TxShield Grant Application for Beta Launch Support

Project Name: TxShield

Tagline: Predict the Risk, Prevent the Loss

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Project Stage: MVP Completed, Preparing for Beta Launch

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1. Project Overview and Mission Alignment
What is TxShield?

TxShield is a transaction simulation platform designed to empower Web3 users by previewing transaction outcomes before execution. It addresses critical pain points in the Ethereum ecosystem, such as high gas fees, failed transactions, and honeypot scams, which have collectively cost users millions. By simulating transactions, estimating gas fees with precision, and flagging potential scams, TxShield helps users make informed decisions, reducing financial losses and enhancing trust in decentralized ecosystems.

Alignment with Grant Program Missions:

- **Ethereum (ESP):** TxShield aligns with ESP's mission to support projects that benefit the Ethereum ecosystem by improving user safety and transaction efficiency. Our platform mitigates risks like honeypot scams (which have caused over $103M in losses between 2018–2024) and failed transactions (e.g., $100K lost in a single instance). By integrating with Ethereum's blockchain via Ethers.js, TxShield enhances the user experience for millions of Ethereum wallet users.
- **Polygon:** As layer-2 solutions focused on scalability and user adoption, Polygon and Optimism benefit from tools like TxShield that improve transaction reliability across networks like Sepolia (Chain ID: 11155111, as shown in our simulation results). Our beta launch will include support for these networks, ensuring broader ecosystem compatibility.

Intended Impact:

- Reduce failed transactions by 30% for users through accurate gas estimation and revert detection.
- Prevent $5M in losses from honeypot scams annually by flagging malicious contracts.
- Onboard beta users within 6 months, increasing trust in Web3 transactions.

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2. Problem Statement and Market Opportunity

The Problem:

Web3 users face significant risks:

- **High Gas Fees:** Users often overpay due to inaccurate gas estimates, as seen in our simulation result (0.000021 ETH = $0.04 for a small transfer).
- **Failed Transactions:** A single instance on Ethereum cost users $100,000 due to reverts and contract traps.
- **Honeypot Scams:** Between 2018–2024, scams exploiting Ethereum's slow liquidity drain resulted in $103M in losses.
- **Lack of Transparency:** Users lack tools to preview transaction outcomes, leading to uninformed decisions.

Market Opportunity:

- **User Base:** There are 21 million monthly active MetaMask wallet users in Web3, many of whom are exposed to these risks.
- **Revenue Potential:** By offering API licensing and premium features, TxShield can tap into a scalable market while providing free core functionalities as a public good.

How TxShield Solves This:

- Simulates transactions to detect reverts and contract traps.
- Provides precise gas estimates using Ethers.js, saving users money.
- Flags potential scams, such as honeypots, with real-time alerts (e.g., "High Gas Fees Detected: This transaction may have an abnormally high tax, possibly a honeypot!" as shown in our simulation).

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3. Beta Launch Plan: Technical Details and Milestones

Beta Launch Overview:

The TxShield beta launch will roll out our MVP to 50,000 early users, focusing on Ethereum and layer-2 networks (Polygon, Optimism, Sepolia). The beta will collect user feedback, refine our

algorithms, and expand our contract signature database to improve scam detection. Below are the detailed technical steps and milestones.

Beta Launch Timeline (6 Months):

Month 1: Infrastructure Setup and Pre-Launch Preparation

- **Backend Optimization:** Optimize our backend for scalability to handle 50,000 users. This includes upgrading our server infrastructure to reduce transaction simulation latency by 20% (current simulation time: ~2 seconds).
- **Contract Database Expansion:** Add 10,000 new contract signatures to our database, focusing on known honeypot patterns. This will improve our scam detection accuracy from 85% to 90%.
- **Network Support:** Integrate Polygon and Optimism alongside Ethereum. This involves updating our Ethers.js integration to support cross-chain gas estimation and transaction simulation.
- **User Onboarding Flow:** Develop a seamless onboarding process with wallet API integration (e.g., MetaMask) to allow users to connect and simulate transactions with one click.

