Automating Legislative Analysis Using LLMs on AWS Bedrock

Executive Summary

The SublAi DOF Legal Impact Analysis is an AWS-based solution that leverages generative AI to automate the analysis of Mexico's Official Gazette of the Federation (DOF) legal updates.

Leveraging large language models (LLMs) via AWS Bedrock, the solution uses advanced natural language processing to intelligently extract legal content, identify regulatory changes, and generate comprehensive **legal impact assessments**.

This solution provides:

- **AI-powered document analysis** and summarization.
- Automated change detection through LLM comparison.
- Generative **legal impact reports**.
- Intelligent client notifications.

The serverless GenAI architecture transforms traditional manual legal research into automated, intelligent analysis that delivers actionable regulatory insights for improved compliance and strategic decision-making.

About Costumer

Figure 1 – Nova Logo

Nova is a company specializing in Information Technology Consultancy Services.

"Innovate better, faster, smarter with Nova".

The Challenge

Nova's customer, SublAi, identified a critical operational bottleneck affecting legal firms processing Mexico's regulatory changes from the Official Gazette of the Federation (DOF). The traditional **manual workflow**, involving **extensive document review**, senior associate legal interpretation, and client newsletter drafting, required 5 to 10 business days per publication, creating **significant delays and operational inefficiencies**. This process diverted senior legal staff from higher-value advisory work while increasing risks of delayed or incomplete client guidance, prompting the need for an automated, AI-powered solution to streamline regulatory analysis and accelerate client communication.

Why AWS?

AWS Bedrock's generative AI powered automated legal text analysis and change detection, while its serverless architecture ensured scalable, cost-efficient daily processing.

The Solution

Nova has developed the SublAi DOF Legal Impact Analysis solution which addresses the manual legal document processing bottleneck through a comprehensive AWS-based generative AI pipeline that automates the entire regulatory monitoring and analysis workflow.

Data Acquisition and Processing

The system begins by automatically extracting publications from Mexico's Official Gazette (DOF) website through web scraping capabilities deployed on AWS Lambda. Raw HTML is analyzed to extract data and PDF documents are systematically retrieved and stored in Amazon S3 buckets with organized metadata structures. The “data extraction" Lambda function handles this initial ingestion, while “get metadata JSON” function processes document metadata for structured analysis. All extracted content undergoes validation and formatting to ensure consistent data quality for downstream AI processing.

Intelligent Change Detection

AWS Bedrock's large language models perform sophisticated document analysis, comparing new publications against historical legal databases maintained through the SublAi API integration. The “identify changes” Lambda function leverages natural language processing to detect modifications, additions, or repeals in existing statutes and regulations. This AI-powered comparison goes beyond simple text matching, understanding legal context and semantic changes that human reviewers would traditionally identify through manual analysis.

Comprehensive Legal Impact Analysis

Once changes are identified, the “Analyze Changes” and “Legal Impact Analysis” Lambda functions leverage Bedrock’s generative AI to deliver in-depth legal interpretations. These functions assess the structural, regulatory, and operational implications of the changes. Using AI models, the system generates structured impact assessments that identify affected sectors, such as healthcare, finance, or telecommunications, and specific policy areas including administrative procedures, data governance, public service delivery, or innovation frameworks. The analysis provides insight into jurisdictional consistency, legal enforceability, and broader socio-economic effects, supporting informed decision-making by legal teams and policymakers.

Orchestration and Workflow Management

AWS Step Functions orchestrates the entire processing pipeline, managing dependencies between Lambda functions and handling error recovery scenarios. The state machine coordinates data extraction, change identification, impact analysis, and client communication in a reliable, scalable manner. EventBridge scheduling triggers daily processing cycles, ensuring consistent monitoring of regulatory updates without manual intervention.

Automated Client Communication

The “send summary” Lambda function integrates with SendGrid to deliver impact reports via email.

This end-to-end automation transforms the traditional manual workflow into same-day intelligent analysis, reducing operational costs while improving accuracy and consistency. Legal firms can now deliver timely regulatory insights to clients while redirecting senior staff toward high-value advisory services, strategic planning, and complex legal interpretation that requires human expertise.

“Amazon Bedrock.”

