Digital Finance 3: Technology in Finance

Lesson 32: NLP in Finance

FHGR

December 13, 2025

Summary of key concepts presented above.

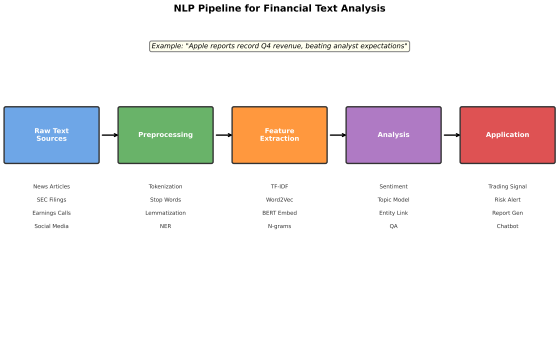
Learning Objectives

By the end of this lesson, you will be able to:

- Apply text preprocessing techniques to financial text
- Understand sentiment analysis for market prediction
- Explain word embeddings and transformer models
- Extract information from financial documents
- Evaluate NLP model performance in finance
- Recognize limitations of language models

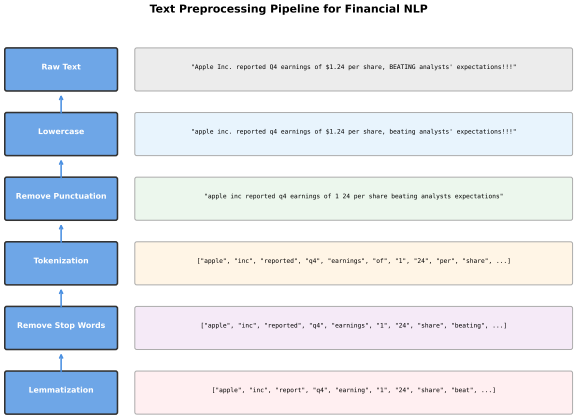
Summary of key concepts presented above.

NLP Pipeline in Finance



Financial NLP pipelines transform raw text into structured features for downstream analysis.

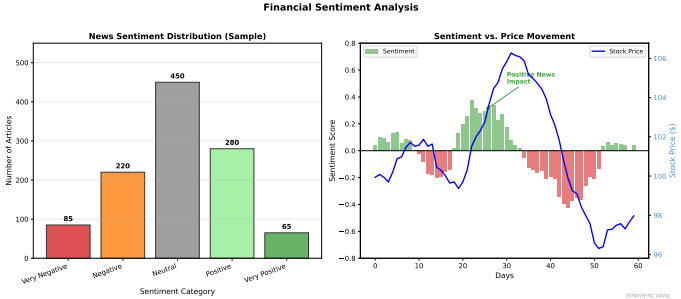
Text Preprocessing Steps



[SYNTHETIC DATA]

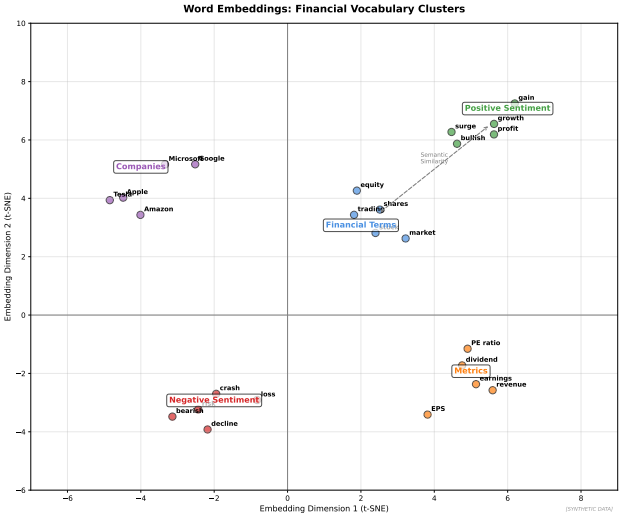
Preprocessing includes tokenization, stopword removal, stemming, and normalization of financial text.

Sentiment Analysis Methods



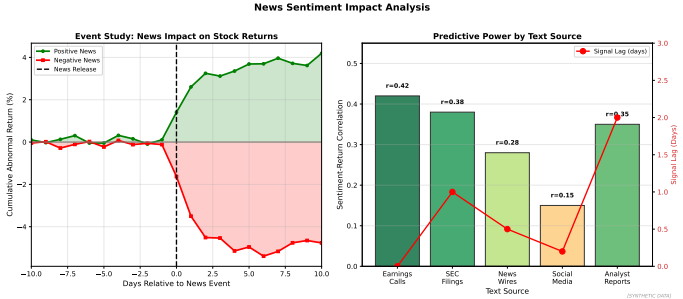
Sentiment analysis classifies financial text as positive, negative, or neutral using lexicons or ML models.

Word Embeddings Visualization



Word embeddings capture semantic relationships by representing words as dense vectors in continuous space.

News Sentiment Impact on Prices



News sentiment correlates with short-term price movements but predictive power decays rapidly.

Summary

Key Takeaways:

- NLP extracts signals from unstructured financial text
- Sentiment analysis provides market mood indicators
- Word embeddings and transformers revolutionized finance NLP
- Applications: earnings call analysis, news trading, document extraction
- Challenges: domain adaptation, sarcasm, context-dependency
- LLMs (GPT, BERT) now dominate financial NLP tasks

Next Lesson: Robo-Advisors ML Aspects

Summary of key concepts presented above.