Month 2: Beta Launch and Initial User Acquisition

- **Launch:** Release TxShield beta to 10,000 early adopters via a public announcement on X, Discord, and Web3 communities (e.g., Ethereum subreddit, Gitcoin forums).
- **Core Features Available:**
    - Transaction simulation with revert detection.
    - Gas estimation using Ethers.js (e.g., 0.000021 ETH for a 0.001 ETH transfer, as shown in our screenshot).
    - Honeypot scam alerts (e.g., “High Gas Fees Detected” warning).
- **User Interface:** Deploy a streamlined UI/UX (planned overhaul in Q3 2025), recipient address input, and clear financial summaries (e.g., ETH price, balance before/after, transfer amount).

Month 3–4: Feedback Collection and Iteration

- **User Feedback:** Collect feedback via in-app surveys and Discord channels. Key metrics: user satisfaction (target: 80% positive), scam detection accuracy (target: 90%), and gas estimation accuracy (target: ±5% error).
- **Feature Iteration:**
    - Enhance gas estimation by incorporating real-time network congestion data (e.g., EIP-1559 gas price fluctuations).
    - Improve honeypot detection by integrating AI-based contract prediction (planned for future roadmap).
- **Bug Fixes:** Address any bugs reported by users, such as incorrect balance updates or simulation failures.

Month 5: Scale to 50,000 Users

- **Marketing Push:** Partner with wallet providers (e.g., MetaMask) to promote TxShield as a safety tool, targeting 50,000 users.
- **Performance Monitoring:** Monitor backend performance to ensure <1% downtime and <3-second simulation times under increased load.
- **Threat Detection Enhancements:** Use beta data to train our algorithms, increasing honeypot detection precision by 5%.

Month 6: Post-Beta Analysis and Reporting

- **Impact Report:** Publish a report detailing:
    - Number of transactions simulated (target: 500,000).
    - Estimated user savings from gas optimization (target: $50,000).
    - Scams prevented (target: $1M in potential losses).
- **Roadmap Update:** Share updated roadmap with grant providers, including plans for AI contract prediction and UI/UX overhaul.

Technical Stack for Beta:

- **Frontend:** Next.js with React custom hooks for a responsive UI.
- **Backend:** Node.js with Ethers.js for Ethereum and layer-2 integration.
- **Honeypot Detection:** Custom algorithms analyzing contract bytecode for malicious patterns (e.g., high tax rates, as flagged in our simulation).
- **Contract Scanner:** A tool to analyze smart contracts for vulnerabilities pre-deployment.
- **Database:** Expandable contract signature database for scam detection.

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4. Funding Request and Utilization

Funding Requested: Support for Beta Launch Initiatives

Breakdown of Funding Needs:

- **Backend Optimization:** Resources to upgrade server infrastructure, ensuring scalability to handle 50,000 users with minimal downtime (<1%).
- **Contract Database Expansion:** Investment to expand our contract signature database by adding 10,000 new signatures, enhancing scam detection accuracy.
- **Marketing and User Acquisition:** Support for promoting the beta launch through Web3 communities and wallet partnerships to onboard 50,000 users.
- **Development Team:** Funding to hire two additional developers, accelerating feature iteration and refinement during the beta phase.
- **Miscellaneous:** Coverage for operational costs, including hosting, legal compliance (e.g., KYC), and user support.

Why This Funding Matters:

The requested support aligns with the scope of our beta launch, which requires significant backend scaling, user acquisition efforts, and algorithm improvements. This funding will empower us to achieve our goals of onboarding 50,000 users and preventing $1M in scam losses, delivering tangible value to the Ethereum ecosystem. The exact amount is flexible, and we trust the grant providers to determine an appropriate level of support based on the outlined needs and their assessment of the project's impact potential.

Future Funding:

Post-beta, we plan to seek additional resources to implement AI-driven contract prediction and a full UI/UX overhaul, further strengthening TxShield's capabilities.

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5. Team and Expertise

Team Overview:

- **Moiz Ali: Founder & Lead Developer** – 1.5+ years in Web3 development, expertise in Ethereum smart contracts and Ethers.js. Previously built Documint [Document to NFT project using Solidity, hardhat, and MERN Stack].
- **Potential Team Already available:** 1 frontend developer who handle the UI/UX

Why I am the Right person for this Job:
I have already built a functional MVP, as evidenced by our transaction simulation, and are ready to scale with the beta launch.

