USING AI FOR FINANCIAL FORECASTING

AKA Intelligent Forecasting

Speaker Background – Dave Sackett

Currently, Chief Solutions Architect for Visibility Corporation

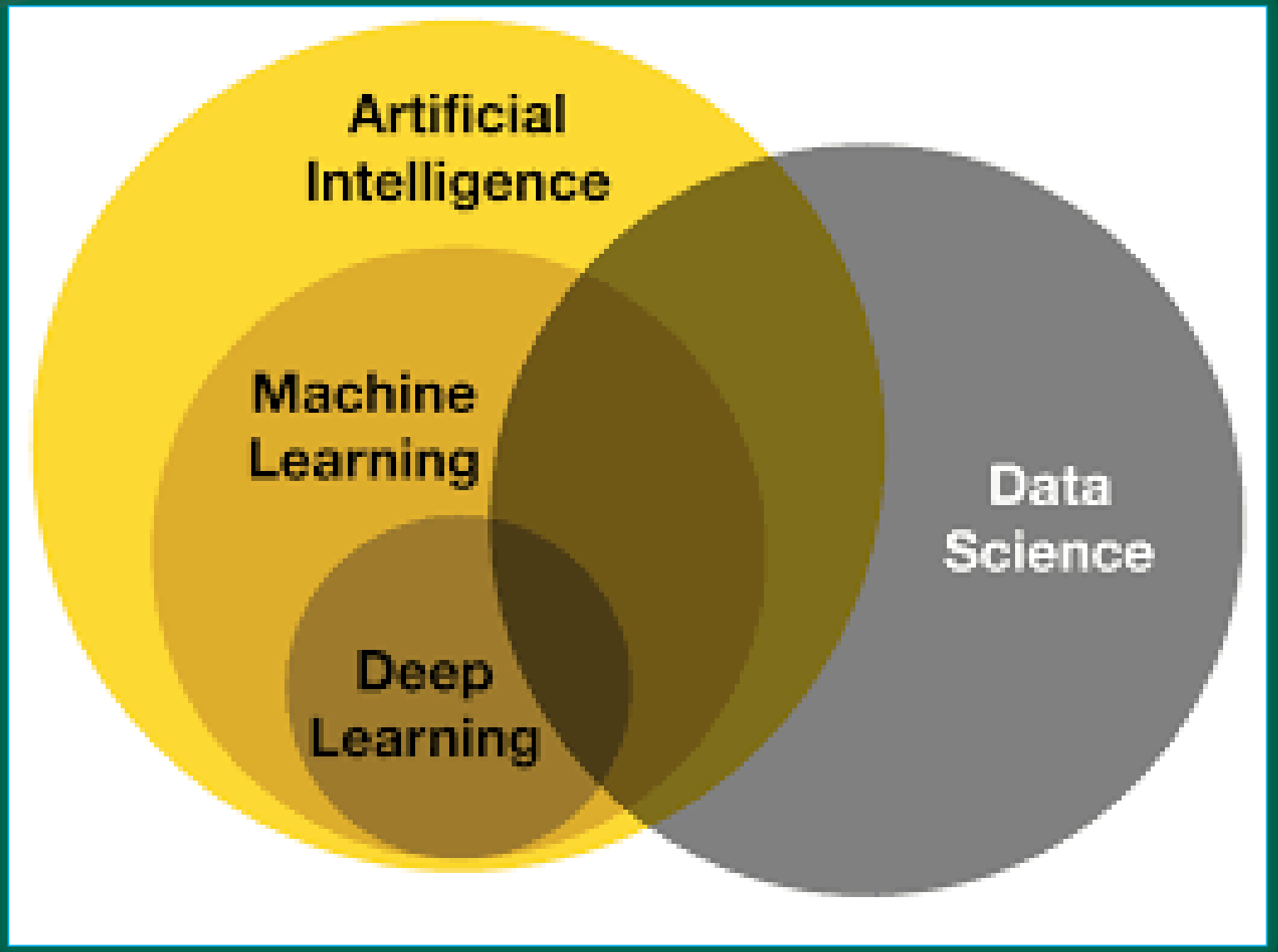
Career path: Cost Accountant to become a CFO

Member of Financial Executives International and on a national committee investigating finance and IT topics, like AI.

Writer for Forbes on topics like AI, blockchain, ERP, and Finance

Guest scholar for CFO.University with courses on AI and Blockchain

AI Definitions in this Talk



Source: https://deviq.io/resources/articles/ai-vs-ml-vs-data-science/

Why is AI Suitable to Forecast Data?

Machine Learning (ML)

A forecast model can be taught how to handle ERP data to generate a forecast.

As the AI program is exposed to analyzing more and more transactions, the more it uses what it learns.

AI can quickly find patterns in data that is impractical for humans.

