The Impact of Emerging Technologies on the Operation of Legal and Compliance functions within Financial Institutions

By Victoria Thompson, Founder of Curatrix,
London Blockchain Foundation, Director & Financial Services Ambassador

Our mission at Curatrix is to nurture and enable investment in innovation

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Experienced IP and IT Counsel with over 15 years experience building and managing complex digital transformations within large financial institutions as Group Head of Innovation Legal for Barclays Bank, and Head of Technology Operation, Innovation and IP Legal for Development Bank of Singapore.

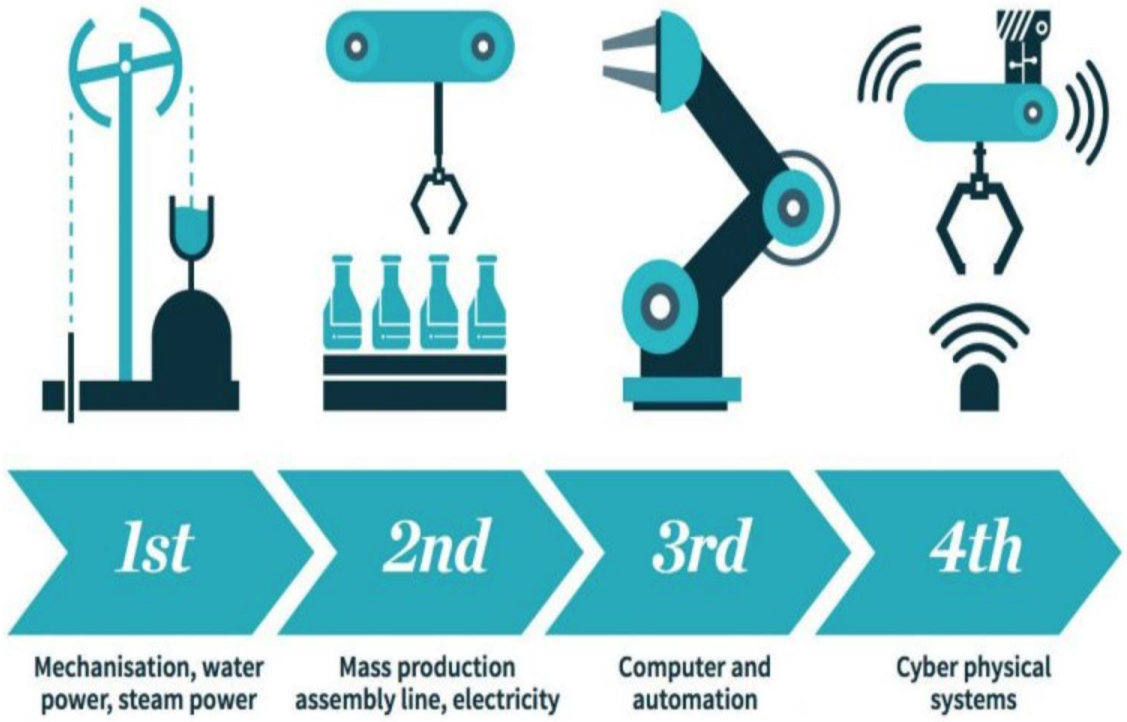
Accepted into MIT's world leading Entrepreneur's program, named by Innovate Finance, as part of the Women in Fintech 2018 and 2019 Powerlist, Nominated for 2019's Women in Law Award, original cohort member and mentor at the Singapore Academy of Law, Future Law Innovation Program (FLIP), Founding member and director of the London Blockchain Foundation and its Financial Services Ambassador.

Surviving and evolving business models through changing times

Prof Klaus Schwarb in his leading work *The Fourth Industrial Revolution* states industrial revolutions liberated humankind from animal power, made mass production possible and brought digital capabilities to billions of people.

This Fourth Industrial Revolution is, however, fundamentally different. It is characterized by a range of new technologies **DLT, IoT, AI and Quantum Computing** that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human.

Schwab like many others have grave concerns: that organisations might be unable to adapt; governments could fail to employ and regulate new technologies to capture their benefits; shifting power will create important new security concerns; inequality may grow; and societies fragment.



So what does this all mean for functional teams?

