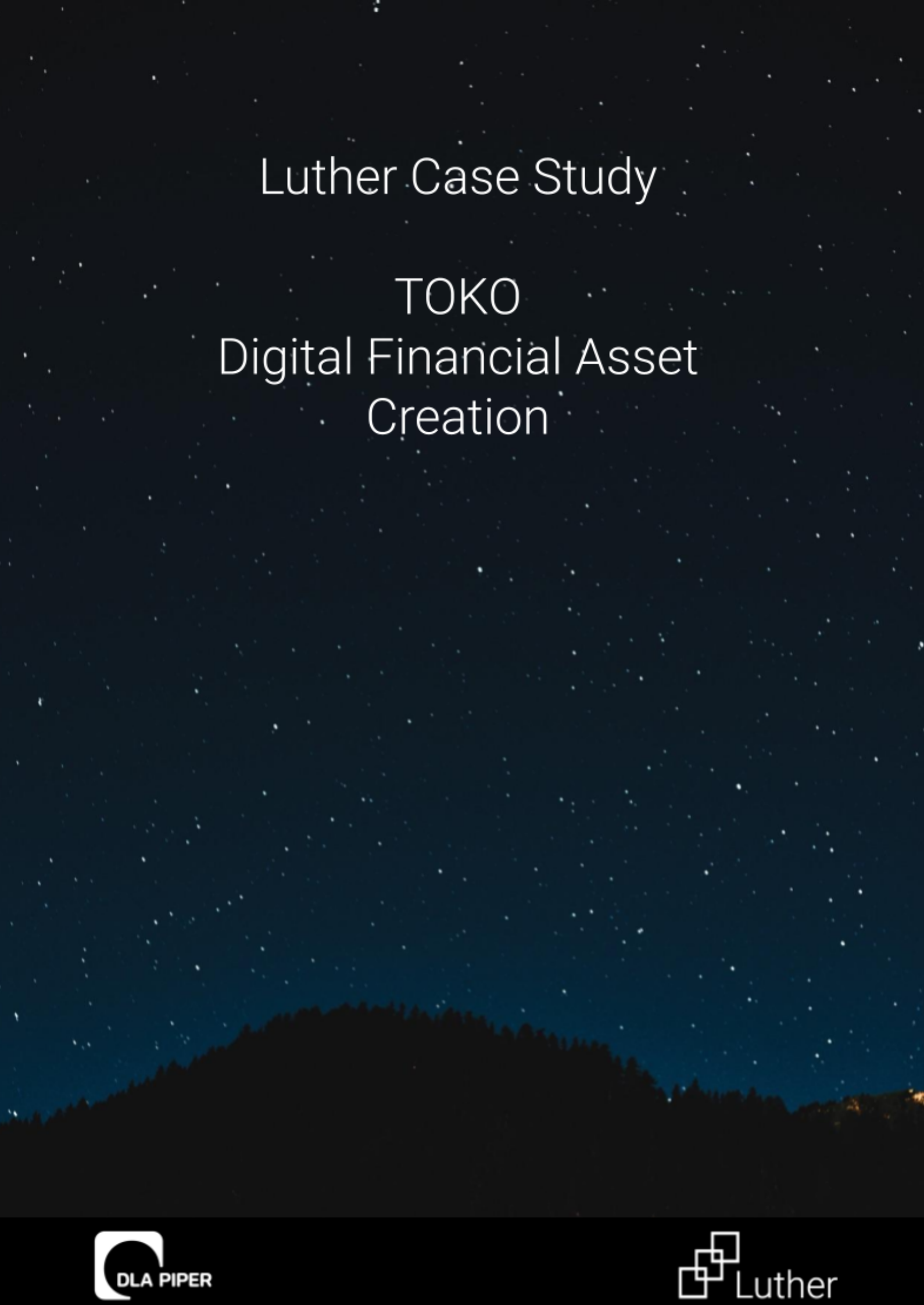

Luther Case Study
TOKO
Digital Financial Asset
Creation
DLA PIPER
Luther

1. Introduction

DLA Piper is a global law firm that serves clients from over 40 countries. They advise their clients on the rules and regulations around the financial asset issuance process and the compliance to its associated regulatory requirements. For global financial institutions to gain confidence and certainty in the process of financial asset issuance requires evidence of strict compliance with these regulatory rules. In the traditional finance space, this involves the guidance and assurance from a legal entity at every step.

