

How can smart contracts help streamline contract administration?

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# The importance of Constructionland

- ConstructionLand would be third biggest economy in the world after US and China.
- Least digitised and slackest productivity
- Low profits 4-5%
- Low customer satisfaction 80% typical budget overrun
- Fragmented ecosystem
- Knowledge silos

# Streamlining is the least of our problems...

## (Flyvbjerg) Iron Law of Megaprojects

- Cultural blind spot
- Over budget, Over time, under benefits
- 16,000 megaprojects
- 8.5% completed on time
- 0.5% on time, budget and benefits delivered
- How can we manage this effectively – smart contracts could be part of the answer
- Mean cost overrun (%)
- Nuclear Storage 238
- Olympic Games 157
- Ports 32
- Bridges 26
- Roads 16
- Wind Power 13
- Solar Power 1

# Smart Contract enhancement of CA role

- Automation of routine tasks
  - Payment processing
  - Performance monitoring
  - Compliance checks
- Real time Monitoring and Reporting
  - Up-to-date information
  - Enables identification and address or potential issues proactively
- Reduced Disputes
  - Transparent and auditable nature means disputes resolved more quickly and efficiently
  - Immutable record of transactions
- Strategic Empowerment
  - Frees up CA to focus on
  - Risk management
  - Performance optimisation
  - Strategic decision making

## Sensors and collaborators on site informing smart contract

Oracle/collaboration sensors



Smart Contract and Blockchain



Client updates



# Smart Contracts

- A recording of a legal agreement between parties
- whose text incorporates an algorithm which automates some (all eventually?) of the performance of the agreement
- E.g. an event occurs – an expiration date is reached and the contract executes the protocols that have been coded
- Advantage – little need for intermediaries

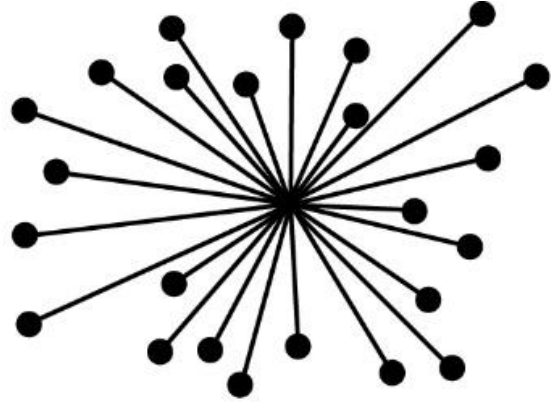
# Smart Contracts

- Self-executing contracts
- Unlike traditional payment systems where transactions are processed through intermediaries
- Smart contracts operate directly and without third parties making them faster and more reliable
- Imagine it as a tiny robot lawyer who monitors user actions and acts automatically when certain conditions are met
- In the future this could cover car rentals and stock trading or house buying – once your payment clears ownership immediately transfers

