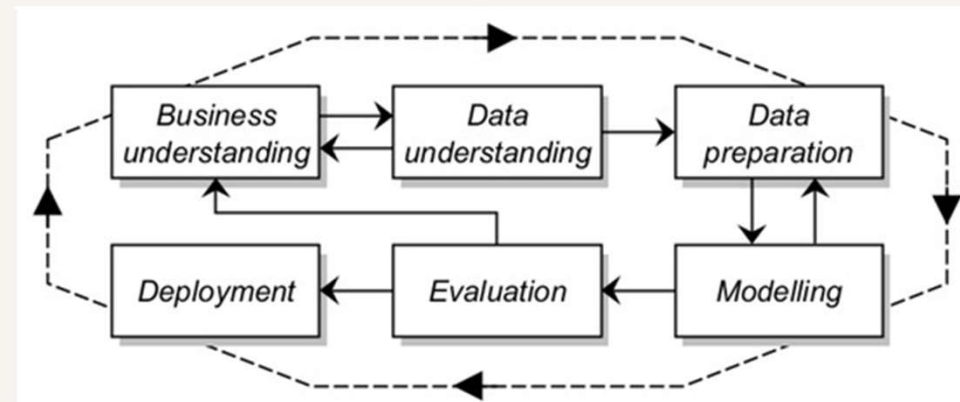
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What is CPMAI?

- **Cognitive Project Management for AI (CPMAI)** is a structured, iterative approach that keeps **business alignment, data quality, ethics, and continuous learning** at its core.
- It is a six-phase, vendor-neutral framework **created in 2017** by Cognilytica and **now owned by PMI**.
- It blends Agile principles with CRISP-DM's data-centric rigor to manage AI, ML, and advanced-data initiatives end-to-end.



Why CPMAI Matters Now

- AI and ML projects **fail at an alarming rate** (~80%+) due to misaligned project management practices.
- Traditional frameworks **don't address data-centricity**, model training cycles, or AI lifecycle needs.
- **AI ≠ typical software**: models drift, data decays, ethics loom, regulations tighten.
- CPMAI embeds **trustworthy AI checkpoints** and **data-readiness gates** every phase, reducing rework and compliance risks.
- **Mission**: To ensure AI projects don't just work technically—but succeed strategically—through structured project management tailored to the AI lifecycle.

CPMAI vs Traditional Frameworks

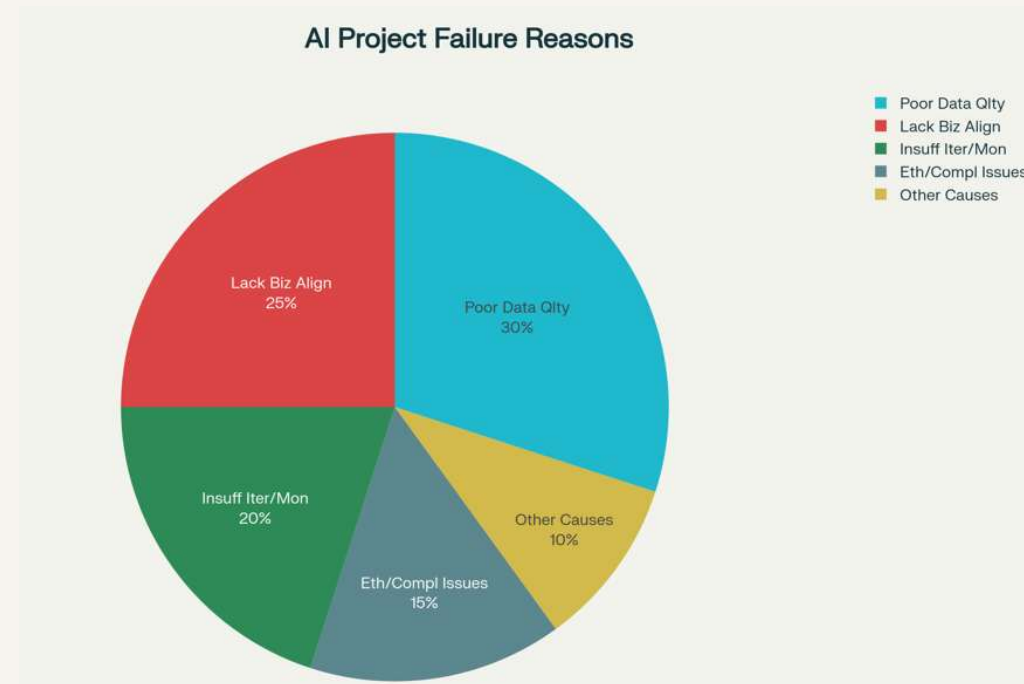
CPMAI	AGILE	WATERFALL	BOTTOM LINE
<p>Purpose-built for AI/ML: Focuses on data, model iteration, governance, and ethics.</p> <p>Bridges gaps left by Agile and Waterfall in handling data-centric projects.</p> <p>Mitigates AI-specific risks: Addresses model drift, bias, and lack of trustworthy AI safeguards.</p> <p>Best for: AI diagnostics, GenAI apps, predictive analytics.</p>	<p>Fast and adaptive: Excellent for evolving software requirements and incremental delivery.</p> <p>Weak in data governance: Data quality, compliance, and AI ethics are largely outside the scope.</p> <p>Best for: User-facing apps and iterative feature development.</p>	<p>Structured but rigid: Works for projects with fixed requirements and clear outcomes.</p> <p>Fails in dynamic AI contexts: No iteration for experimentation or data-driven model refinement.</p> <p>Best for: Regulated or predictable projects (e.g., compliance-heavy IT implementations).</p>	<p>CPMAI extends Agile and Waterfall by embedding AI-specific governance, data, and ethics.</p> <p>Use CPMAI + Agile hybrid for modern AI projects.</p> <p>Waterfall is only relevant for AI in rare cases (e.g., regulated data migration projects).</p>