As the industry continues on its path of digitisation, participants in this ecosystem are increasingly looking to innovative and digitally native alternatives to traditional financial assets, which are still tied to this day to physical documentation and outdated processes.
However, for digital assets to gain widespread adoption, innovators have to demonstrate the same (if not more) rigor in enforcing regulatory requirements throughout the issuance process.

When a financial institution issues a new financial asset, it has to decide on the parameters of the issuance (such as size, dates, initial investors and jurisdictions). This process involves a number of different entities, including Brokers, Exchanges, Custodians, Registrars. Each of these participants has to perform a series of tasks to allow for the issuance of the asset to be compliant. DLA Piper advises the issuer on the adherence to compliance rules and regulations at every step in the process. Only with all the verifications completed, can a financial institution issue the assets and transfer them to investors.

DLA Piper has a dominant position in the space of regulatory and compliance advisory and legal assurance for asset issuance in traditional capital markets. TOKO combined that expertise and market presence with forward thinking technology in process automation and tokenization, making TOKO a pioneer in digital transformation of the financial market. More specifically, TOKO has enabled fully automated issuance of digital financial assets with built-in regulatory compliance and legal assurance.

The TOKO product is built on the Luther Platform for Deep Process Automation, used by DLA Piper to deploy TOKO at scale and automate the highly complex processes of digital asset issuance.

Using Luther's compliance checking and verification modules, the client was able to automate the asset issuance process across its multiple participants. Furthermore, they were able to codify rules and regulations in the context of issuances of multiple asset classes across global financial markets.

With TOKO's process automation engine as a foundation, DLA Piper is not only able to provide its clients with compliance certainty and a world leading solution for digital asset creation, they can also focus their efforts on value-add advisory law services for their clients.

7 asset types supported	**$3m** estimated added revenue per year	**70%** increase in deal processing speed	**99%** reduction of transaction cost	**10X** estimated ROI

2. Asset Issuance, Trading and Redemption Processes

To start, we need to first understand the processes and participants involved in the issuance, trading and redemption of financial assets.

2.1. Financial Asset Issuance

The issuance of a financial instrument can be broken down into two parts:

- **The initial creation of the new financial asset** as a recognised financial instrument according to the regulations specific to a jurisdiction or ecosystem
- **The Primary Market Offering** where an initial set of investors subscribe to an a market offering within an predefined window and contribute any funds required to gain fractional or total ownership of the asset

In order to achieve the above outcomes a set of steps must be followed and are generally described below:

1. The Issuer (an organisation or person) decides to issue a financial asset. This financial instrument can represent multiple types of assets, such as Real Estate, Artwork, Project Financing, Company Share, Bond or even IP
2. The Issuer, works with an appointed Financial Institution (Broker), to specify the type of their asset, seek investors and decide on the parameters of issue such as size, price, date and jurisdiction
3. A specialised law firm - such as DLA Piper - guides the Issuer through the compliance checks along the entire process, ensuring that financial regulations are complied to
4. Once the all preparations have been completed the Broker collects funds from the initial Investors and distributes the new financial assets as per the agreed parameters to the Investors' appointed Brokers

2.2. Asset Servicing

After issuance, most financial asset classes will require servicing: a set of events that are predefined by the issuer and are bespoke to the asset classes to which they belong. These events can be scheduled, to occur for example every month or at the end of an asset's 'life', or can be triggered by one of the ecosystem participants as long as they are permitted to. These servicing events generally include:

- **Benefits or dividends distributions**
- **Voting**
- **Dissemination of information**
- **Early repayments**
- **Cash sweeps**
- **Redemption**

