

Predictive Bill Tracker empowers legislators and organizations to **strategically navigate** the legislative landscape by predicting which bills are likely to pass Congress.

# AI-Powered Bill Tracker: Predicting Legislative Success

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## Complexity of Bills

The sheer **volume of legislation** (8,000+ bills per year) makes it difficult for stakeholders to track significant bills effectively.

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## Inefficiency in Tracking

Current systems lack the **capability to filter** through numerous bills, leading to missed opportunities for advocacy.

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## Need for Automation

Implementing an AI-driven approach can **streamline the process**, enhancing accuracy in predicting which bills will pass.

# The Challenge of Legislation

Navigating the **overwhelming landscape** of 16,000 bills to identify the 274 that truly matter

**Phase 1: Viability Detection -**  
**Will this bill gain traction?**

20% of bills are viable



**Phase 2: Passage Prediction -**  
**Will viable bills become law?**

**Only bills that are predicted to be  
viable will be evaluated in this  
phase.**

# Two-Phase AI Prediction System

**Smart filtering for accurate legislative  
insights**

How it works:

- Phase 1: AI identifies viable bills (20% pass this filter)
- Phase 2: Predicts passage likelihood for viable bills only

Time-aware models:

- New bills (Day 1) - Limited data analysis
- Early stage (2-30 days) - Momentum tracking
- Progressive (30+ days) - Full pattern analysis

**Result:** Enhances accuracy and visibility of the model, ensuring stakeholders are well-informed and proactive

# Technical Architecture Overview

The AI uses ensemble machine learning, with 38 features including legislative momentum, bipartisan support ratios, and committee engagement.

Ensemble Model: Combines  
all 3 models

Random Forest (40% weight) - Detects non-linear patterns

Gradient Boosting (40% weight) - Finds complex feature interactions

Logistic Regression (20% weight) - Adds stability to the model

# Key Insights in Bill Passage

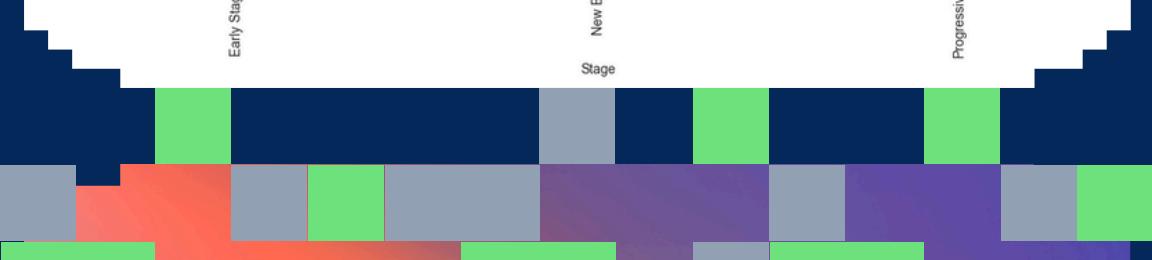
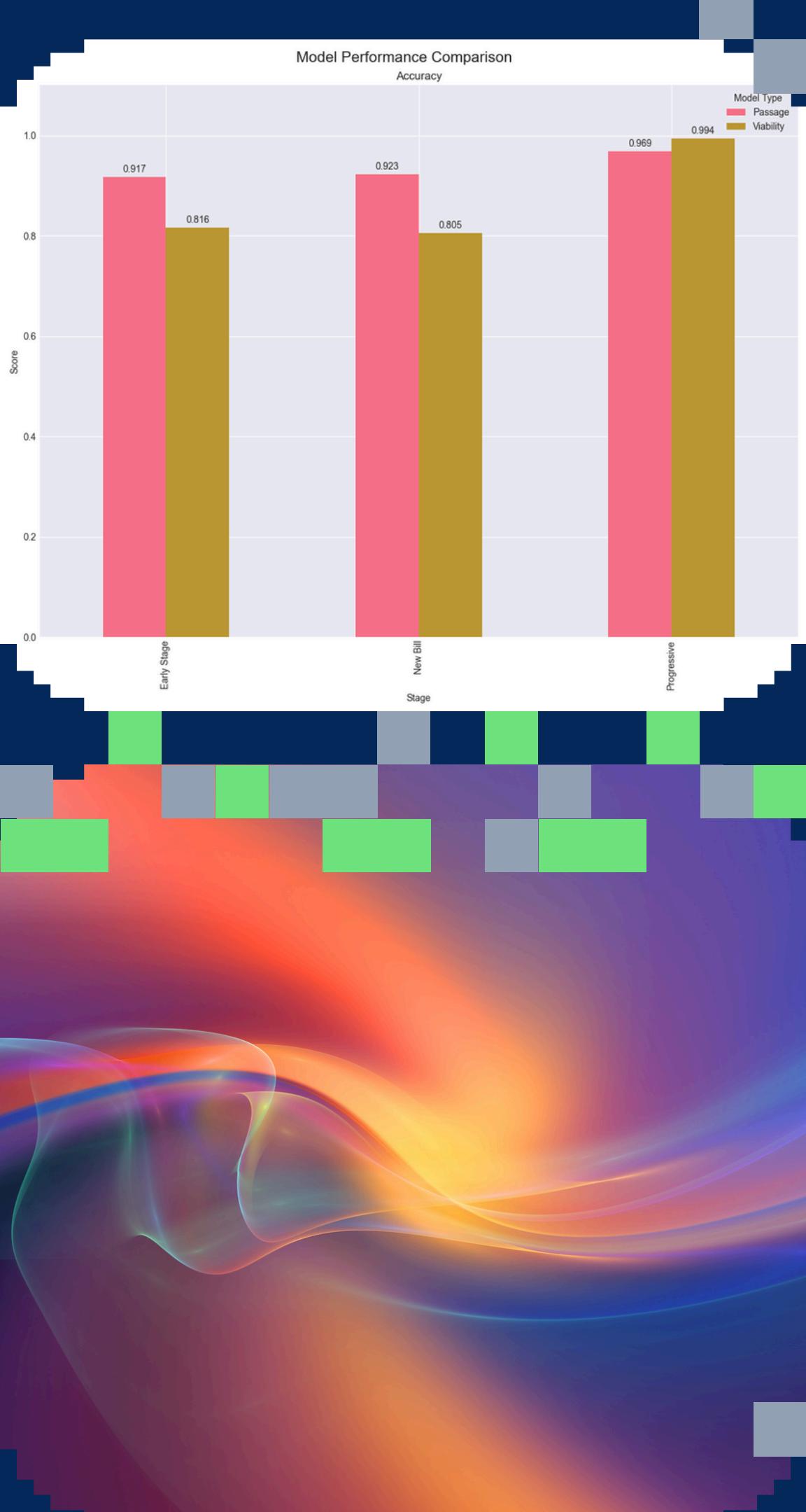
## What makes bills succeed?