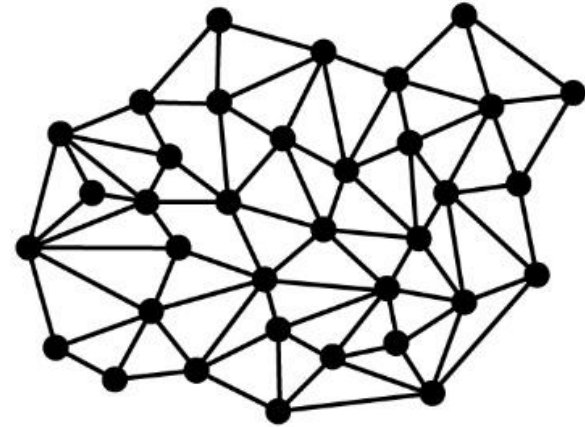
# Progress



Linear



Hub and Spoke



Stigmergic

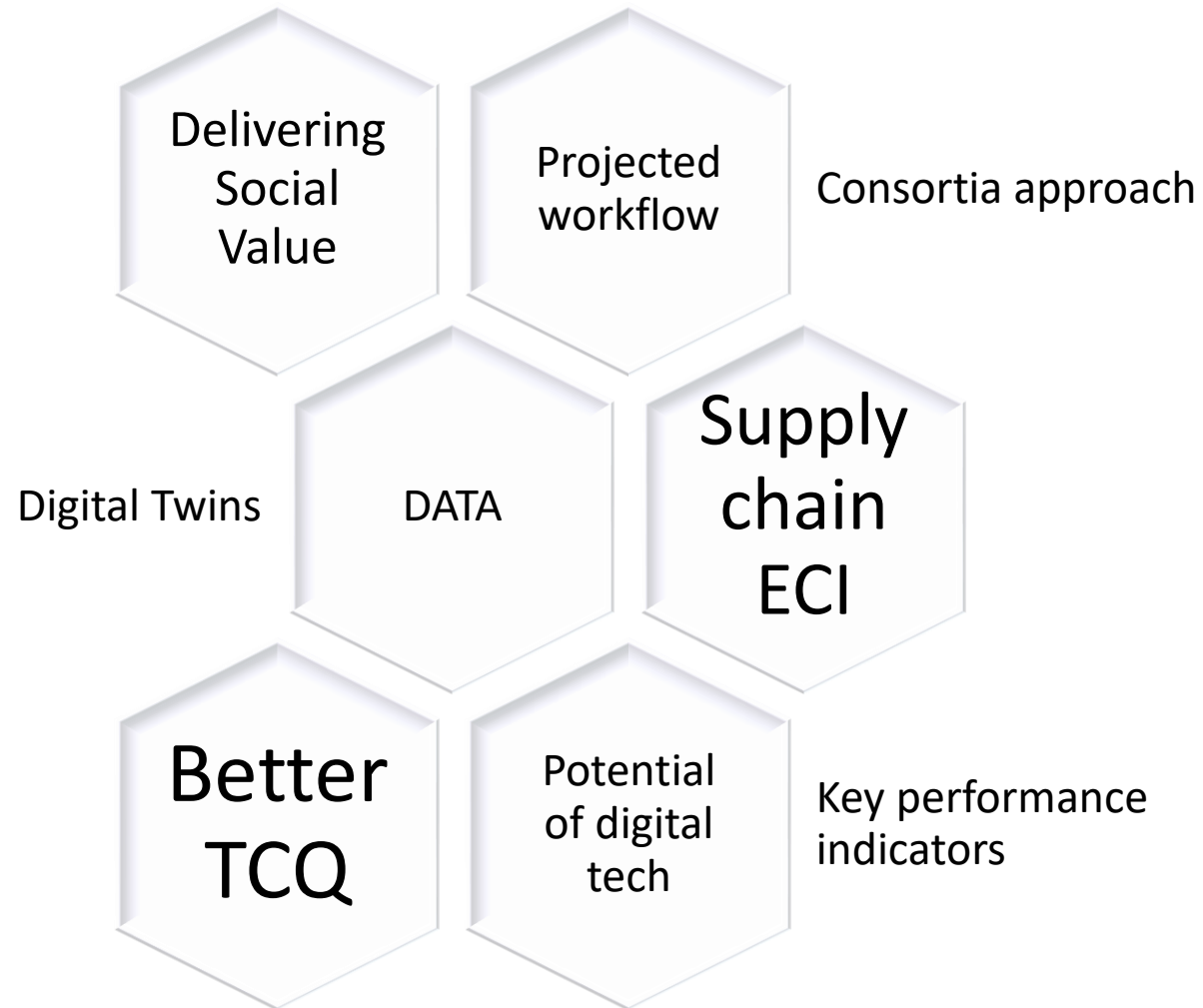
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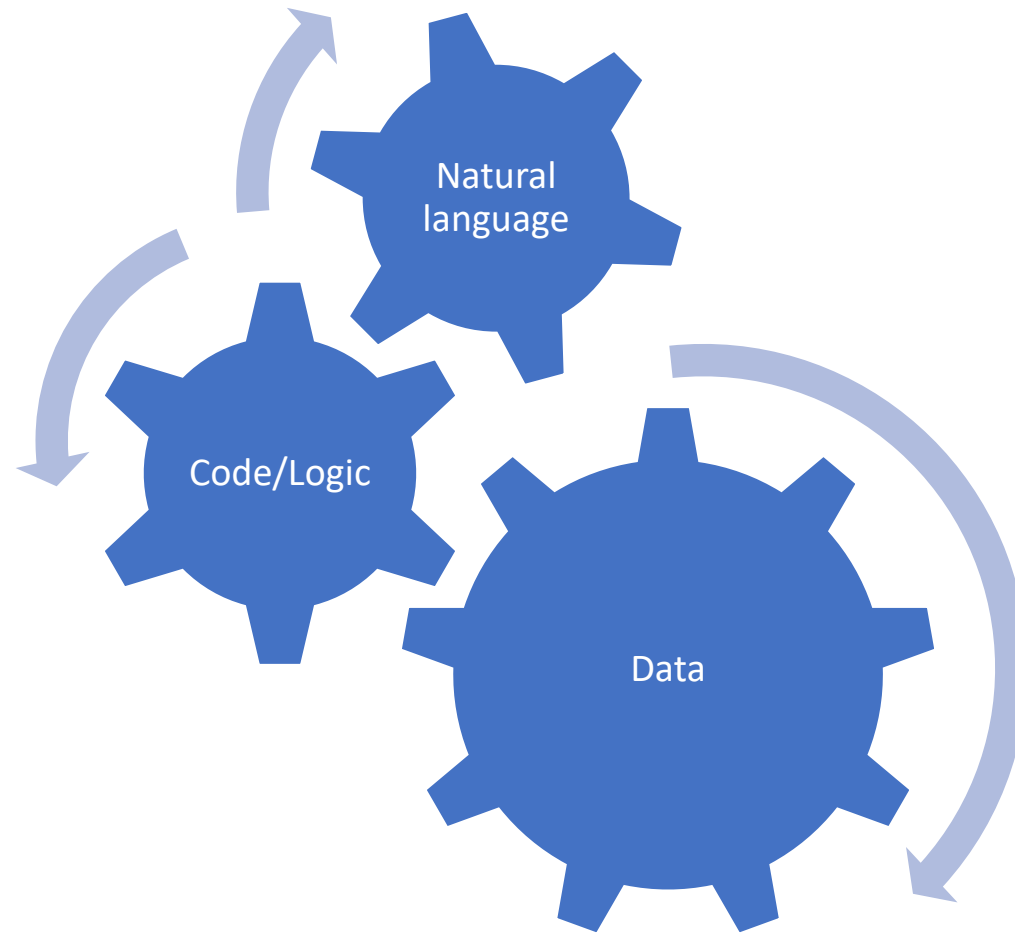
SMART CONTRACT