AI Project Failure Reasons

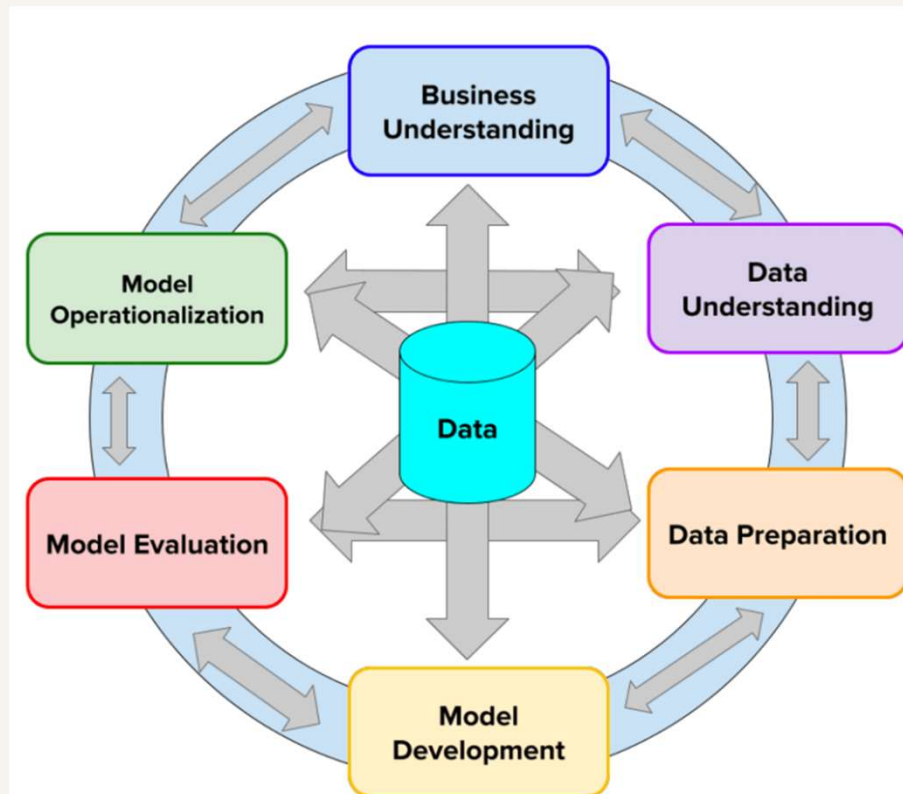
The following pie chart displays the top reasons most AI projects fail when using the traditional project management frameworks.

CPMAI directly addresses these leading risks:

- Poor data quality,
- Business misalignment,
- Insufficient iteration/model monitoring, and
- Ethical gaps.



