Problem Statement

The gig economy faces a growing challenge of identity verification failures, which have increased by 12.5% from FY 2020-2024, with 74.4% of checks failing to match official records. This leads to job loss, reduced income stability for workers, and increased fraud risks for platforms.

Causes of verification failure

Our assessment explained the following instances of worker identification rejection:

1) **Data Mismatch-** Employee provided information doesn't match government data.

2) **Fraudulent Documents-** Fake or tampered IDs are detected.

3) **Lack of Standardized Records-** Workers from informal sectors or underserved regions may not have proper identity documentation.

4) **Multiple Accounts**- A worker is attempting to create duplicate accounts with different credentials.

5) **Technical Errors**- Prone to errors in scanning, uploading, or processing of documents.

Solution

It is now time to bring up our answer using block-based digital identity verification; it has transformed gig workers' worlds into secure, verifiable, and decentralized platforms. This technology, which stores identities on an immutable ledger, has eliminated mismatches and fraud and enabled seamless verification across platforms. This improved trust, transparency, and access has made it easy for workers to make their applications while boosting platform credibility. Verified identities also create a better reputation score for workers and open up access to financial services, such as loans and insurance, through the increased awareness of financial equality gained by the gig economy.

Impact of our solution

1. Improved Adjustments in Accuracy of Identity Verification:

Reduction in verification failures by allowing the gig worker to have tamperproof and verifiable digital identities attached in the blockchain.

Removes dependence on traditional fragmented and faulty verification methods.

1. Increased Work Opportunities for Gig Workers:

Let workers with valid credentials access work without having their applications denied based on mismatches or weaknesses in verification systems.

It provides portable and universal digital identities consumable from any platform (e.g., Upwork, Fiverr, Uber).

1. Reduction of Fraud and Higher Platform Trust:

Less identity fraud and fake worker profiles with the characteristics of immutability and transparency that comes with the blockchain.

More trust among platform, employer, and worker incubations for a secure gig economy ecosystem.

1. Financial Inclusion for Gig Workers:

Those verified identities will also allow workers to gain reputations that they can use to access services like loans or insurance from financial service providers.

Prompt banks and others to see gig workers as regular earners, thus recognizing their legitimacy.

1. Scalability and Global Adoption:

Can be adopted by any gig platforms spanning across different industries and helping millions of workers globally.

Decentralized identity verification eliminates geographical and bureaucratic barriers towards a natural cross-border engagement in employment.

Empowers gig workers by improving economic stability and fortifying the whole integrity of the gig economy by solving the problem of verification failure.

Execution Strategy

Polygon was then selected as the platform of choice, with emphasis on scalability, low transaction cost, and EVM compatibility, for the execution of our blockchain-based digital identity solution for gig workers. Smart contracts will be written with the help of Solidity and deployed on the Mumbai Testnet before a final migration to the mainnet. DIDs and VCs will be implemented in line with W3C standards to guarantee interoperability. Documents required for off-chain identity verification will be stored securely on IPFS and Filecoin.

In the case of front-end development, we will favor React.js (Next.js for server-side rendering) and Ethers.js for enabling interactions with blockchain. Users will be authenticated and transactions signed using MetaMask and WalletConnect. For the backend, Node.js with Express.js shall be in charge of handling API interactions with the blockchain and off-chain storage. PostgreSQL will maintain secondary data and verification requests in an efficient and accessible manner.

Security comes first, with smart contract audits carried out with OpenZeppelin and MythX used for vulnerability testing. We will provide and deploy an MVP (Minimal Viable Product) to a closed beta with gig platforms such as Upwork and Fiverr to test real-world use cases, with further refinement based on feedback to scale the solution with integration into more gig platforms and financial institutions to enable trust-based reputation scoring, furthering financial inclusion for gig workers.