# It's all about connectivity...



# Components of a Smart Contract



Connected

self-executing

responsive

trustworthy

# The Weather Ledger - EHAB

- Pilot project – automated the execution of weather-ledger clauses
- Sensors used on site, data and databases collected and connected and compensation event ordered in 1 in 10 year rule is broken
- Not automation of the whole clause but elements of the record keeping. Knock-on effects were left for standard discussion



# Other smart clauses – Automation of

- Payments – milestone or event based
- Ordering materials
- Tracking and documenting deliverables
- Recording and monitoring events, transactions and documentation
- Shared visibility/project dashboard
- Information Management
- Real time fluctuations clause

# Stack approach – incremental change

- No need for every provision to be written in smart code, majority in natural non-computer code
- Choose some aspect of performance and that should be executed using code
- Integration with existing working practices to ensure smooth adoption
- Parties have control an/or insurance
- Codifiability
- Extraneous Events paired back
- Efficiency for Project Manager
- Data Access for all

# Why incremental and not aleatory?

- Risks of automation and use of AI
- Cybersecurity
- Hallucination
- System Failure
- Data Privacy
- Algorithmic Bias
- Lack of regulatory frameworks
- Remaining central importance of human oversight
- By all means, use the available technology
- As competitiveness relies on it
- Great example in Hong Kong – NEC T&I clause X30