- Number of actions in bills (roll calls, votes, committee referrals) is crucial to bill success
- First 30 days are critical, as shown in the early\_activity parameter
- Policy area is important for early-stage viability, but not as much for later stages



# Model Performance

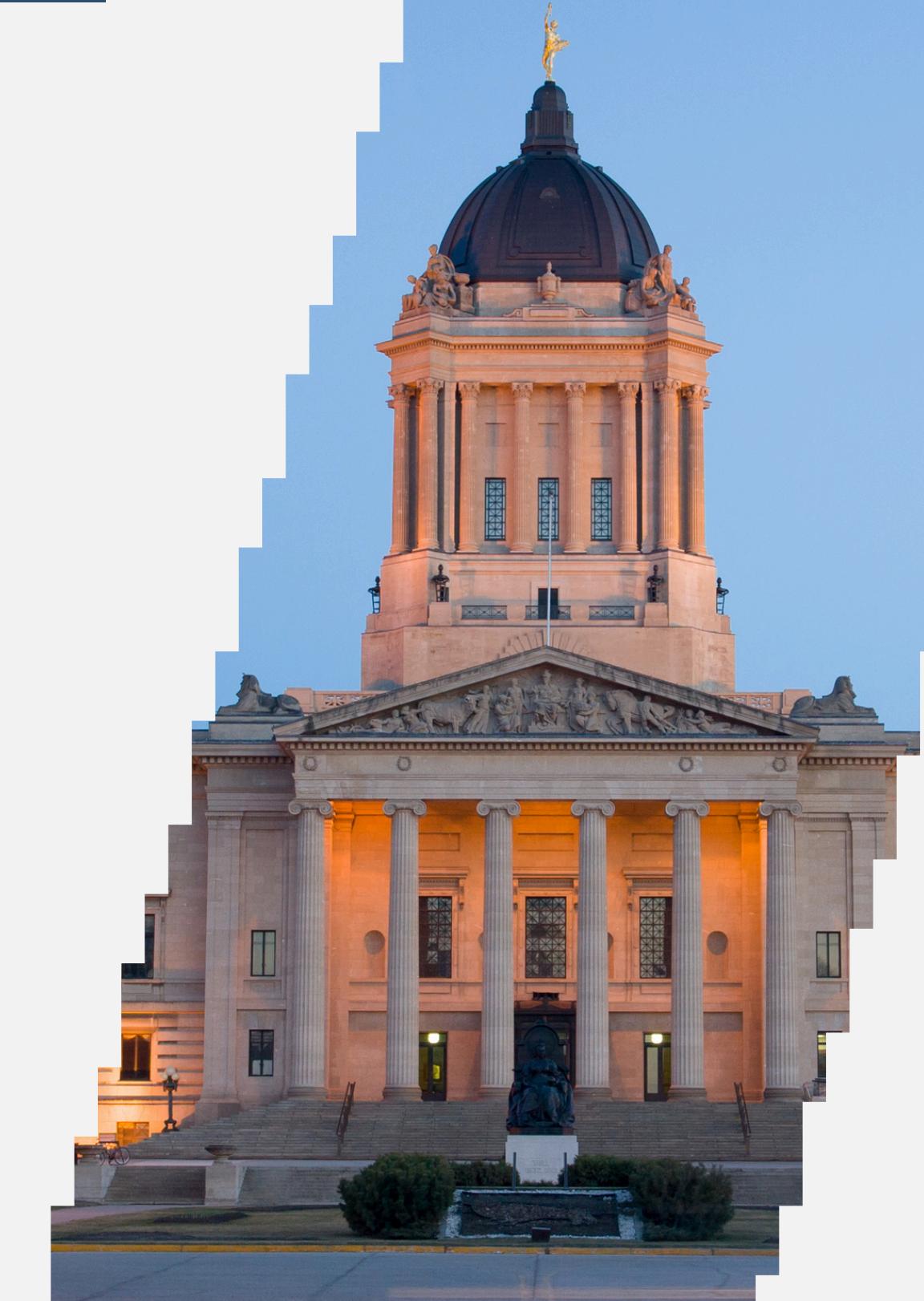
This gallery showcases the **performance metrics** dashboard, highlighting key indicators of success including a high accuracy and ROC-AUC score. The performance on recall may seem low, but with less than 2% of proposed bills passing, it is already very hard to predict passage with the limited information provided to the early-stage and new bill models.



# Impact Analysis on Stakeholders

**Democratizing Legislative Intelligence:**  
Understanding the implications for citizens,  
advocacy groups, and legislators in policy-  
making

This predictive bill tracker, powered by AI-driven legislative tracking has **significant effects** on various stakeholders. Citizens gain **transparency** and access, advocacy groups can leverage data for their causes with efficient resource allocation, and legislators receive valuable insights to inform their decisions and improve bill design.



# Demo Highlights

## Key Features In Action:

- Real-time Congress.gov API integration
- Confidence intervals show model uncertainty
- Time-aware predictions (Progressive Model shown)
- Interactive gauge visualizations
- Complete legislative timeline tracking
- Live viability and passage predictions

### Congressional Bill Tracker - Advanced Analytics

Reliable predictions with confidence intervals

Enter Bill Number: 1234 | Type: H.R. | Congress: 118

Display Options

#### Bill Analysis: HR.1234 - Can't Cancel Your Own Debt Act of 2023

Bill Details	Days Active	Total Actions	Committees	Cosponsors	Bipartisan	Activity Rate
	883	2	0	17	No	0.00/day

#### Legislative Activity Timeline

Total Actions	Activity Span	Recent Actions (30d)
2	0 days	0

Date	Action	Days Ago	Chamber
February 28, 2023	Referred to the House Committee on Education and the Workforce.	883	House floor actions
February 28, 2023	Introduced in House	883	Library of Congress

[Download Full Timeline \(CSV\)](#)

#### AI Predictions - ⚡ Progressive Model

Based on 883 days of legislative activity

Model Accuracy	ROC-AUC Score	Reliability
99.4%	0.999	High

#### ⌚ Viability Prediction

Viability Score: 0.1% (↑ 0.3%)  
Confidence interval: 0.0% - 0.5%

0.1%

#### 🏛 Passage Prediction

Bill must be viable first  
Focus on building support and momentum



# Future Vision

A Roadmap Ahead: Building a more transparent democracy

Possible Next Steps:

- State legislature integration
- Real-time amendment tracking
- Public sentiment analysis
- Predictive alerts
- Mobile application
- API for researchers

# Thank you!

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