Current AI applications driving operational change today

AI applications that are impacting how lawyers work today in law firms and in-house:

- Due diligence – M&A, Capital Markets and Litigation lawyers spend large amounts of their careers lost in a world of due diligence. Thankfully, with the help of AI tools to uncover background information more time can be spent considering the implications and issues raised by the DD process.

- Contract review, legal research and electronic discovery is slowly becoming more efficient meaning more non-lawyers can be empowered to do their day jobs without engaging legal e.g. sourcing and compliance.

- Organisations such as JPMorgan since June 2016 have tapped AI by developing in-house legal technology tools. JP Morgan claims that their program, named ***COIN (short for Contract Intelligence), extracts 150 attributes from 12,000 commercial credit agreements and contracts in only a few seconds.*** This is equivalent to **36,000 hours of legal work by its lawyers and loan officers according to the company. COIN was developed after the bank noticed an annual average of 12,000 new wholesale contracts with blatant errors.**

DLT and Smart Contracts

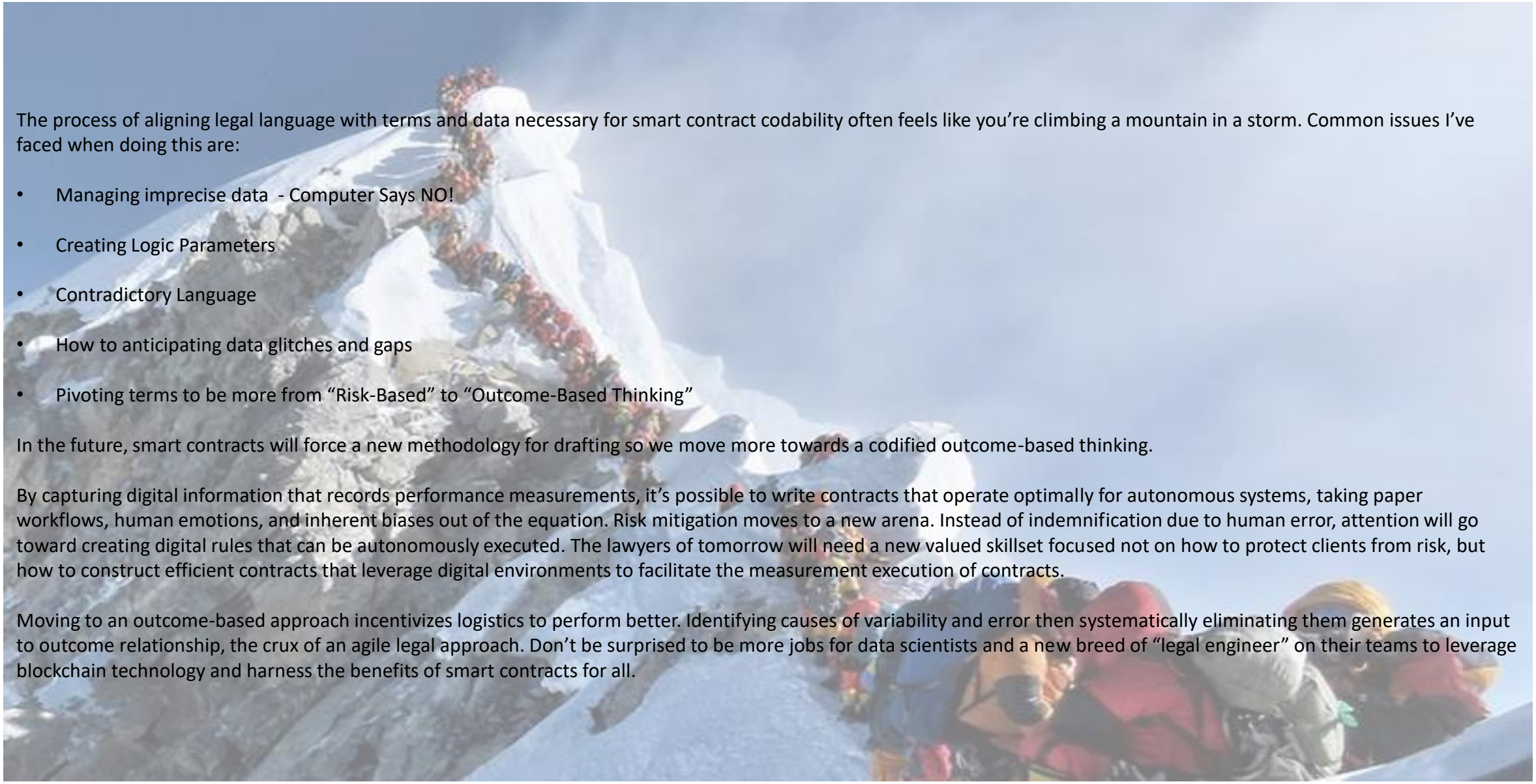
Smart contracts integrate with two other technologies, Industrial Internet of Things (IIoT) and Distributed Ledger Technology (DLT) to verify, validate, capture, and enforce agreed-upon terms between multiple parties.