CPMAI – Six Phases Introduction



Phase I Business Understanding

Define KPIs, Goals, and Constraints

Purpose:

- Clarify *why* the AI project is being done and what business value it should deliver.

Key Deliverables:

- Problem statement and business case.
- List of stakeholders and their goals.
- Success metrics and ROI targets.

Checkpoint:

- Approval of project scope and expected benefits before moving to data.

KPI

Key Performance Indicators (KPI) are the outcomes you need to measure that have the most impact moving your organization toward its vision of success. Great plans have 5-7 KPIs.

TARGET

+

TIMEFRAME

+

DATA SOURCE

+

FREQUENCY

Questions to Ask	Anatomy of a KPI
What is your desired outcome?	KPI: 1,000 New Customers by the End of FY2020
How does this outcome help achieve your vision of success?	1,000 New Customers Quantifiable Target
How will you know you've achieved your outcome?	By the End of FY2020 Timeframe for Accomplishment
Is this a leading indicator of performance, or a lagging indicator of performance?	CRM System Data Source
	Frequency: Monthly Reporting Frequency
	Owner: VP of Sales

Did You Get It Right?

✓

Do you have 5-7 goals with metrics that are **essential** to achieving your vision of success?

✓

Is the measure and target for each clear enough to stand on its own?

✓

Do you have a combination of leading and lagging indicators?

✓

It can be measured and tracked at least monthly?

Phase II Data Understanding

Collect, explore, and access data

Purpose:

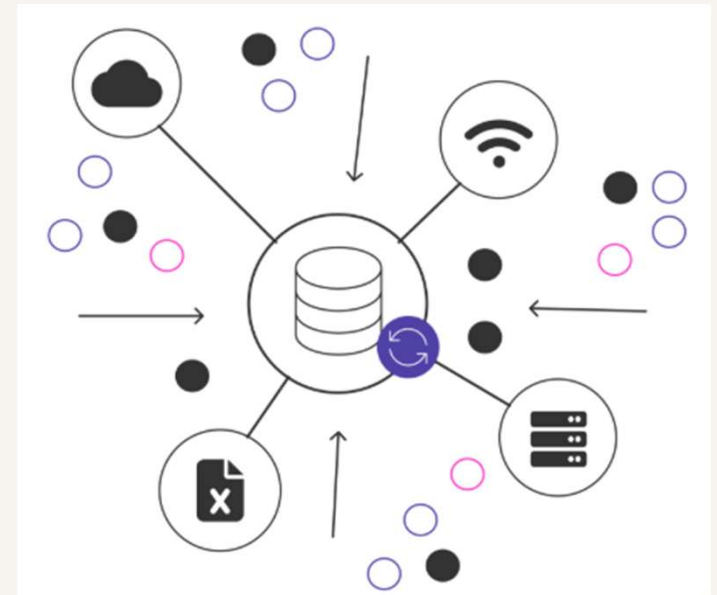
- Explore what data exists and determine if it suits the project's goals.

Key Deliverables:

- Data inventory report.
- Data quality scorecards.
- Decision on whether existing data is fit for purpose or needs improvement.

Checkpoint:

- Confirm sufficient and relevant data is available to proceed.



Phase III Data Preparation

Clean, transform, and integrate data

Purpose:

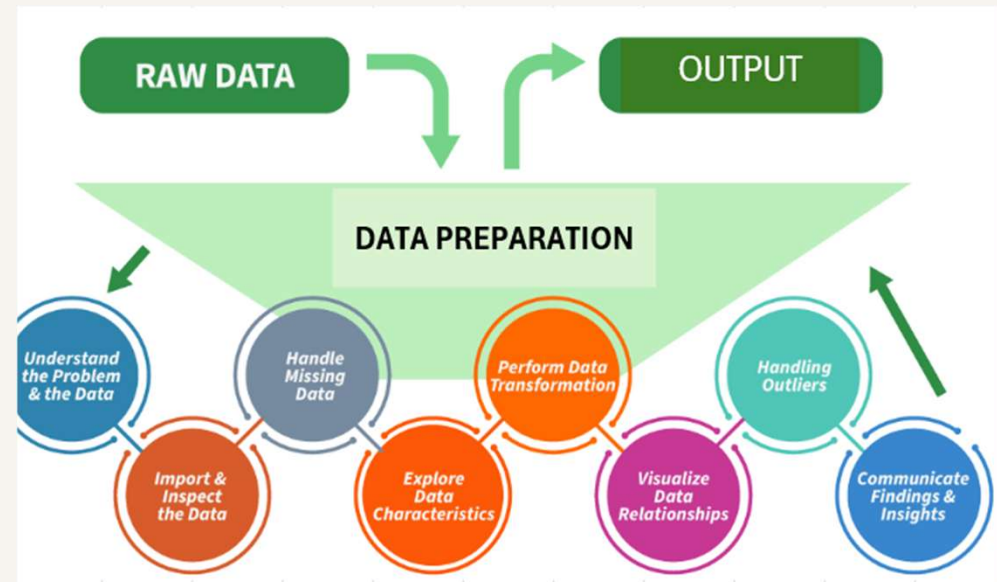
- Transform and prepare the data for AI/ML modeling.

