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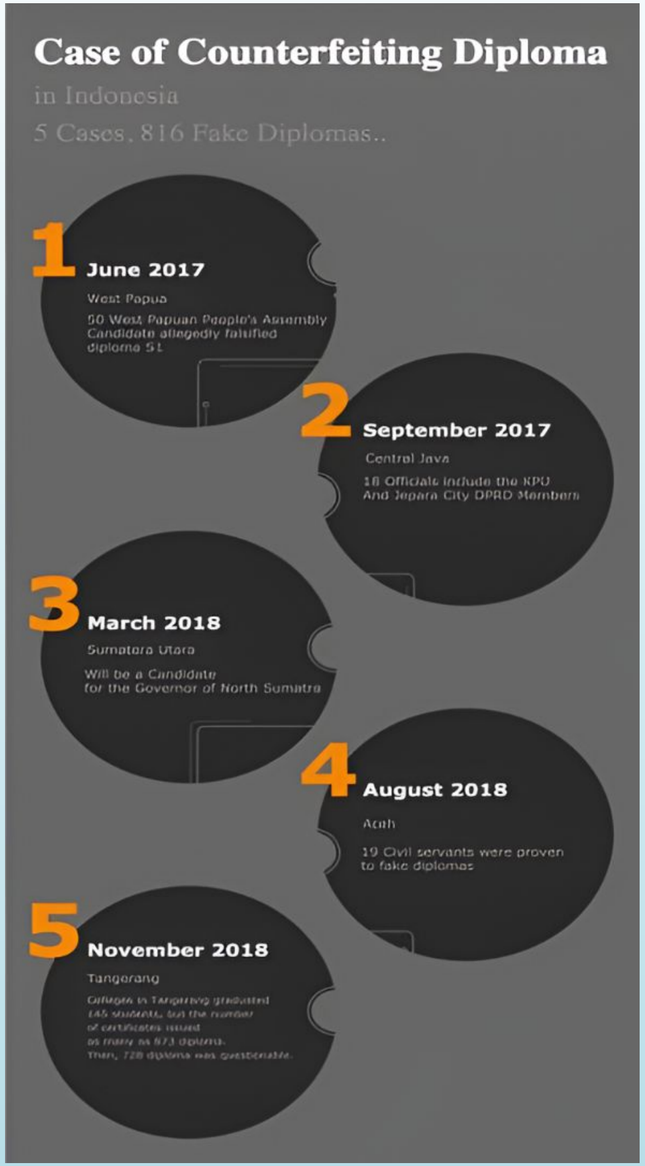
A Blockchain and InterPlanetary File System (IPFS) Based Smart Contract Framework for Preventing Certificate Fraud in Academia

- Market Failure
- Why Old Systems Fail?
- Smart Contract & IPFS
- From Tech to Simple Proof
- Vision & Value
- Conclusion


Case of Counterfeiting Diploma
in Indonesia
5 Cases, 816 Fake Diplomas..
1
June 2017
West Papua
50 West Papuan People's Assembly Candidate allegedly falsified diploma S1
2
September 2017
Central Java
18 Officials include the KPU And Jepara City DPRD Members
3
March 2018
Sumatera Utara
Will be a Candidate for the Governor of North Sumatra
4
August 2018
Aceh
19 Civil servants were proven to fake diplomas
5
November 2018
Tangerang

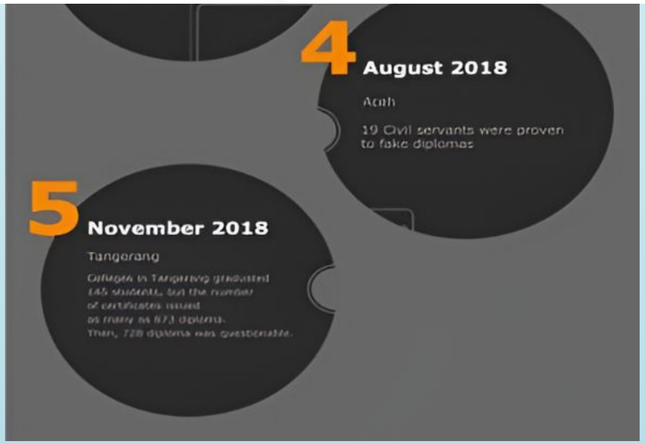
House asks public to respect UGM's clarification on Jokowi's diploma

Hous **Fake Degrees in Indonesia and Plans to Stop The Business** ation on

Jokov

Author: Rianisk Last Updated: 13 May 2025 4 Minutes Read

In addition to legal violations, diploma forgery also damages the credibility of educational institutions and the overall trustworthiness of the legal system. According to the Ministry of Education, Indonesia has recorded over 1,200 cases of academic document falsification in the past five years, with a significant number involving professional certifications. The use of counterfeit diplomas not only misleads employers but also threatens the quality of legal services, potentially exposing clients to malpractice risks.[3]



Based on the data obtained, there were at least **five** cases of diploma forgery between 2017 and 2018, totaling **816** diplomas. In the past five years, the number of cases **has risen** to at least **1,200**.

