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An Active Hurricane Season in the U.S. Southeast—Is Blockchain-Based Parametric Insurance the Answer to Disaster Relief?



As the frequency and intensity of natural disasters escalate, the insurance sector is under increasing pressure to expedite reliable compensation for its clients. The National Oceanic and Atmospheric Administration (NOAA) had projected a range of 17 to 25 storms for the Atlantic basin in the 2024 season, which runs from June 1st to November, including a minimum of eight hurricanes and four major ones.¹ With the U.S. Southeast facing a higher rate of storm projections, the region may need to brace for substantial damage and displacement, amounting to billions of dollars in future losses. Around the world, extreme weather events with higher temperatures, prolonged droughts, and severe wildfires are creating unprecedented uncertainty for governments, businesses, and individuals.

In this scenario, parametric insurance could serve as a strategic approach to lessening the financial burden of such calamities. Unlike traditional indemnity-based models, parametric insurance offers automatic payouts once specific pre-set conditions—like a hurricane reaching a certain category or temperatures hitting a defined limit—are met. This efficient method can significantly aid in quicker recovery post-disaster. The adoption of blockchain technology, along with smart contracts and data oracles, could make parametric insurance an effective risk management tool with today's unpredictable climate.

Smart Contracts: Streamlining Insurance Payments

At the heart of blockchain-enabled parametric insurance lies the smart contract, a self-executing code that functions on a blockchain. Once activated, a smart contract is designed to carry out specific actions automatically once its pre-defined conditions are met. For parametric insurance, these conditions are linked to particular events such as temperature variations, levels of precipitation, or seismic activities.² For instance, a smart contract for crop insurance could trigger a payment if rainfall levels fall below a certain threshold for an extended period, indicating a drought. This automatic process can eradicate the need for protracted claims procedures, manual assessments, and subjective adjustments (and could potentially revolutionize commodity production/hedging and speculative trading in futures markets).

In short, smart contracts are designed to be trustless, meaning transactions are executed precisely as programmed without the need for intermediaries or human interference. Smart contracts have the potential to substantially reduce operational costs, errors, and response times.

The Importance of Data Oracles

Smart contracts are deterministic, meaning they operate based on the data already present on the blockchain. A mechanism is needed to import this external data onto the blockchain to respond to real-world events like weather or seismic data outside the blockchain. This stage is where data oracles come in.

Data oracles are intermediaries that collect, validate, and deliver off-chain data to the blockchain. For parametric insurance to work effectively, it's crucial to have access to accurate and timely data from reliable sources. Weather data, for instance, could be sourced from reputable meteorological agencies, while seismic data might come from official geophysical bodies. Oracles ensure this information is securely integrated into smart contracts, enabling the insurance policy's conditions to be assessed and triggering automatic payouts when applicable.³

Guaranteeing Data Precision: The Role of AI

Given the critical nature of insurance payouts, the accuracy and dependability of data inputs are paramount. Inaccurate data or faulty reporting could result in wrongful payouts, undermining confidence in the parametric insurance model. We believe the integration of artificial intelligence (AI) and machine learning (ML) for data verification and predictive analytics is invaluable to counter these challenges.

AI can scrutinize data streams in virtually real-time, detect patterns, and even forecast potential triggering events more accurately. Training ML algorithms on historical weather data and satellite imagery can enhance the precision of weather forecasts.⁴ This precision ensures that the data relayed to smart contracts via oracles is trustworthy and current, minimizing the risk of errors and improving payout efficiency.

Additionally, AI can cross-verify data from various oracles or external sources to prevent reliance on a single data point. By validating data across multiple sources, the system seeks to ensure that the reported events triggering the payouts are accurate, maintaining the integrity of the insurance system.

Conclusion:

Integrating blockchain technology, smart contracts, data oracles, and AI can potentially revolutionize parametric insurance and create a robust solution for managing risks in an increasingly unpredictable world. At Morgan Creek Digital, we believe these technologies could represent the insurance industry's future, which increasingly values speed, transparency, and precision. We will continue to monitor investment opportunities and innovation in the field.

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¹[2024 hurricane season is here, and it could break records : Short Wave : NPR](#)

²<https://cointelegraph.com/learn/what-are-smart-contracts-a-beginners-guide-to-automated-agreements>

³[Top Use Cases for Blockchain in Insurance | Insurance Thought Leadership](#)

⁴[GraphCast: AI model for faster and more accurate global weather forecasting - Google DeepMind](#)

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