Key Deliverables:

- Cleaned and labeled dataset ready for modeling.
- Documentation of preparation steps.

Checkpoint:

- Data meets quality standards for effective model training.



Phase IV Model Development

Select algorithms, train, and tune models

Purpose:

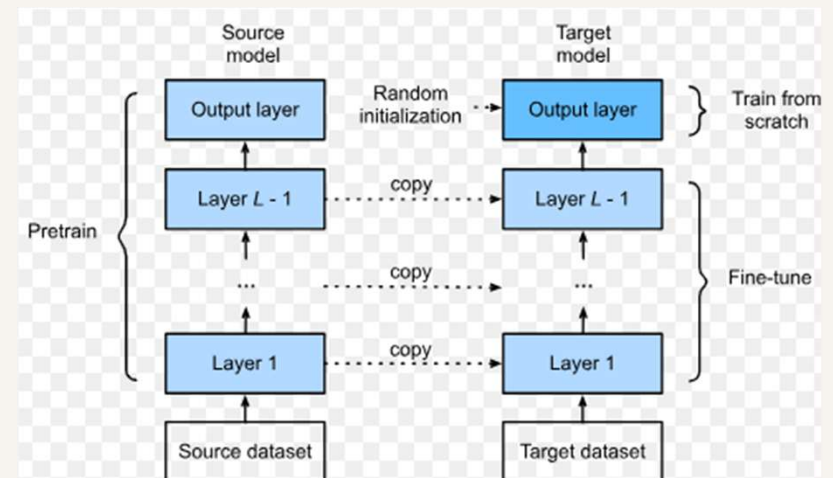
- Select, design, and build the AI/ML model.

Key Deliverables:

- Candidate models and training/evaluation logs.
- Model selection based on performance.

Checkpoint:

- Model achieves minimum required accuracy and reliability.



Phase V Model Evaluation

Validate against KPIs and review results

Purpose:

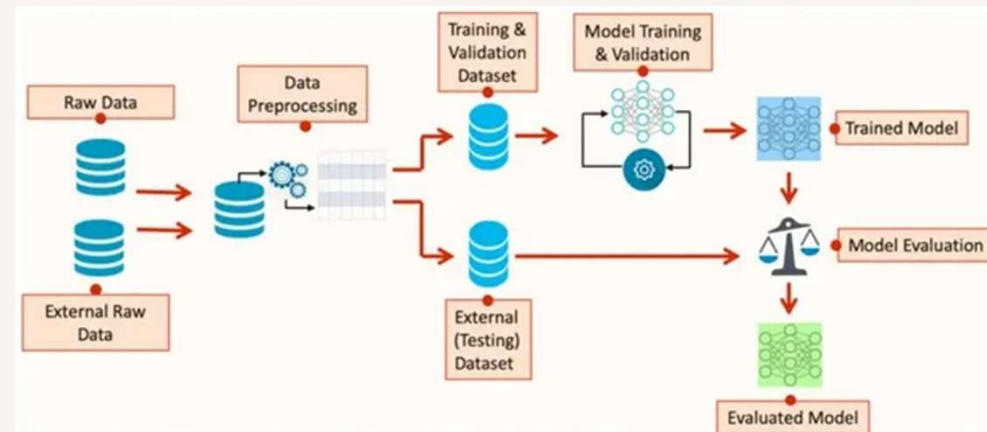
- Objectively assess model quality, fairness, and business value.