WHY?

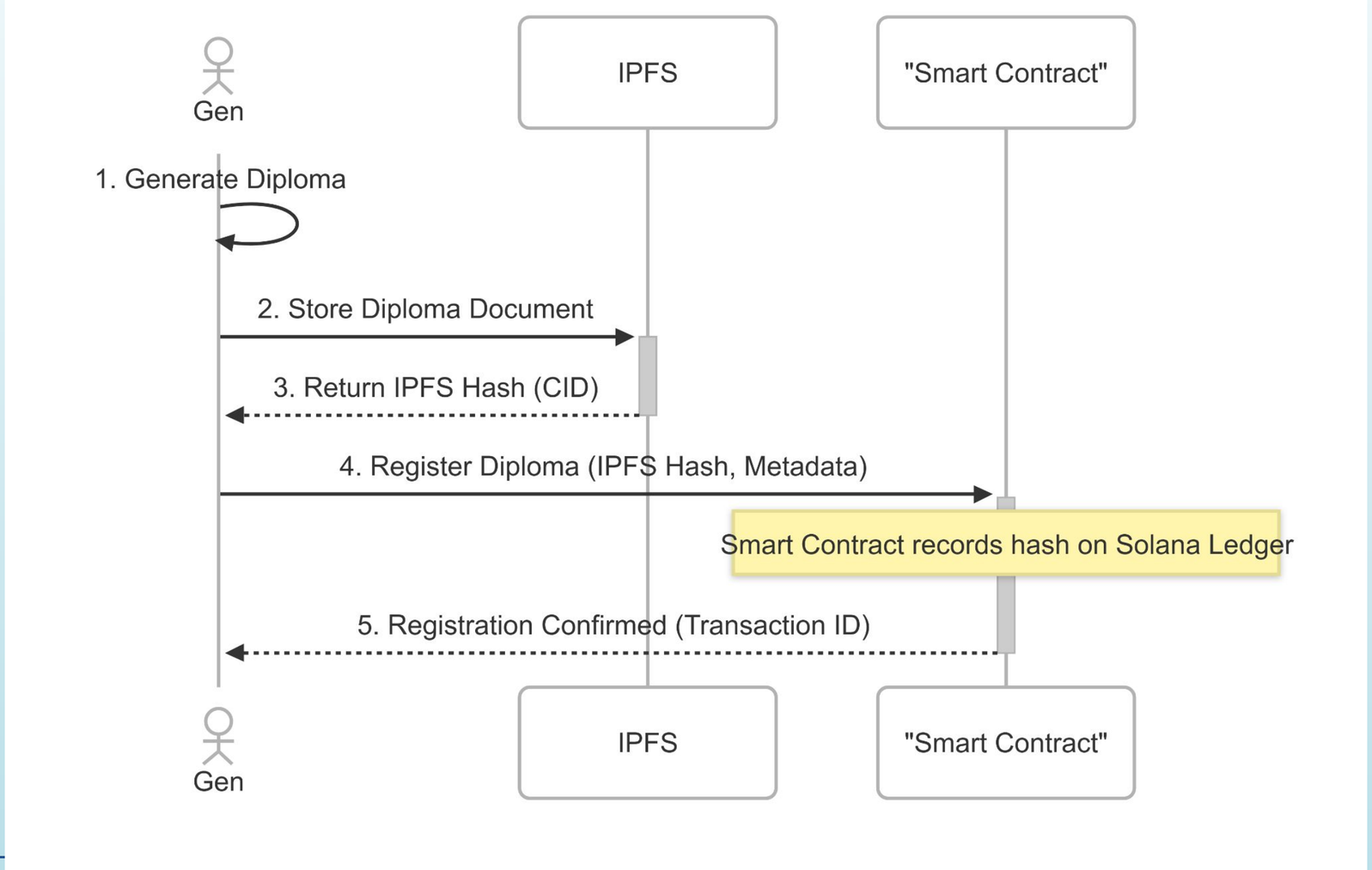
- Devalues real degrees and the hard work of legitimate students.
- Damages university reputation and public trust.
- Harms legitimate alumni by making employers skeptical of their degrees.

