An Essay on Legal Engineering: From Confusion to Clarity

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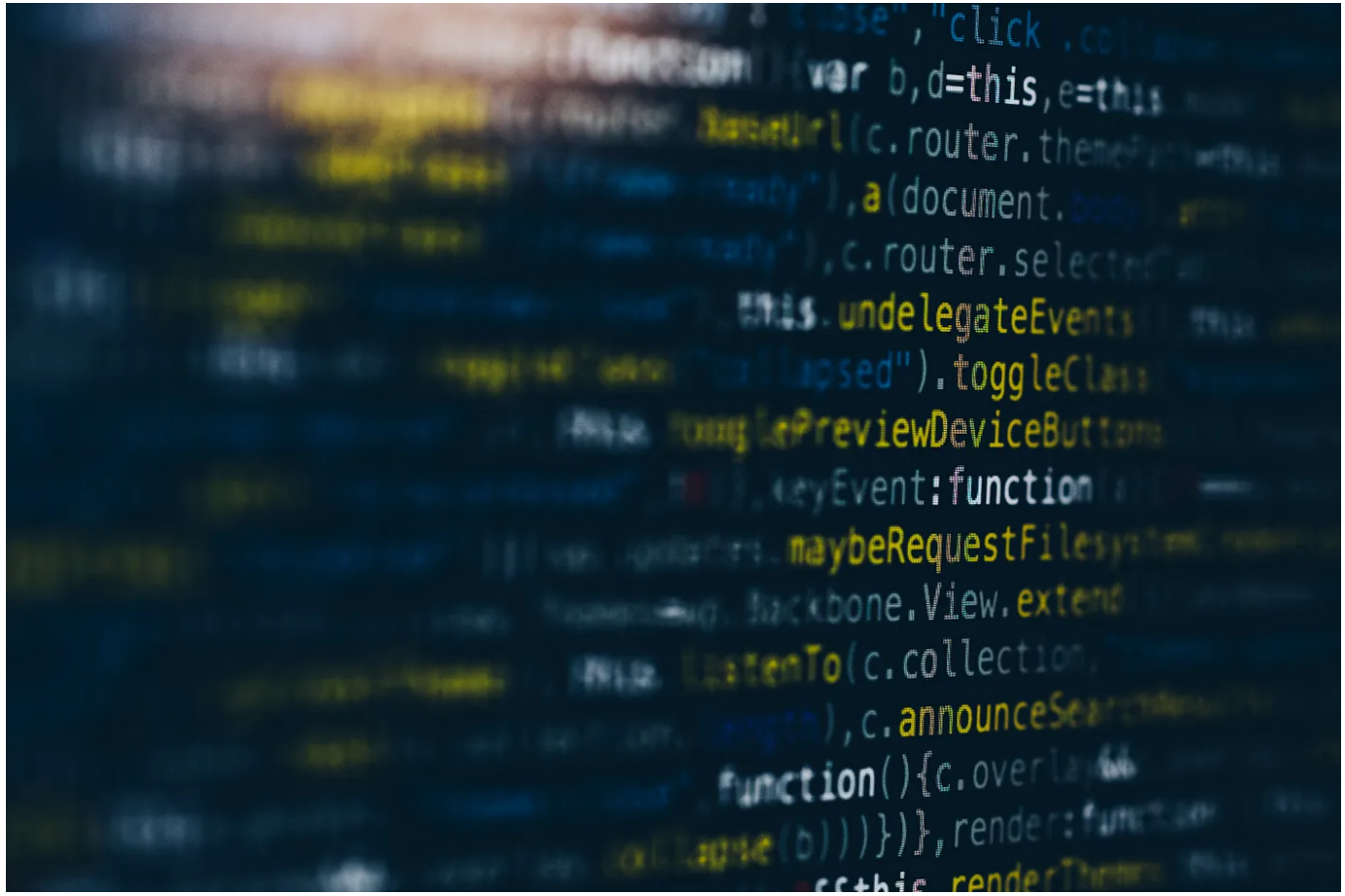

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I remembered the term legal engineering once again in a time when I was searching for a title to explain myself after having written about smart contracts and found myself very much interested in the blockchain technology. After all, if we can program a contractual relationship with smart contracts, the blockchain technology should be a legal technology and

I can call myself a legal engineer if I learn how to code or at least know how to reflect legal knowledge on this technology. So, I was curious and applied for some legal engineering/technologist positions in the legal tech industry. I had interviews which confused me a lot. I realized many times that term is misused. This is how the idea and need for writing about legal engineering were born because *legal engineering in the sense of the legal tech industry is not legal engineering. It's an application of an IT professional's perspective on legal services.*

Newborn Professions in the Legal Industry

Richard Susskind, who is a very well-known legal scholar, discusses in his book Tomorrow's Lawyers, the radical changes in the legal market, the new landscape and prospects for young lawyers. Under the latter, he predicts new jobs for lawyers and summarizes it in the table below.

