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ICITACEE

2025

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



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



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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 51

2

September 2017

Central Java
18 Officials include the KPU
And Jepara City DPRD Members

3

March 2018

Sumatra 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
College in Tangerang graduated
145 students, but the number
of certificates issued
as many as 873 diplomas.
Then, 728 diploma was questionable.



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1 June 2017

West Papua

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September 2017

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

Will be a Candidate
for the Governor of North Sumatra

4 August 2018

Aceh

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Hous
Jokov

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



Author: [Rianisk](#)



Last Updated: 13 May 2025



4 Minutes Read

4 August 2018

Aceh

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Case of Counterfeiting Diploma

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5 Cases, 816 Fake Diplomas..

1**June 2017**

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

4**August 2018**

Aceh

19 Civil servants were proven to fake diplomas

5**November 2018**

Tangerang

Citragra in Tangerang graduated 145 students, but the number of certificates issued as many as 873 diplomas. Then, 728 diploma was questionable.



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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**.



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WHY?



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- 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.



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What makes old systems fail?



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- 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.

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

ijazah.kemdikbud.go.id








SIVIL

Sistem Verifikasi Ijazah
secara Elektronik

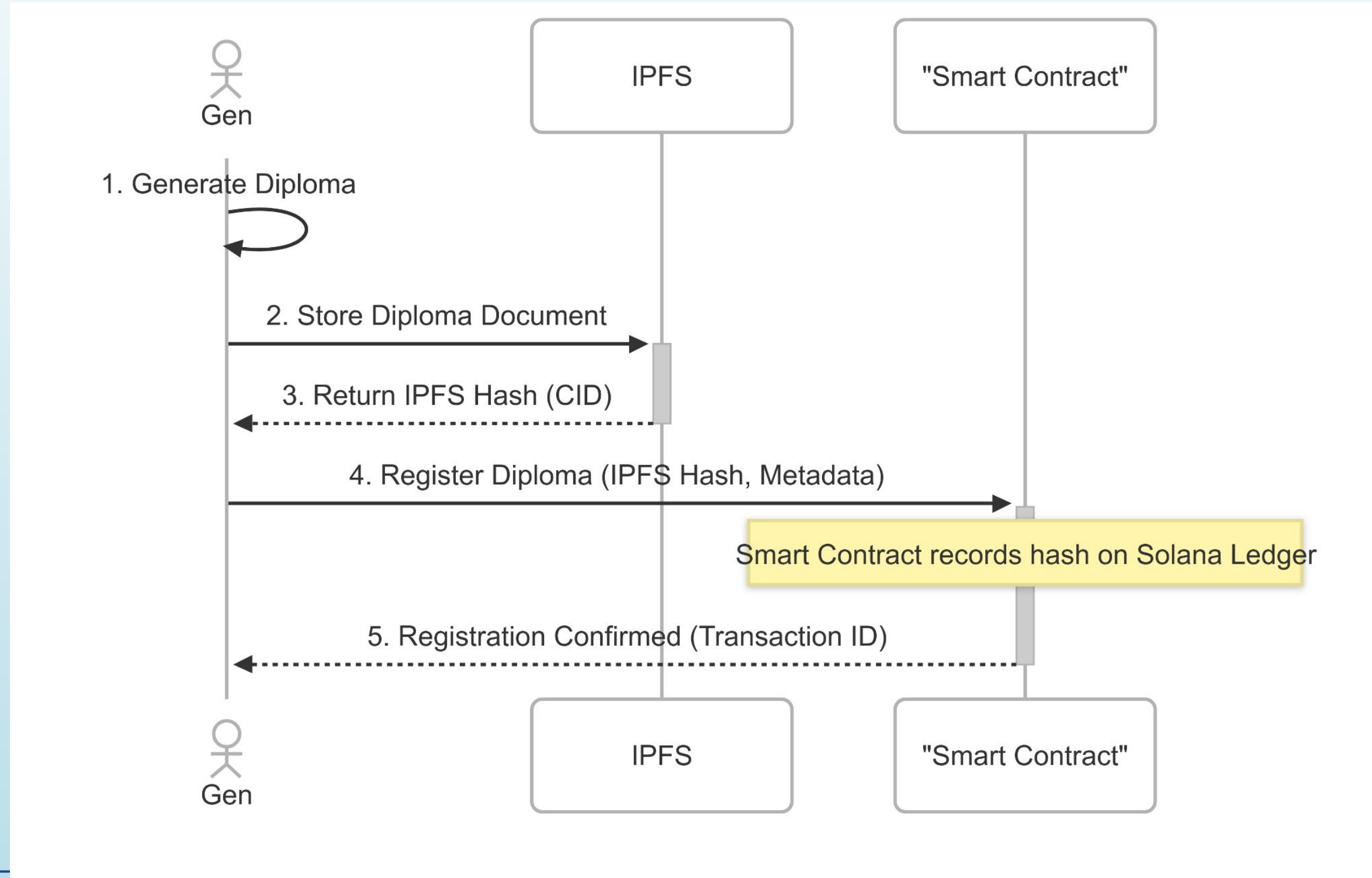
Direktorat Jenderal Pendidikan Tinggi
Kementerian Pendidikan dan Kebudayaan

Untuk memastikan keabsahan ijazah anda, pastikan nomor ijazah anda dapat diverifikasi melalui SIVIL. Pastikan anda mengisi Perguruan Tinggi, Nomor Ijazah dan Angka pengaman dengan benar. Apabila nomor ijazah anda tidak terdaftar, silakan hubungi Perguruan Tinggi yang menerbitkan ijazah untuk memastikan data anda telah dilaporkan melalui PD-DIKTI. Pendataan PDDikti secara resmi dilakukan mulai pada tahun 2002/2003, bagi lulusan dibawah tahun tersebut apabila tidak ditemukan di SIVIL silakan hubungi Perguruan Tinggi masing-masing

Formulir Verifikasi

	Universitas Sumatera Selatan - 021030
	S1 - Manajemen - 61201
	612012020001416
	18
VERIFIKASI 	

System Architecture



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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.

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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.



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- 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.



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- 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