What makes old systems fail?

- They are centralized, creating a single point of failure that is vulnerable to hacking and downtime.
- They rely on slow, manual processes that are expensive, take days to complete, and are prone to human error.
- They are insecure, as physical certificates are easy to forge and digital records can be altered without a reliable audit trail.

Sistem Verifikasi Ijazah Elektronik (SIVIL) is an online diploma verification system integrated with the Higher Education Database.

System Architecture



Results

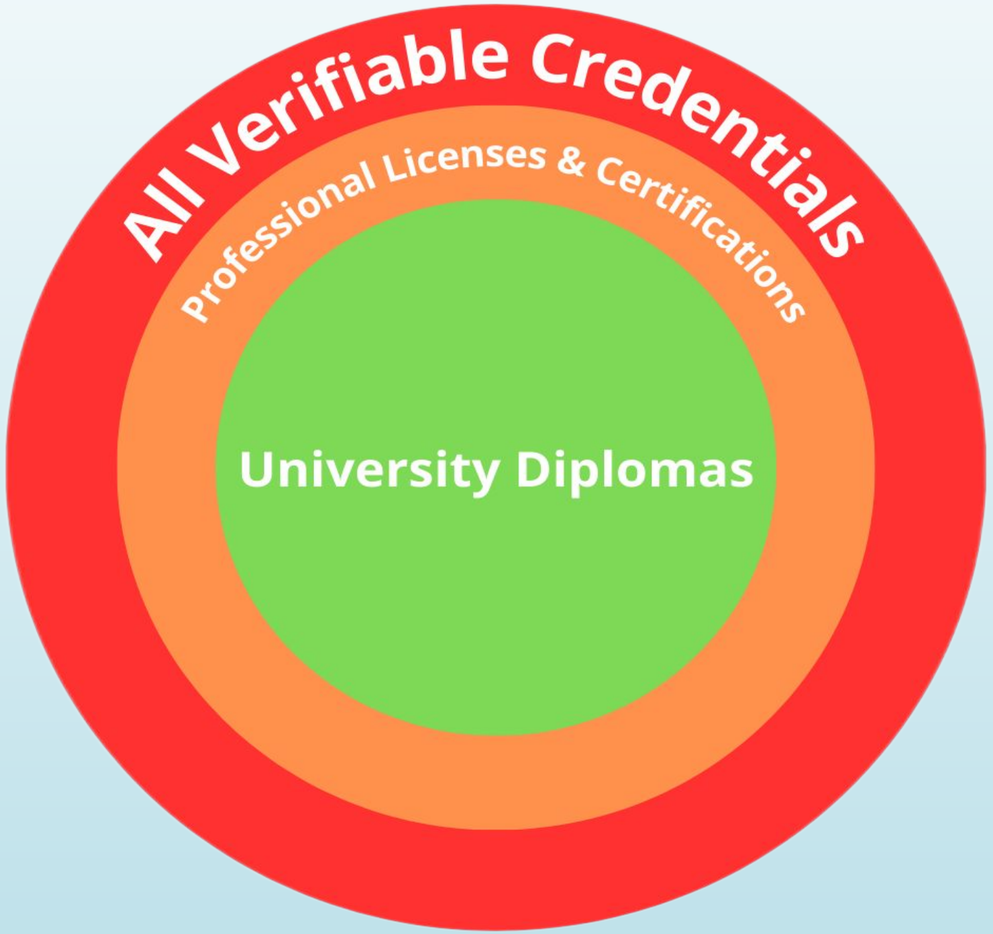
Testing confirms our framework provides highly efficient diploma authentication, with immutable transactions completing in 400ms and document retrieval in under 2 seconds. This performance surpasses both inefficient conventional methods and costly alternative blockchains, making certificate verification fast, simple, and reliable.

User Experience

The process is designed to be effortless:

1. Scan**:** They scan a QR code on the certificate or click a link on a digital resume.
2. Verify**:** This takes them to a clean, public web portal where they simply click a 'Verify' button.
3. Confirm**:** In seconds, they get a clear, trustworthy result: VERIFIED.

- For Universities: A low-cost, per-certificate fee saves them money, stops fraud, and protects their brand.
- For Verifiers: Free and public access drives widespread adoption and creates a valuable network effect.


All Verifiable Credentials
Professional Licenses & Certifications
University Diplomas

- We solve certificate fraud by separating the data (on IPFS) from the proof (on the Blockchain).
- This creates a system that is secure, decentralized, and highly efficient.
- This framework is a blueprint for a new global standard of verifiable trust.

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Thank You