A smart contract takes real-world, legally governed events and collects IIoT data for performance measurements including information from sensors, meters, and other business processes. This data then informs the automated terms of a contract by posting results and accompanying proof to the blocks.

A smart contract is a software program that automates the execution of contract terms. It applies to only the performance of executable terms of a contract. Smart contracts do not replace natural language contracts but instead function as a program that connects to a natural language contract through an addendum that establishes an inviolable link between the program and a natural language contract.

In theory, the process sounds great. But in application, there are a few obstacles to overcome…

DLT and Smart Contracts



The process of aligning legal language with terms and data necessary for smart contract codability often feels like you're climbing a mountain in a storm. Common issues I've faced when doing this are:

- Managing imprecise data - Computer Says NO!
- Creating Logic Parameters
- Contradictory Language
- How to anticipating data glitches and gaps
- Pivoting terms to be more from "Risk-Based" to "Outcome-Based Thinking"

In the future, smart contracts will force a new methodology for drafting so we move more towards a codified outcome-based thinking.

By capturing digital information that records performance measurements, it's possible to write contracts that operate optimally for autonomous systems, taking paper workflows, human emotions, and inherent biases out of the equation. Risk mitigation moves to a new arena. Instead of indemnification due to human error, attention will go toward creating digital rules that can be autonomously executed. The lawyers of tomorrow will need a new valued skillset focused not on how to protect clients from risk, but how to construct efficient contracts that leverage digital environments to facilitate the measurement execution of contracts.

Moving to an outcome-based approach incentivizes logistics to perform better. Identifying causes of variability and error then systematically eliminating them generates an input to outcome relationship, the crux of an agile legal approach. Don't be surprised to be more jobs for data scientists and a new breed of "legal engineer" on their teams to leverage blockchain technology and harness the benefits of smart contracts for all.

Blockchain: A legal industry headache?

Over the next 10 the years I believe the legal industry will undergo a business model revolution as result of the changes Distributed Ledger Technology (DLT) will trigger. The potential automation plays and problems that smart self-executing legal contracts could bring to the world of property law alone then you can start to imagine the scale of change for which legal practices will need to prepare for.

What's industry saying about the challenges they're facing?

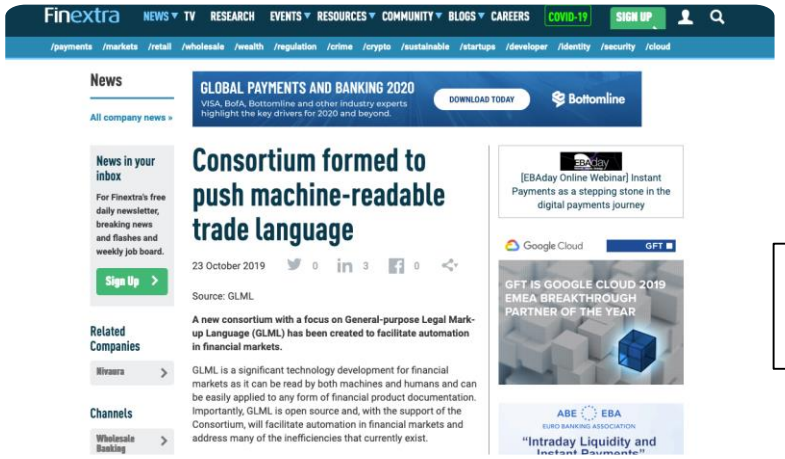
In 2019 Deloitte conducted their annual Blockchain Report and asked over 1000 leading businesses what their organisational barriers were to further investing in blockchain?