Key Deliverables:

- Comprehensive model evaluation and validation report.
- Bias/fairness results and recommendations.

Checkpoint:

- Model is deemed ethical, effective, and ready for production.



Phase VI Model Operationalization

Integrate into production and monitor

Purpose:

- Deploy the model and monitor its performance in the real world.

Key Deliverables:

- Production-ready model pipeline.
- Live performance metrics.
- Maintenance and retraining plan.

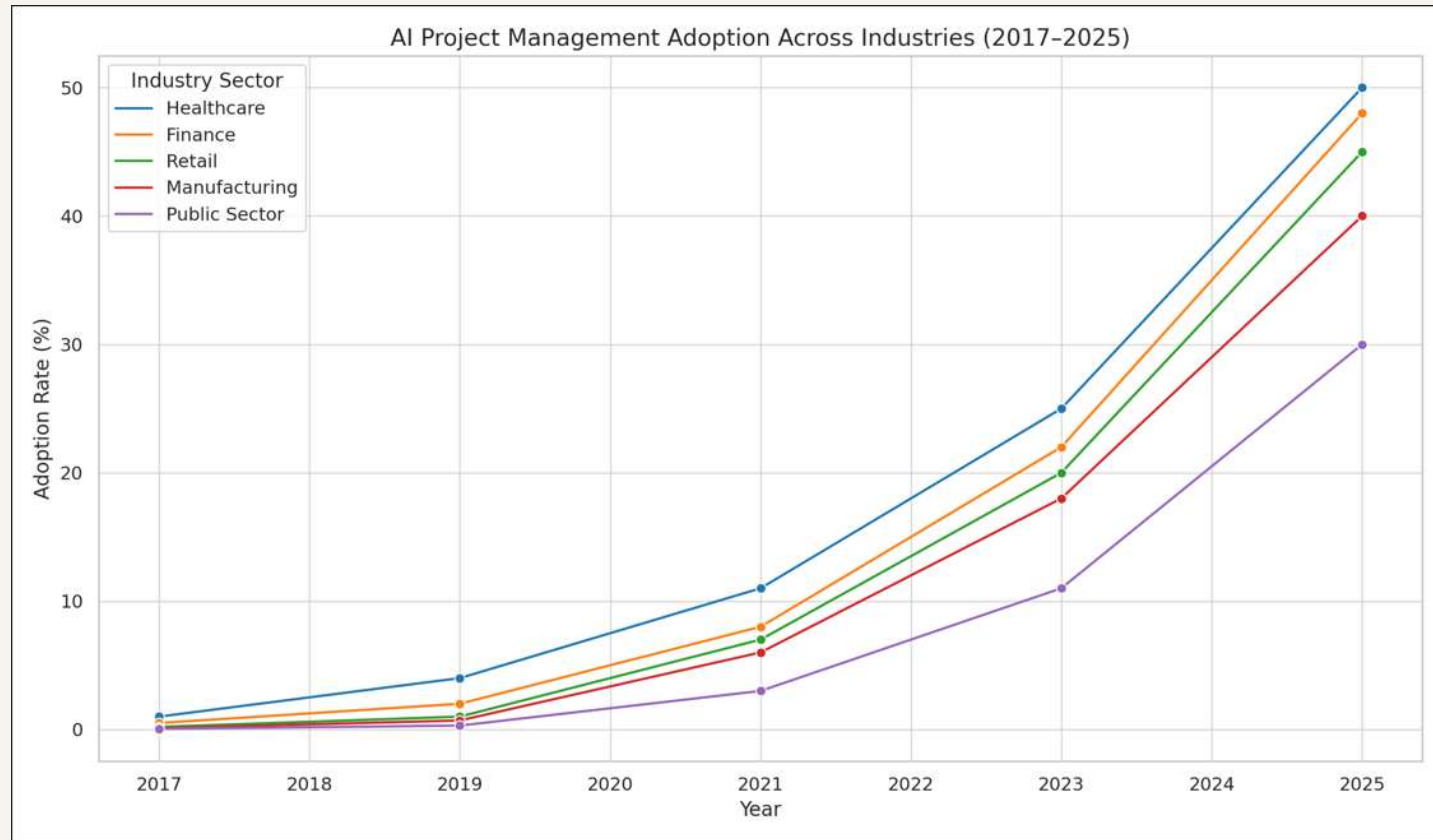
Checkpoint:

- Model is live, monitored, and delivers measurable business outcomes.