WHAT IS INTELLIGENT FORECASTING?

Intelligent forecasting is when AI is used as a tool to combine internal drivers and external drivers as signals to create a financial forecast.

Data scientists use regression, time series, and machine learning to augment a traditional forecast.

A recent survey showed that 52% of organizations plan to improve their automation.

AI is a powerful tool that provides measurable forecast performance.

WHAT FACTORS ARE DRIVING YOUR BUSINESS?

What you use today: There are internal forecast drivers such as historical sales details from your ERP, new product or service releases, recurring revenue, backlog with future ship dates, and service periods. This is the classic data we use in FP&A today to forecast.

What you may use in the future: The external drivers can be war, fluctuating commodity prices, inflation, foreign currency rate fluctuations, market changes, government regulations, competitor performance, supply chain issues, etc.

Data mapped to Stock Market example; what happens to your products?

Forecasting & Reasonableness of the Numbers

How AI/ML can aid in budgeting:

- **Traditional budgeting does not generate data at the same granularity as actuals. Artificial intelligence, on the other hand, can make granular forecasts.**

- **Based on historical run rates, AI makes it simple to incorporate organizational goals into operational expenses.**

- **It also simplifies the calculation of business drivers and their econometric impact on various P&L**

Tadaa.ai

Source: https://tadaa.ai/ai-in-budget-season/

WHY USE AI IN FORECASTING?

- **Improve accuracy and confidence in budgets and forecasts**
- **Identify the proper drivers of business value, both internal and external**
- **Set data-driven financial targets based on a machine learning approach**
- **Determine and eliminate bias from forecasts**
- **Leverage predictive modeling and external signals**
- **Link decision-making with profitability**

IMPROVING ACCURACY

- **AI can use all data to generate a forecast and reduce human bias. AI can process big data and find patterns in the data that can be used for trend analysis. The speed and recall are far greater than a human can do.**
- **Historical data correlations example**
- **AI models use machine learning to become more accurate with feedback. These models can use historical data for backtesting so the models can be adjusted for higher accuracy. Variables in a data model can be altered and tested**

PREDICTIVE ANALYTICS

- **AI forecasting can predict future company performance**
- **Provide support to your FP&A team on answers to why above or below targets**
- **Guide data-driven decisions based on future profitability**
- **Auditors can use intelligent forecasting to review your numbers for reasonableness. They may access your internal and external drivers and metrics for similar companies in similar industries. Big 4 is investing heavily in AI Auditing. They can also use AI to detect fraud.**

ROI ON USING AI FOR FORECASTING

- Does your business make data-driven decisions? **Leverage the data you collect**
- How does more accurate forecasting help your business? **Estimated 50%**
- How fast do you build your forecast? Faster than a bot? **Time Savings**
- How often do you run various scenarios through your forecast?
- AI is designed to handle multiple "what if" scenarios

PEOPLE COST EXAMPLE

- People cost forecasting is:
- Payroll
- Benefits
- Travel costs
- PTO accruals

Complicate it by several moving pieces, such as employee attrition, temporary employment, new hire onboarding, overtime pay,

THE PEOPLE COST INPUT DATA

We must first prepare our Input data file before utilizing Machine learning to analyze multiple data points and estimate the expense. The input data files should include historical data for spending accounts, drivers, and future projections.

Expense accounts

Expense data from ERPs must be reviewed, which includes the history of various accounts such as salary, wages, taxes, PTO, and benefits. The granularity of data must be determined by the output required. You must include division-level data in your input file if you wish to predict at the division level.

PEOPLE COST FORECAST DRIVERS

Internal Drivers	External Drivers
Last Headcount	Economy measured by GDP
Incremental Headcount	Job posting boards for various positions
PTO Accruals	Automation statistics related to human work
Pending job requisitions	Industry news and trends
Raise Accrual	Competitor hiring trends
Health insurance increases	Salary statistics
Payroll software vendor cost increases	Society trends like remote work

PEOPLE COST FORECAST RESULTS

Human-generated projections lean to the baseline by looking at history.

Machine learning will blend the baseline, seasonality, and trends data from the history of expense accounts with the influence of numerous internal and external causes.

The forecast numbers generated from an ML model should be more accurate than those created by humans. Depending on the needs of each organization, more drivers can be added to fine-tune the model and to higher accuracy.