While all of these events differ across asset classes, all must be executed according to a set of predefined rules agreed at point of issuance.
For further illustration below are outlined the general steps involved in a redemption event:

1. The asset Issuer, their Broker and their appointed specialised law firm come to an agreed proposal for the redemption of the asset defining the price, date and time for the asset redemption
2. The appointed law firm guides the Brokers and Investors through the compliance checks along the entire process, ensuring that financial regulations are complied to
3. The Issuer's Broker distributes payments to the Brokers of current Investors
4. The Investors' Brokers confirm receipt of the payments
5. The Investors' Broker depleted the financial assets from their Investors' accounts

2.3. Secondary Market Trading

Another process that is critical to most financial assets is the ability to transfer ownership of said asset to another party in a manner that respects regulations of the jurisdiction within which the asset is registered. Below are the general steps required to achieve this:

1. An initiating Broker - acting on behalf of an Investor - specifies the details of a trade to be executed between two investors
2. The receiving Broker - acting on behalf of their own Investor - confirms and complements the details of the trade
3. A specialised law firm - such as DLA Piper - guides the Brokers and Investors through the compliance checks along the entire process, ensuring that financial regulations are complied to
4. The buying Investor transfers the funds to the selling Investor via their respective Brokers
5. The seller's Broker confirms the receipt of the funds and transfers the financial asset(s) to the buyer's Broker account

3. Problem

The processes detailed above involve several siloed participants working on separate steps for months. Bespoke documents are created and multiple data formats are exchanged between the various participants and organisations. Despite this being a long-standing industry process, there remains little to no automations of scheduling and running of tasks nor a common view of rules and data. As a result, these teams spend a considerable portion of their time performing manual tasks and reconciliations in a process that was not designed to adjust to changes over time.

Furthermore, asset issuance is regulated by a series of strict financial regulations and compliance rules. The checking and verification of the asset issuance is highly manual and requires a high number of people. It is very time-consuming, and leads to the preparation and review of multiple documents that are still in paper form and not standardised.

Ultimately, this complexity adds up to an opaque process and high costs passed on to the end clients.

Process Problems

- Siloed participants operating separately
- Scheduling & running tasks not automated
- No automatic adjustment to changes
- No common view of trade status & execution history
- Manual compliance checks
- No standardisation across docs, data & connectors

Process Complexity

- Processes involve at least **6** separate participants
- **100** tasks
- **500** business rules & validations

Business Problems

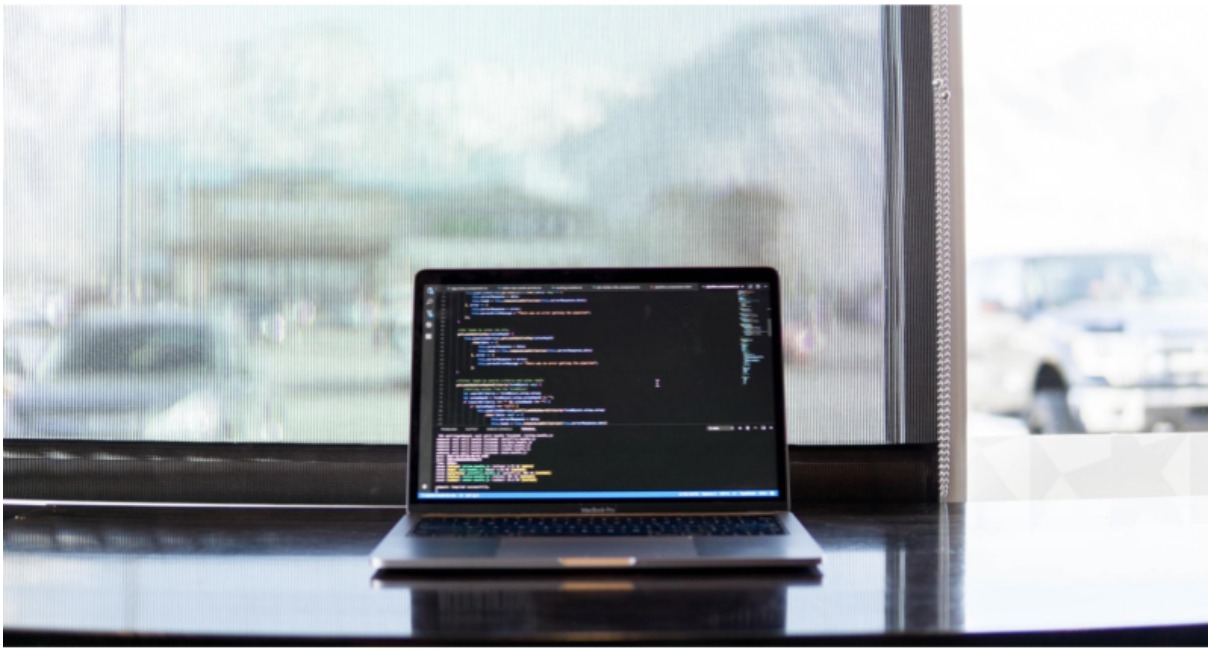
- Fragmented operations
- **Millions** in operational costs
- Teams of lawyers dedicated to compliance checks
- **3 months** average end to end issuance and transfer process
- High transaction fees
- Revenue potential foregone

