

Smart Contract The Next Frontier

Sathapon 'Bank' Patanakuha

- MD & Founder of SmartContract Thailand & BLOCK M.D.
- Board Member of Thai Fintech Association



**SMART
CONTRACT
THAILAND**
*The Blockchain
Smart Contract Platform*

Imagine..

How **Smart Houses** are much better with Smart City

Imagine..

How **Smart Cars** are much better with Smart City

Imagine..

How **Taxation** are much better with Smart City



Modern transactions in Smart City need a new approach of interaction

- Cryptocurrency
- Internet-of-Things
- Machine-to-Machine
- Artificial General Intelligence



Smart contracts proposes to embed contracts in all sorts of property that is valuable and controlled by digital means.

Nick Szabo. (1997). *The Idea of Smart Contracts*

What is contract?

an agreement between two or more parties creating obligations that are enforceable or otherwise recognizable at law

Why are
people so
excited about
smart
contracts?

1. Efficiency

Any time you can automate a process and remove the human element, there is the possibility of transformative increases in efficiency and reliability. Just think about what computerization has done for other areas of our lives.

Why are
people so
excited about
smart
contracts?

2. Removing human, and in particular government institutions

Right now, contracts depend on a legal system administered by a government. This requires trust in a coercive and fallible authority. Smart contract technology offers a potential approach to set contracts free from institutions who are currently holding them.



for the same reason that **bitcoin** enthusiasts are excited about the prospect of currency without a government, **smart contract** enthusiasts are excited about the prospect of contracts without a government-run legal system.

Dubai's 7 Smart City Blockchain initiative

Dubai's Global Blockchain Council (GBC), a public-private initiative between local businesses, government agencies and startups, unveiled seven new proofs-of-concept:

1. Digitize health records
2. Digitize and transfer Kimberley certificates on blockchain to secure the diamond trade.
3. Transfer titles of illiquid assets
4. blockchain-based wills and contracts
5. Streamline ID verification
6. blockchain-based loyalty for tourism
7. Trade finance



2 technological challenges

1. How would a smart contract actually **control real assets** so that it could enforce an agreement?

2 technological challenges

2. What computer would be **trusted** to “execute” those terms in a way that both parties could rely upon?

Parties must not only agree on the code of their contract, but also the computer which interprets and executes that code. A shared standard, at the minimum, would have to exist, and be used in a way that was verifiable by each party—ideally, without requiring the parties to physically inspect the computer in question.

Smart contract legal challenges

1. Finality

once an operation is completed, that operation is completed for good, and there is no way that the system can ever “go back” and revert that operation

Smart contract legal challenges

2. Deterministic

smart contracts have to be deterministic because each nodes of the network have to be able to find the same result given the same input for a contract method. Otherwise each node that executes the contract method to validate the transaction would end with different results and no consensus would be possible.

Smart contract legal challenges

3. Jurisdiction & the issue of situs.

Under various legal regimes, it is necessary to identify the location of an asset or contract to determine the applicable legal jurisdiction for various legal questions relating to it – for example, in the case of dematerialised financial assets where ownership is recorded on a register, it is often the place where the register is held or where the registrar is situated that is deemed to be the situs of that financial asset. However, the distribution of the register across nodes in multiple jurisdictions raises a seemingly intractable problem – under current legal principles at least – as to where the situs should be.

Smart contract legal challenges

5. Privacy and Commercial Sensitive Data

Hint: encryption and permissioned blockchain

Smart contract legal challenges

7. Dispute Resolution Mechanisms

Inserting a dispute resolution mechanism into a smart contract may help to address the issues around enforceability and jurisdictional variations.

Smart contract legal challenges

9. Digital Signature & KYC & Authentication & Identification

- Ability to prove authenticity (who initiated this transaction)
- Nonrepudiation (hard for participants to deny responsibility)

Smart contract legal challenges

10. Auditing, support, and other hidden costs

the best way to
prepare for the
future is to create it



hello@smartcontractthailand.com



www.smartcontractthailand.com



fb.com/smartcontractthailand



medium.com/@sathapon

Lend me 1,000
baht. I will pay
back next month



```
if (today() = maturityDate) {  
    send(1000, borrower);  
}
```

Everyone in Hi-Jum
must pay 500 baht
before 30th of
every month



```
hiJum.forEach(function(member) {  
    transfer(500, member, reservedFund);  
});
```


Session 4: Digital Societies and Innovations

- "Digital Cities and Innovation Cities for a Smarter City" by Setiaji, Head of Jakarta Smart City
- "FinTech for Unbanked" by Roar Bjaerum, Head of Financial Service, Telenor
- "Mobile Payment Usage in China" by Grace Yin, Director, WeChat Pay, Tencent
- "Smart Contract – The Next Frontier" by Sathapon Patanakua, Board Member of Thai FinTech Association, MD & Founder of SmartContract Thailand and Block M.D.
 - "Blockchain Technology & Digital Currencies" by Poramin Insom, Lead Developer and Founder of Zcoin
 - Q&A

- Smart property : car, condo
- Brooklyn microgrid
- Machine to machine
- Reg tech
- Dubai's Global Blockchain Council - Use blockchain-based wills and contracts to ease transfer of ownership.
- Anti corruption
- Auto tax reduction
- Election

- the best way to prepare for the future is to create it

Is smart contract contract?

Most likely, yes.

To make smart contract **legally binding**, there are four key elements that must be satisfied:

1. One of the contracting parties must make an offer to contract and the other(s) must accept that offer
2. There must be 'consideration' for the offer, this being some form of value that must be exchanged
3. The parties must have an intention to form legal relations
4. There must be certainty as to terms of the contract.

Note: Other systems of law may have other requirements – for example, under New York law, many legal contracts must be in writing and signed to become binding.

Is smart contract smart?

Yes and No.

Technically speaking, a smart contract is a piece of code which is stored on a blockchain, triggered by blockchain transactions, and which reads and writes data in that blockchain's database.

Smart contract is not supposed to have free will and be able to think by itself.

Smart “Legal” Contract

(Conventional contract
+AI)

Formal Representation

(Machine executable,
Computable contract)

Smart Contract “Code”