DEEP LEARNING FORECAST DRIVERS

- **ERP is structured and logically organized for ML use**
- **Social Media posting, emails, review sites, and free-form data entry are typically unstructured and too random and challenging for ML to pull relevant data**
- **Deep learning is a more complex approach to bringing in values like context via unsupervised learning. Scientists try to model DL after the way humans think and discover new ideas.**
- **Deep learning will be able to associate critical words with complex interpretation**

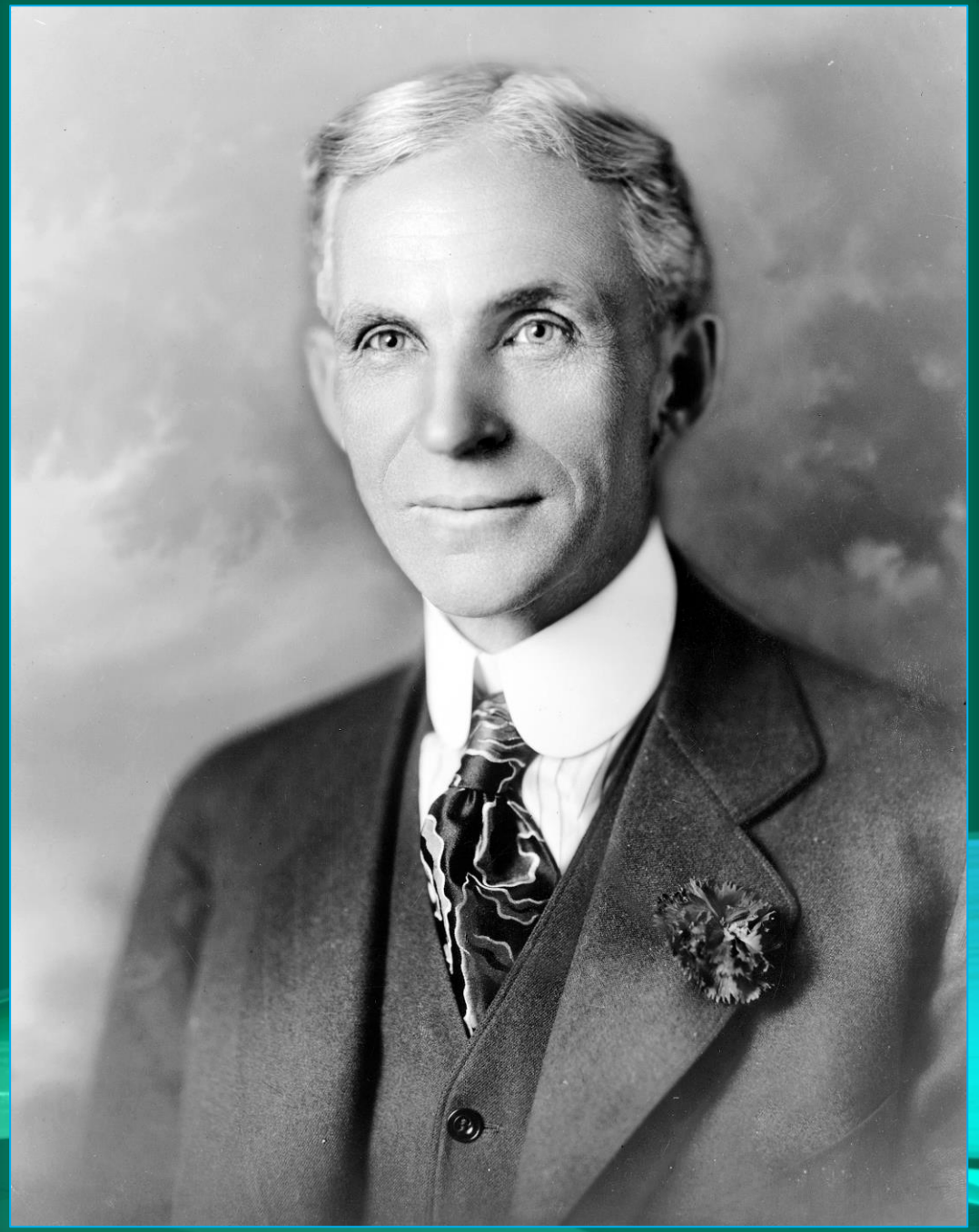
AI AS A DYNAMIC TOOL FOR FINANCE

- **Intelligent Forecasting is designed to improve over time**
- **Humans guide AI to teach it how to be more accurate**
- **You use forecast models, and you modify the model to meet your needs**
- **When there is a failure in the forecast, AI can be taught why**
- **As you provide more historical data, there is more for AI to analyze and use to predict the future**

Delays for Using AI Forecasting Adoption

- No budget for software
- Incremental value not high enough to justify
- Not enough other companies have adopted it
- Expected ROI vs. other corporate projects
- Company personnel are too busy to implement /Lack Project Management
- Pandemic complications
- Great Resignation, focus on onboard new employees, training on core business
- Difficult to scale AI beyond the initial use case

"The only real mistake is the one from which we learn nothing." Henry Ford



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SOURCES

- KPMG Intelligent Forecasting
- https://tadaa.ai/people-cost-forecasting-using-a-i/