CPMAI Adoption Rate

- While exact year-over-year percentages may not be published as raw numbers, these values are consistently supported by the direction, rate, and sector order reported in multiple sources

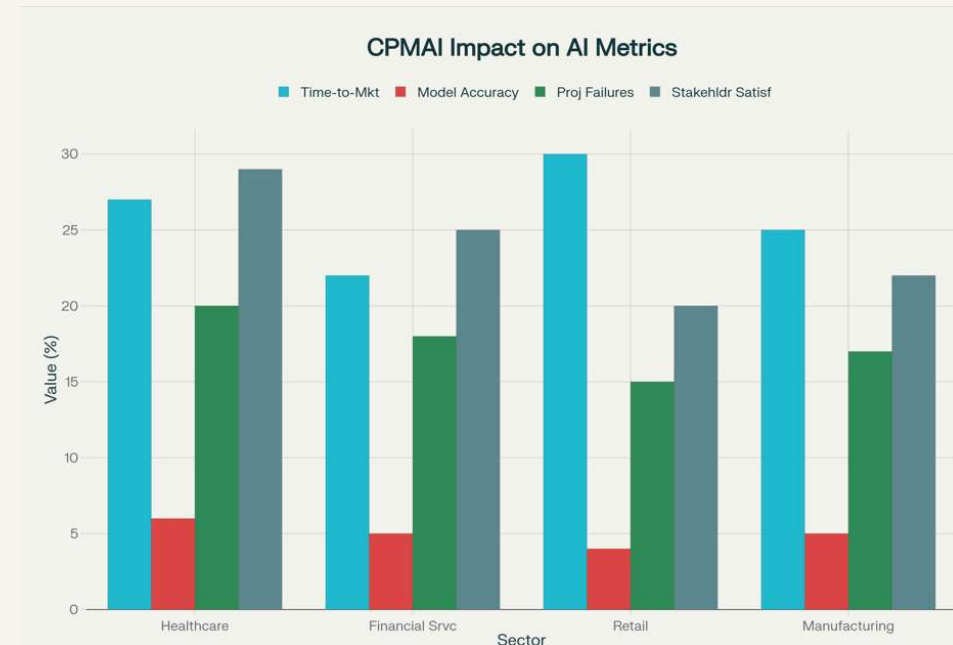


Sources:

- <https://pmineo.org/calendar?eventId=37835>
- <https://www.pmi.org/blog/preparing-project-managers-for-an-ai-driven-future>
- <https://www.pmi.org/cognilytica-joins-pmi>
- <https://www.pmi.org/blog/artificial-intelligence-stages-in-an-ai-project>
- <https://www.pmi.org/blog/the-best-ai-certification-to-lead-ai-projects>

AI Success Metrics Improved with CPMAI

- This bar chart illustrates the improvement in project outcomes after adopting CPMAI across four key industries — Healthcare, Financial Services, Retail, and Manufacturing.
- Each metric is shown as the average percent improvement over traditional project management.



Case Study: Major Retailer's Computer Vision Inventory Project

- **Business Context :** A Fortune 1000 global retailer needed to automate in-store inventory tracking using AI-powered computer vision. Past pilots failed due to poor data preparation, lack of stakeholder alignment, and ethical risks from biased training data.
- **Approach:** The project team implemented the Cognitive Project Management for AI (CPMAI) methodology, following its six-phased, data-centric approach endorsed by Cognilytica/PMI.
- **Project Goals:**
 - Reduction of Manual labor
 - Detection of Out-of-stock events
 - Real-time inventory accuracy
 - Stakeholder satisfaction

- [5 Ways CPMAI Certification Can Skyrocket Your Project Management Career In 2025](#)
- [How to Run Successful AI Projects and Avoid Failure | PMI Northeast Ohio](#)

CPMAI Phases In Action

Phases	Actions
Business Understanding	<ul style="list-style-type: none"> Clarified KPIs: <ul style="list-style-type: none"> real-time inventory accuracy, detection of out-of-stock events, and reduction of manual labor.
Data Understanding	<ul style="list-style-type: none"> Audited existing shelf cam footage; 20% of labeled images found to be inaccurate or inconsistent.
Data Preparation	<ul style="list-style-type: none"> Cleaned and relabeled edge-case images with human QA; Addressed bias across lighting and product type.
Model Development	<ul style="list-style-type: none"> Iteratively trained and evaluated YOLOv5 object detection models on the curated data.
Model Evaluation	<ul style="list-style-type: none"> Ran fairness and performance audits, Revisiting the data phase whenever significant error patterns were found.
Model Operationalization	<ul style="list-style-type: none"> Deployed model to 200+ stores with continuous accuracy monitoring, including a feedback loop for re-labeling edge-case errors.