- Implementation (replacing or adapting existing legacy systems)
- Potential security threats
- Lack of in-house capabilities (skills and understanding)
- Uncertain ROI Concerns over sensitivity of competitive information
- Lack of a compelling application of the technology
- This technology is unproven
- Regulatory, legal and compliance concerns

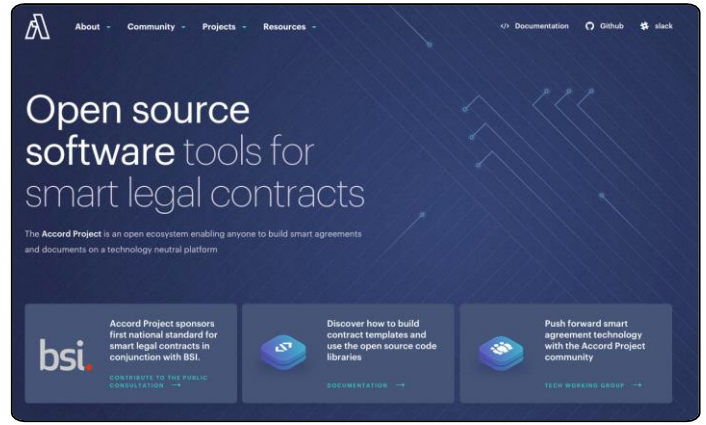
https://www2.deloitte.com/content/dam/Deloitte/se/Documents/risk/DI_2019-global-blockchain-survey.pdf

Building new ecosystems and cross-functional teams

Layer		Stakeholder	Role	Motivation
APPLICATION	Legal & Compliance have a role play across the ecosystem to connect and consider the legal regulatory consequences of actors in these new operating systems and how SLCs, protocols will be used to glue this all together.	Entrepreneurs & Start ups	They build products and services	Driven by their mission, and by profit
		Corporates &Institutions	They use tech to solve problems	Profit, cost and efficiency
		Investors & Venture Capital	They provide capital to fuel growth and new companies	Financial
		Consumers	They use products and services	Costs, efficiency, desirability
NETWORK/INFRA		Exchanges, Brokers, & Traders, custodians	They process, provide access to the token, rails for the transaction cycle	Financial, profits and efficiency
		Miners	They validate transactions	Financial
		Industry Bodies	They create the social network, set standards, industry goals, objectives and regulation	Driven by their mission to balance the needs of industry and society
PROTOCOL		Academia	They drive the body of research and knowledge around emerging technology	Knowledge
		Developers	They set protocols development roadmap and deliver upgrades	Intellectual Curiosity



Office for Artificial Intelligence



Eagle Labs

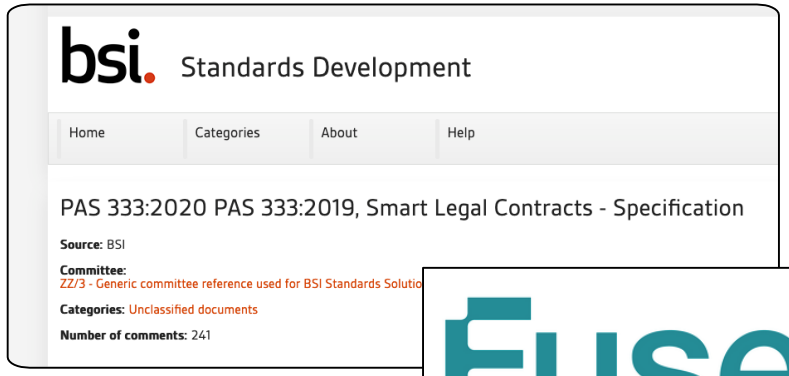
The LawTech Delivery Panel

Legal statement on cryptoassets and smart contracts

UK Jurisdiction Taskforce

ENTERPRISE ETHEREUM ALLIANCE

LEGAL DESIGN LAB



Fuse by ALLEN & OVERY

FUTURE LAW INNOVATION PROGRAMME

Examples of collaboration …

There's more work to be done....

Implementation and driving adoption is a team sport...

Questions?

If you've got any questions or you want to get engaged in the London Blockchain community contact us:

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