Smart Contracts: How they work and legal issues

Jeremy Tan, Director, Holborn Law (in association with Olswang)
“I hear more and more people talking about 'smart contacts' these days. But when you push them to define the term, the concept often dissolves in their hands.”

Richard Gendal Brown, A Simple Model for Smart Contracts, Gendal.me, 10 February 2015
“A smart contract is a set of promises, specified in digital form, including protocols within which the parties perform on these promises.”

Nick Szabo, Smart Contracts: Building Blocks for Digital Markets, 1996
Smart contracts

- Parties reach an agreement,
- which is reduced to binary,
- then written into code,
- hashed
- and submitted to a blockchain.
- The code is executed on the blockchain,
- which triggers events according to the agreement.
Smart contracts

Transactions (value) → “Smart Contract” → State → Replicated, Shared Ledger → Events (information)

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Source: Richard Gendal Brown, a Simple Model for Smart Contracts, https://gendal.me/2015/02/10/
Smart contracts

- Automated processes
  - Reduction in contract lead time
  - Reduction in contract administration
  - Reduction in legal involvement on churn contracts
  - Automated internal approvals
  - Automated execution
Smart contracts

- Business integration
  - Auditable categorisation of legal risks
  - Custom reporting
  - Integration with business functions, eg, sales pipeline and risk
Legal Considerations
Smart Contracts v the Law

“Smart contracts "replace judges with code… They are enforced by cryptographic algorithms. The rules of the game are determined before the contract executes, rather than at the foot of a judge's podium


“…technology developers leveraging the power of blockchain technology may find themselves drastically altering contract law, and reducing the need for lawyers…


… you can use mathematics to replace regulation …

Paul Snow, CEO and lead develop at Factom, as reported in The Banker, Technology – Bitcoin – Chain Reaction: Bitcoin's Radical Tech, 1 June 2015
Is a smart contract a legally binding contract?
What elements are required?

- Offer
- Acceptance
- Consideration
- Intention
- Certainty
Smart contracts: Legal / operational issues

Contractual
- Legal formalities
- Proof of signature
- Identity of parties
- Evidence of contract
- Governing Law and Jurisdiction
- Longer term smart contracts
- Coding as the parties intended
- Amendments

Other Problems
- Data protection and confidentiality
- Coding bugs
- Hacking and cyber security
- Irrevocability and amendments
- Automatic contracting
- Vitiating elements
- External information sources
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