ZEST AI

MACHINE LEARNING VS. GENERATIVE AI IN LENDING

THE AI EVOLUTION:

LENDING GETS FASTER, FAIRER, AND SMARTER.

Real innovation happens when you use the right tools at the right time.

In lending, generative AI (GenAI) fuels actionable insights and performance analytics, while machine learning (ML) powers prediction and precision in automated loan decisioning. Together, they're driving a new generation of lending innovation. This guide breaks down their roles and impact on financial institutions.

In 2025

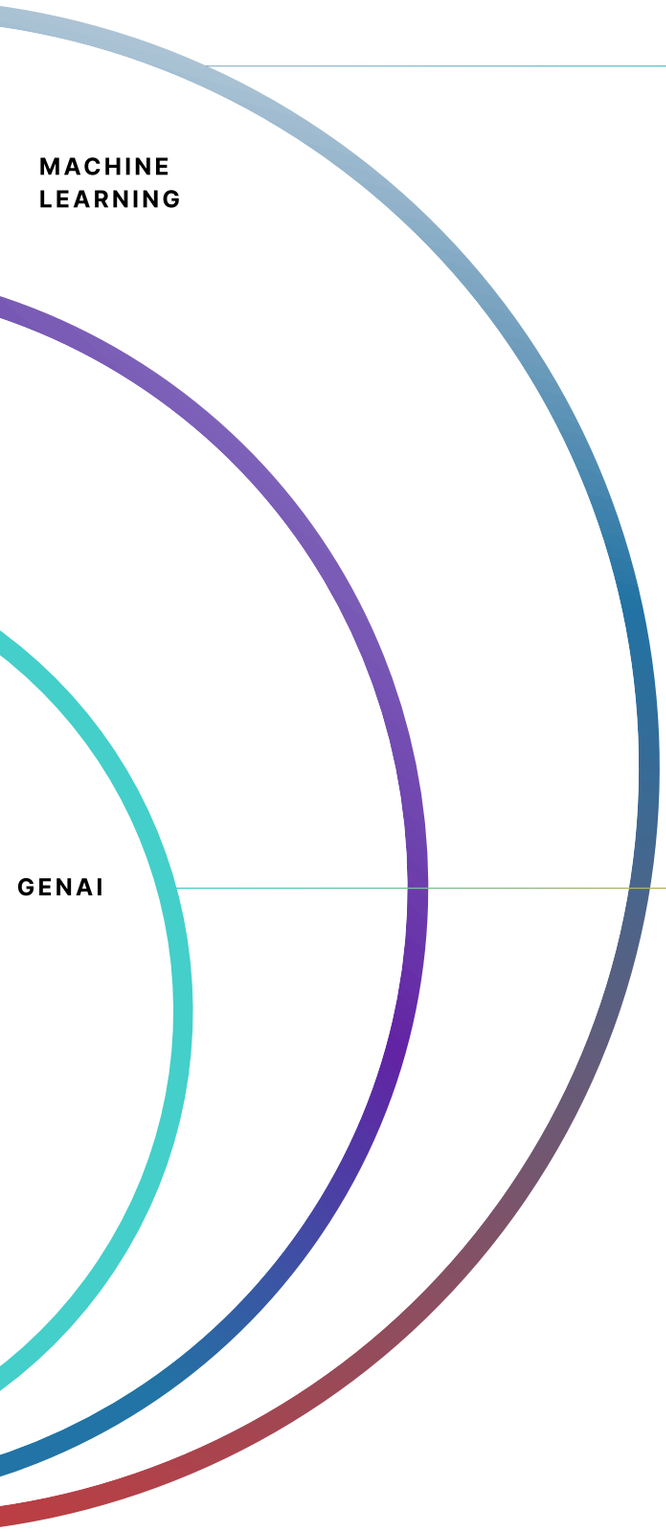
there has been an over 140% increase in financial institutions that are prioritizing AI compared to last year (from 22% to 53%).

Artificial intelligence (AI)

/ ˌɑr təˈfɪʃ əl ɪnˈtɛl ɪ dʒəns / noun

A field of computer science that focuses on creating machines and algorithms that can think and solve problems like humans.

For lenders, two common types of AI that can be used to support your institution are machine learning and generative AI:



MACHINE LEARNING (ML)

The sub-field of machine learning is focused on predicting outcomes using statistical algorithms and large sets of historical data.

ML models are trained for accuracy on specific tasks, like predicting if a borrower will default on a loan. These predictions can be clearly explained.

GENERATIVE AI (GENAI)

GenAI is a subset of deep learning that can use existing text, images, or videos to create new content.

Large Language Models (LLM) are types of GenAI that can create human-like responses by recognizing patterns in textual data.

of financial institutions believe AI will improve their lending processes.

[2]

Core differences for lenders

MACHINE LEARNING	VS.	GENAI
ML can generate precise predictions by using statistical algorithms to uncover patterns in large data sets.	FEATURE	GenAI creates new content, including text, charts, images, and videos, using neural networks.
Locked and supervised ML models are used for regulated tasks that require compliance. This approach ensures a consistent method for data assessment. The reasoning behind these decisions is clearly documented, promoting transparency and explainability.	EXPLAINABILITY	Although some GenAI provides insight into the reasoning behind its responses, it doesn't guarantee consistent logic for all outputs. Also, it can sometimes generate inaccurate information or "hallucinate."
Models can be supervised and locked to prevent them from continuously learning from new inputs, ensuring the integrity and explainability of their predictions.	TRAINING	"Learns" by consistently integrating new user inputs and outputs into the model for ongoing training.
Is fully explainable with proper model risk management documentation. And, it can be created to be fully compliant with the Equal Credit Opportunity Act (ECOA) and the Fair Credit Reporting Act (FCRA).	RISK PROFILE	GenAI cannot be used for compliance-related tasks. GenAI can provide insights for humans to act upon after due diligence—but the technology is not used to take action on its own.

73%[3]

of banks are using an AI/ML model or tool.

of community-based financial institutions plan on investing $100k in AI.

54%[4]

Applications

MACHINE LEARNING (ML)

Loan acquisition

AI-automated underwriting

Origination fraud detection

Loan pricing

Collateral valuation

GENERATIVE AI (GENAI)

Provide analysis and reporting

Enhance customer support with chatbots

Helps streamline compliance and risk management

Drive document processing and verification

53% [5]

of lenders said efficiency is a top concern.

Zest AI is the leader in AI-powered credit risk management, helping banks, credit unions, and specialty lenders make faster, safer, and more accurate lending decisions.

Founded in 2009 and headquartered in Los Angeles, California, Zest AI is trusted by financial institutions nationwide.

To learn more visit us at zest.ai or reach out at **hello@zest.ai.**

[1] Celent Report: The new era of AI-driven analytics in lending (2025)

[2] Zest AI: AI Overview: The essential for lenders (2025)

[3] RMAHQ: With increased bank usage of AI/ML, risks arise (2023)

[4] Zest AI: Achieving high-performance lending (2024)

[5] Zest AI: Tuning up for high-performance lending operations (2024)