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6. Risks and Mitigation

Risk 1: Low User Adoption

- **Mitigation:** Partner with wallet providers like MetaMask and leverage Web3 communities (e.g., Gitcoin, Discord) to reach 50,000 users. Offer incentives like free premium feature trials during the beta.

Risk 2: Inaccurate Scam Detection

- **Mitigation:** Expand our contract signature database and use beta feedback to refine our algorithms, targeting 90% accuracy.

Risk 3: Backend Overload

- **Mitigation:** Allocate $22,500 to optimize our backend, ensuring <1% downtime and <3-second simulation times.

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7. Outputs and Outcomes

Outputs (What is Produced):

- A beta platform with 50,000 active users.
- An expanded contract signature database (10,000+ entries).
- Open-source documentation of our simulation and scam detection algorithms.
- A detailed impact report for grant providers.

Outcomes (What is Accomplished):

- Prevent $1M in potential scam losses through honeypot detection.
- Save users $50,000 in gas fees through accurate estimation.
- Increase trust in Web3 transactions, driving adoption among 50,000 beta users.
- Lay the foundation for future features like AI contract prediction.

Sustained Impact:

- TxShield will remain relevant by continuously updating our scam detection database and integrating with new networks.
- Our open-source approach ensures that developers can build on our work, fostering broader ecosystem growth.

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8. Why TxShield Stands Out
Unique Value Proposition:

Unlike existing tools, TxShield combines transaction simulation, precise gas estimation, and scam detection in a single platform. Our focus on user empowerment (e.g., clear financial summaries, real-time scam alerts) and integrate out systems into wallets sets us apart.

Competitive Analysis:

- **Existing Tools:** Many wallets offer basic gas estimation, but they lack revert detection and scam flagging.
- **TxShield's Edge:** We provide a holistic solution with actionable insights (e.g., "High Gas Fees Detected" warning) and plan to integrate AI for predictive analysis in the future.

Connection to Ecosystem:

TxShield complements the work of wallet providers (e.g., MetaMask) and layer-2 solutions (e.g., Polygon, Optimism) by enhancing user safety and transaction efficiency, enabling broader Web3 adoption.

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9. Supporting Materials

Attached Files:

- **Pitch Deck PDF:** [Already provided in the document].
- **Transaction Simulation Screenshot:** [Already provided in the image].
- **Prototype Demo:** *https://safe-tx-simulator.vercel.app/*

Simulation Screenshot Highlights:

- **Financial Summary:** ETH price ($1,801.83), balance before/after (0.0483 → 0.0473 ETH), transfer amount (0.001 ETH), gas fees (0.000021 ETH = $0.04).
- **Transaction Details:** From/to addresses, network (Sepolia, Chain ID: 11155111), validation (valid recipient address), and a scam alert ("High Gas Fees Detected").
- **Result:** "Likely to succeed (10%+ gas buffer)," demonstrating our platform's accuracy and user-centric design.

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10. Eligibility and Compliance

- **Open Source:** All TxShield outputs (code, documentation) will be open source, available on GitHub under an MIT license.
- **Non-Commercial:** The grant-funded work (beta launch, scam detection) is non-commercial, though we plan to monetize via API licensing and premium features post-beta.
- **Legal Compliance:** We will comply with all legal requirements in our jurisdiction, including KYC for grant activation.
- **Scope Fit:** TxShield directly benefits Ethereum and layer-2 ecosystems by improving transaction safety and efficiency, aligning with the missions of Ethereum, Polygon, Optimism, Gitcoin, and Web3 accelerators.

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11. Final Statement

TxShield is poised to make a transformative impact on the Web3 ecosystem by protecting users from scams, optimizing transaction costs, and fostering trust in decentralized technologies. With our MVP already built and a clear beta launch plan, we're ready to scale to 50,000 users and deliver measurable results. We respectfully request Grant to support this critical phase, and we're excited to collaborate with Ethereum, Polygon, Optimism, and Gitcoin to achieve our shared vision of a safer, more accessible Web3.