By leveraging AWS Bedrock's advanced generative AI capabilities, Nova was able to focus on developing sophisticated legal document analysis and automated change detection while ensuring high-quality, consistent AI-powered legal interpretations and impact assessments for SublAi’s clients.

Figure 2 – Amazon Bedrock Service

Best Features

- **Conversational Support**
- **Agentic Workflows**
- **Improved Governance**
- **Global Availability**
- **Cost management**
- **Grounded AI Responses**

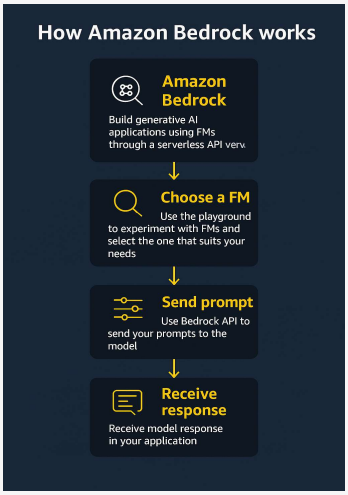


Figure 3 - How Amazon Bedrock works

Results and Benefits

Operational Efficiency Transformation

The implementation of the SublAi DOF Legal Impact Analysis solution has dramatically transformed operational efficiency for legal document processing. Processing time has been reduced from the traditional 5-10 business days to same-day delivery, representing a 90-95% reduction in turnaround time. This acceleration enables legal firms to provide clients with timely regulatory insights that support immediate business decision-making and compliance planning. The automated workflow eliminates manual document review bottlenecks, allowing continuous processing without human intervention during off-hours and weekends.

Enhanced Accuracy and Consistency

AI-powered analysis through AWS Bedrock eliminates human error and inconsistencies inherent in manual document review processes. Large language models provide standardized legal interpretation frameworks, ensuring consistent analysis quality across all regulatory updates. Automated change detection captures subtle regulatory modifications that might be overlooked during manual review, improving overall analysis completeness.

Scalability and Business Growth

The serverless architecture enables seamless scaling to accommodate increased document volumes, additional legal jurisdictions, or expanded client bases without infrastructure modifications. SublAi can onboard new clients rapidly without proportional increases in operational complexity. The solution's modular design allows for easy integration of additional legal document sources beyond DOF publications, supporting business expansion into new regulatory domains.

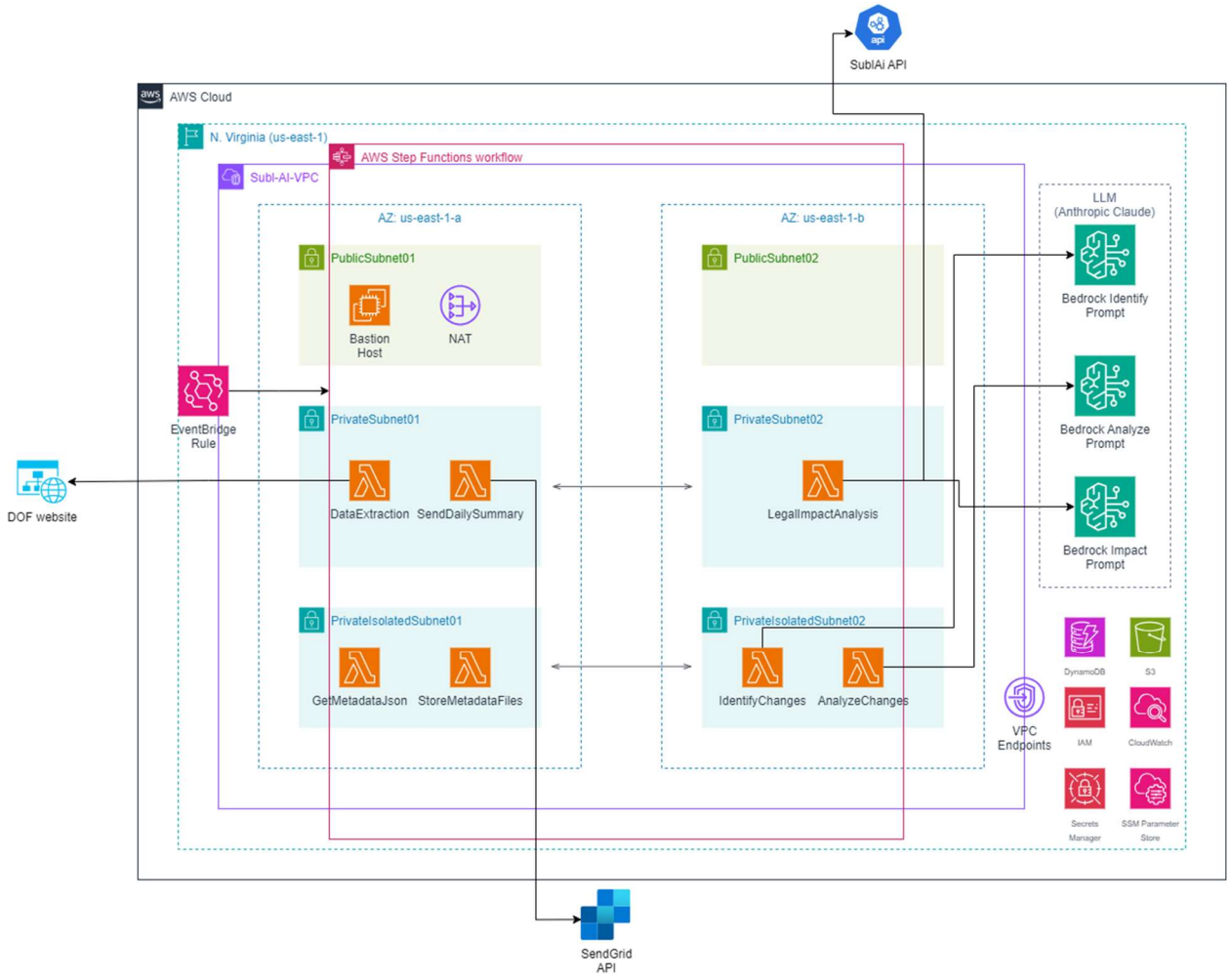
Client Satisfaction and Competitive Advantage