# Hong Kong's Newest Contract...

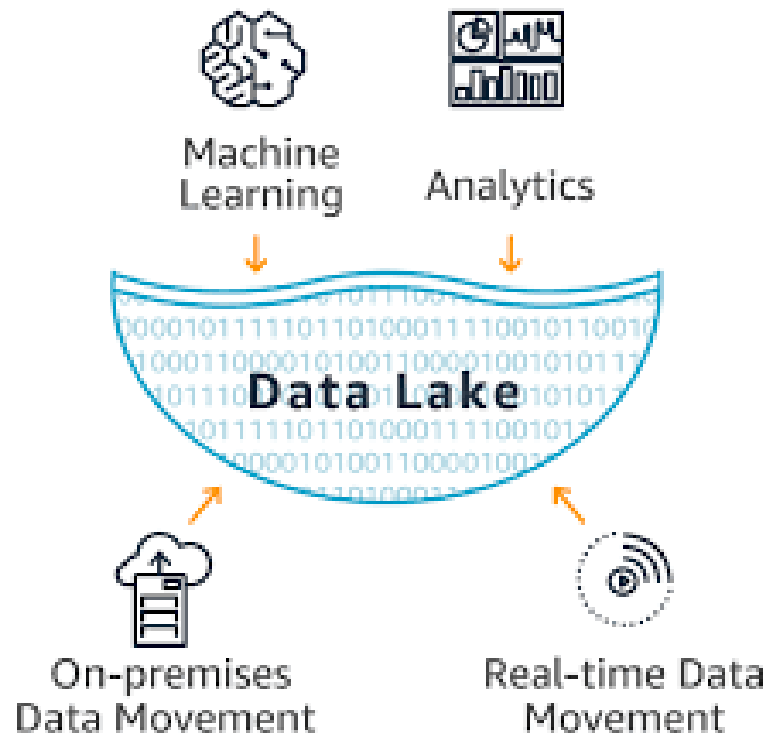
- HK edition of NEC ECC
- Incorporates local legislative requirements and procurement
- New option x30 Innovation and Technology e.g.
- Site safety, site supervision, efficiency and decarbonisation
- Original pilot projects in 2009 with HK Development Bureau
- 600 public work contracts later and over HK\$400 billion

# Interim Conclusion

- Large language Models offer to “supercharge your ideas”
- Done well, smart contracts can help supercharge Contract Administration
- NEC X30 a good model for how to bring in the incremental change required.
- Still early days for the adoption of technology.



# Requirement for Machine Learning



- Easier to store and run analytics on machine generated IoT data to reduce operational costs
- Data Lake or a Data Swamp
- Structured/unstructured data
- Permissions to share/access

# AI based smart contracts

- Other than the purely transactional binary “if this, then this...” there exists the potential for AI based smart contracts.
- Rapid advancement have overhauled business models in many sectors. Moore’s Law (processing speed doubles every two years) gives way to Scaling Law (AI model performance doubles every 6 months)
- Recent RIBA report revealed that out of 500+ members 41% already use AI in their projects, mainly with regards to digital twins
- Maintain a critical yet optimistic mindset

# The legal position in 2025

- AI has been at the heart of political debate, regulatory agendas and legal commentary for the last two years.
- That is certain to remain the case in 2025.
- However, given the pace of technological developments and, trailing in their wake, regulatory change, it is hard to predict what is coming.
- The emergence of Generative AI in early 2023 has left policymakers and regulators scrambling to catch up.

# Different legal approaches

- **European Law** – AI Act 2024
  - Prohibits consumer enticement
  - Code of Practice for GAI models
  - Competition law aspects on google and Samsung devices
- **UK Law** – AI Bill is imminent alongside Data (Use and Access) Bill 2024 – clearing the way for automated decision making in bio-tech and augmented reality
- **International Law** – AI safety summits Paris London Seoul, code of conducts for AI developers
- Concern over “bad actors” and their ability to use AI inappropriately – hasn’t this always been a risk though with any technological development?

# CHATGPT says it can help a solicitor by:

- (i) legal research, (ii) drafting legal documents and contracts, (iii) factual and legal analysis of cases, (iv) continuing legal education, (v) drafting letters to clients, (vi) writing memos, briefs and opinions, (vii) discussing ethical considerations, (viii) translating, (ix) giving guidance on LawTech, and (x) practice management.
- and can provide a “legal Q&A chatbot” and help with market research on competitors, legal demographics and legal trends in Manchester
- LLMs are very good at suggesting **draft contracts**. I have been truly amazed at how quickly they can be produced. Of course, they need checking and amending, but that process takes a fraction of the time it would take a lawyer to draft a contract from scratch.

# Legal aspects

- Might soon not be able to show reasonable skill and care if you fail to use available AI programmes
- Conceivable that specialist LLM trained on specialist legal data will be more accurate than lawyers – e.g. Spellbook, less likely to make mistakes if trained on closed datasets e.g. Westlaw.
- The problem is that some lawyers and judges are, even now, hoping that they will be able to retire before they have to, as you might say: “get with the program”.
- AI has great potential to resolve the millions of disputes quicker, cheaper and more efficiently.
- Remove disputes as we know them