Table 11.1 New jobs for lawyers

The legal knowledge engineer
The legal technologist
The legal hybrid
The legal process analyst
The legal project manager
The ODR practitioner
The legal management consultant
The legal risk manager

Tomorrow's Lawyers — Oxford University Press 2013 p.111

For the sake of this article, I limit the explanations only with the legal knowledge engineer and the legal technologist.

Legal (Knowledge) Engineer

Susskind states in his book

> *“When legal service comes to be standardized and computerized, talented lawyers will be required in great numbers to organize and model huge quantities of complex legal materials and processes. The law will need to be analysed, distilled, and then captured as standard working practices and embodied in computer systems. The result of this might be, for example, an online legal service, or it could be that the law is seamlessly embedded in some broader system or process.*
>
> *Developing legal standards and procedures, and organizing and representing legal knowledge in computer systems, is irreducibly a job of legal research and legal analysis.*
>
> *[…]If a modern legal business intends to compete on the strenght of its first-rate standards and systems, then it must have first-rate lawyers engaged in building them. These lawyers will be legal knowledge engineers” [1].*

Briefly, a legal knowledge engineer is a lawyer or jurist who develops legal standards and procedures in computer systems. According to my understanding, this person’s legal knowledge is more important than technical knowledge. Legal engineers do not need to code. However, they need to know enough about the system in which they want to embed legal rules.

Legal Technologist

To differentiate a legal engineer from a legal technologist, Susskind defines a legal technologist as someone who bridges the gap between law and technology by having enough knowledge on systems engineering and IT management and at the same time by being trained and experienced in the practice of law [2]. These are the people who can build online legal services or other computerized forms of legal services.

Current Approaches on Legal Engineering in the LegalTech Industry

A Law Firm

A job advert of a local law firm in Germany defines the role legal engineer as a jurist who joins in the design of effective editing process and companies its practical implementation, supports the office in the legal case processing, works with the development team in the development and implementation processes, supports in the development of solutions for different legal issues, works with lawyers and contributes to the preparation of written pleadings. The position does not require any coding skills. It requires only a very good technical understanding.

For this position, I got interviewed. Indeed it is not required to know to programme. However, it requires logical thinking as the firm partially uses decision trees in legal case management as each data of a case is within the tree and any change on the tree changes the outputs. Therefore, to me, this position requires using some of the engineering principles in legal case management.

A Legal SaaS Platform

Monax, which is a British SaaS platform for the management of the contractual obligations, defines legal engineering as a "reliable configuration of future events in code enabling humans to make decisions and commitments today". The term also includes a combination of legal design and software engineering which enables automation of rights and obligations in smart contracts.

I had a chance to talk to one of the legal engineers at Monax and asked what one should have to be a legal engineer. The answer was familiar: logical thinking. A legal engineer should have logical thinking to optimize the workflow of businesses (or decision trees).

A Law Firm Like Firm of Legal Engineers

Peter Lee of Wavelength, a regulated firm of legal engineers, states that there are different variants within legal engineering. To him, some legal engineers have a deep focus on a particular technology or are especially adept at low code platforms. In one of his posts, he lists the common traits of legal engineers:

1. Having legal training (although it is not necessary)
2. Having empathy for both lawyers and technologists
3. Having impatience for or dissatisfaction with the level of productivity of legal services
4. Being brave enough to experiment
5. Having imagination for creating new legal technologies
6. Being pragmatic enough not to overlook existing tools for the sake of the newest technology
7. Getting some inspirations on how data can be transformed, curated and presented.
8. Having a nagging feeling of “there must be a better way” for the existing processes.

If someone has any of these traits, she/he might call him/herself legal engineer.

All explanations above have given me an impression that the legal tech industry very often mixes up the terms of legal engineer and legal technologist and sometimes uses one for another. There is nothing wrong in asking the individuals to be a logical or data-driven thinker or to map and optimize workflows. However, Susskind's definition of legal engineering sounds more like intellectual legal work than building decision trees.

Legal Engineering in the Blockchain Industry

I have met some people in the legal tech industry who see the blockchain technology as something different and think that it is not a legal technology. They might be right. As currently, many of the technical solutions provided for the problems in legal services are not blockchain-based. Besides, the focus is often on B2B services. However, to me, it would be wrong to say that blockchain and legal tech are two different worlds. I believe blockchain itself is a legal technology.