Same-day regulatory analysis delivery significantly enhances client satisfaction by enabling proactive compliance planning rather than reactive responses to regulatory changes. Clients receive comprehensive impact assessments improving their ability to make informed business decisions. The automated, consistent delivery schedule builds client confidence in regulatory monitoring services, creating competitive differentiation in the legal services market.

Technology Innovation and Future-Readiness

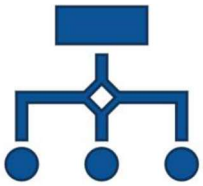
The AWS-based architecture places SublAi and its clients at the leading edge of legal technology, reinforcing a strong commitment to innovation, operational efficiency, and high-quality client service. Built on a generative AI foundation, the pipeline is designed for continuous evolution, with potential for future capabilities such as multilingual legal analysis, cross-jurisdictional regulatory comparisons, and advanced predictive insights. Its integration-ready design allows for smooth interoperability with existing legal practice management tools and client communication systems.

SublAi DOF Legal Impact Analysis Architecture



Next Steps

The next phase focuses on expanding coverage to additional Mexican regulatory sources. Enhanced AI capabilities will integrate newer Bedrock models for specialized legal domains. Client-facing improvements include self-service dashboards, customizable alerts, and enterprise system integrations. The solution's success positions SublAi to commercialize the platform for broader legal industry adoption.

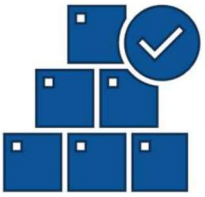


AI-Powered Automation

The solution leverages AWS Bedrock's generative AI to automatically analyze legal documents and identify regulatory changes, eliminating the need for manual review processes.

Maximizing Efficiency Through Innovation

Processing time for legal document analysis has been reduced from 5-10 business days to same-day delivery, representing a 90-95% improvement in operational efficiency.



Serverless Scalability

The AWS serverless architecture provides cost-effective, event-driven processing that scales automatically with document volumes while minimizing infrastructure overhead.

About Nova

Nova is a company specializing in Information Technology Consultancy Services. All our team members have one thing in common: our enthusiasm for technology and our passion for customer service excellence. We provide services in all North America, LATAM and Europe. Our headquarters are in NYC metropolitan area, and we also have offices in Guadalajara, Mexico and Madrid, Spain.

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