Outcomes and Success Factors

➤ Outcomes

Metric	Before CPMAI	After CPMAI
Out-of-stock event detection accuracy	67%	92%
Inventory count error rate	18%	7%
Project time to deployment	15 months	11 months
Incident of bias complaints	High	None
Stakeholder satisfaction	64%	93%

➤ Success Factors

- Early alignment on measurable business impact.
- Continuous, phase-based data quality and ethics checks.
- Iterative feedback and agility between phases, not just at the end.

Note:

Due to NDAs and competitive concerns, most CPMAI practitioner case studies (especially from Fortune 1000 firms) are anonymized in published forums, but the approach, results, and sector are confirmed by Cognilytica and PMI as real-world applications.

Key Takeaways for New CPM AI Practitioners

- **Structured Phases Matter:** Each CPM AI stage directly addresses common project risks (like misaligned goals or poor data quality).
- **Pilot-First Deployment:** Validating AI solutions in a controlled scope before full rollout is critical.
- **Change Management is Ongoing:** Early and transparent communication builds trust, crucial for organizational AI adoption.
- **Iterate for Rare Events:** Continuous re-examination of data/model ensures coverage of infrequent but critical scenarios.

Practical Recommendations for PMs

Managing AI projects requires more than standard project management; it calls for adapting proven principles to technologies like machine learning and generative AI. With PMI now managing the CPMAI framework, project managers have access to structured, recognized, and evolving resources that build real-world competence in AI project delivery.

Official CPMAI v7 Certification – via PMI.org

- Blends AI project practices with core PM skills
- Covers all six CPMAI phases plus AI-specific tools (ML, NLP, Generative AI)
- Delivered via PMI's platform

Free Intro to CPMAI (3 PDUs)

- Online, self-paced course
- Provides a clear explanation of the core principles and phases of CPMAI
- Great first step if you're exploring AI project management

Practical Recommendations for PMs (continued)

Project managers can access additional resources beyond the core CPMAI certification and introductory course. These options cover advanced AI practices, governance, and scaling, along with a library of learning materials to enhance skills. Together, they help PMs progress from foundational knowledge to specialized capabilities in managing AI projects.

CPMAI+ v7 (Advanced Course)

- For project managers with experience in AI or data projects
- Includes RPA, data governance, ethics, and scaling AI
- Available through PMI's Learning Shop

PMI Learning Library

- Modules, webinars, and articles related to AI project management
- Search: "CPMAI," "AI project management," or "Cognitive PM"
- Available through PMI Learning

Best Practices

- Conduct a data readiness assessment before modeling begins
- Involve stakeholders continuously, including domain experts and end users.
- Use small pilot deployments to validate model before scaling
- Track performance metrics aligned to business KPIs, not just technical ones
- Implement feedback loops for model training and updates
- Ensure data privacy, security, and regulatory compliance are maintained
- Adopt an AI-specific methodology to manage complexity effectively.

Conclusion

- By adopting a data-centric approach, aligning projects with clear business goals, ensuring adequate data quality and quantity, testing in real-world scenarios, planning for ongoing maintenance, and setting realistic expectations, organizations can significantly increase their chances of AI project success.
- AI is a powerful tool, but its effectiveness depends on how well it is understood, implemented, and maintained.

Don't treat AI projects like traditional software projects – they require a mindset shift towards uncertainty, experimentation, and data-driven iteration.

Quiz

Go to [menti.com](https://www.menti.com) to answer



Top 2 Winners get free access (100% discount) to one of RefineM's products of their choice

1. Essential Gear for Project Managers (\$89)
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5. Self-Paced Online Course (\$100 each)
 - Agile Fundamentals, or
 - Project Management Fundamentals

Claiming Your PDU

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Questions?