According to Susskind's definition of legal engineering, "developing legal standards and procedures, and organizing and representing legal knowledge

in computer systems" look like the main tasks of a legal engineer. One of the ways to represent legal knowledge in computer systems is to embed legal knowledge in such systems. At this point, the blockchain technology and particularly smart contracts are excellent tools because they allow legal engineers to set and code legal standards for the governance of legal relationships.

As Jake Goldenfein and Andrea Leiter state in their article "Legal Engineering on the Blockchain: 'Smart Contracts' as Legal Conduct":

> *"In many ways, the engineering of discrete computational transaction modules on blockchain platforms is a form of 'legal standardisation'. This legal standardisation is not solely concerned with building legal protections into the technical architecture (Pagallo, Durante, and Monteleone 2017), but rather facilitating computational forms of legal conduct. Groups like the Enterprise Ethereum Alliance,4 Mattereum (see e.g.the Mattereum White Paper, undated), Open Law (2017), Agrello (2017),5 the R3 Consortium (2018), Common Accord (undated), and Legalese (2017–18), in different ways, are building libraries of machine-readable transaction modules that correspond to natural language contracting elements. In doing so, they are creating the building blocks for ever more complex transactions that will ultimately define the entire envelope of computational legal conduct in these environments" [3].*

Also, Davidson, de Filippi and Potts state " A new class of legal engineers is now writing smart contracts that can transfer value, pay for real world property and services, license intellectual property, and establish technical rule systems for new forms of organisational and institutional coordination" [4].

All of the above shows that the blockchain technology needs a legal standardization which can only be done by legal engineers.

Legal Engineering as the Sub-Branch of Token Engineering

Token engineering is an emerging scientific discipline requiring an interdisciplinary work of professionals from economics, data science, engineering and law. It is also where legal engineering is needed.

At TEGG, Shermin Voshmgir suggested a new token taxonomy instead of utility and security token categorization. Voshmgir classifies tokens as **asset and access right tokens** which require *legal engineering* and **purpose-driven tokens** which require *economic engineering*.

Asset and access right tokens need legal engineering because they are the representations of physical assets on the blockchain. The smart contract of asset tokens governs their ownerships of the assets and their transfer. Even

though an asset does not allow fractioned ownership, it becomes divisible by tokenization.

> *"In order to tokenize a property, for example, one generates a token with a smart contract, and associates a value with that token which corresponds to that of the real asset. The ownership right in such an asset and its corresponding digital representation can be divided into parts and sold to several (co-)owners. Even if a token represents a physical asset that is not divisible, like a piece of art or real estate, the token itself is divisible. This allows for increased market depth and liquidity to asset classes with prohibitively high economic buy-ins" [5].*

Asset tokenization allows fractioned ownerships. Depending on the jurisdiction, the law might allow only certain types of ownership and its transfer. Therefore, a legal engineer should design asset tokenization from a holistic perspective by taking into consideration of both the mechanism design and the whole legal ecosystem. The ownership of an asset and its transfer should be coded in the way that the law allows.

Another example of legal engineering would be creating a DAO which is similar to a traditional legal entity, like a company or an arbitration institution. A legal engineer can create a legally compliant corporate DAO by designing its governance model based on corporate law.

While designing (and sometimes programming) legally compliant smart contracts a legal engineer will have to find an answer to some existent questions: What happens when the contract has a bug and makes an illegal (both on the code and legal level) transfer? How to make sure the contract reflects the law correctly? Do we need a natural language contract besides a smart contract? These are the questions leading us, legal engineers, to put hours of intellectual efforts on standardization of the law and on embedding the legal knowledge in smart contracts. In my opinion, this is very much in line with Susskind's definition of legal engineering and ***legal engineering gains more sense with blockchain technology.***

References:

[1] Susskind, R. (2013). *Tomorrow's lawyers*. Oxford: Oxford University Press, p.111.

[2]ibid 112.

[3] Goldenfein, J. and Leiter, A. (2018). Legal Engineering on the Blockchain: 'Smart Contracts' as Legal Conduct. *Law and Critique*, [online] 29(2), pp.141–149. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3176363 [Accessed Aug. 2019].

[4] Davidson, S., De Filippi, P. and Potts, J. (2018). Blockchains and the economic institutions of capitalism. *Journal of Institutional Economics*, 14(4), pp.639–658.

[5] Voshmgir, S. (2019). *Token Economy*. 1st ed. Berlin: BlockchainHub Berlin, p.215.

And what is your definition of legal engineering? Share in the comments section.

Blockchain | Legal Engineering | Legaltech | Token Economy | Smart Contracts

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