4. Objectives

DLA Piper and Luther Systems collaboratively embarked on the development of the TOKO platform with the objective of developing a digital asset creation engine that couples the compliance and regulatory rigor of a global law firm with the capabilities of Luther's Deep Process Automation technology.

The partners are working to fulfil a vision of:

- A hybrid solution combining a state-of-the-art tokenisation engine with automation of regulatory processes
- A fully automated, transparent and integrated service across all industry participants that is regulatory compliant by design
- A product that easily adjusts to changes in systems, participants and rules in the ecosystem



5. Solution

5.1. Solution overview

Building the world's best digital asset creation engine required automation that could handle the inherent complexity of a multi-entity process involving hundreds of people. It was equally important that the new process could be built and maintained by DLA Piper's development partners and subject matter experts and updated easily when regulations changed.

It was an imperative for DLA Piper that the platform provided:

- Ability to create a wide variety of asset types
- Ability to transfer assets for one investor to another
- Ability for the original issuer to redeem their asset

The platform should achieve this while slashing transaction costs through automation and achieving compliance by design via process execution certainty.

This was far beyond the scope of traditional workflow automation technology which provides process automation for workflows with tens of tasks and one or two separate operational participants. Furthermore, connecting and coordinating multiple instances of workflow automation presents a number of challenges, including much longer development time, far less efficient code, limited permissioning for different users, limited visibility, and maintenance overhead.

This is why DLA Piper chose Luther's Deep Automation Platform to automate and operate the financial asset issuance, trading and servicing processes. Luther's platform provided DLA Piper with the operating system to run the process while providing the rails for orchestrating, executing and monitoring their complex workflows. It also gave them the development tools to achieve rapid development times.

The result of the development collaboration effort is the TOKO platform. TOKO is an end-to-end ecosystem of licensed partners for the next generation of capital markets, specifically the tokenization of real world assets with regulatory compliance in mind and legal assurance from one of the world's largest law firms. TOKO is a digital asset creation and servicing engine with built-in compliance to regulations.

A groundbreaking innovation here is that the team has coupled a tokenization toolkit with a process automation engine that automates workflows end-to-end and connects its participants onto a standardized and efficient network. Furthermore, through Luther's underlying Deep Automation Platform, the functionalities were built as modules and templates that can be combined to create new asset classes or recreate the existing asset classes for new clients. The results of this is scalability at low cost, fast and in a standardized way in an ecosystem where multiple assets can be issued per day across multiple asset types and within a strict regulatory framework.

5.2. Demo

Demo of the TOKO solution is available on request

5.3. Automated compliance by design

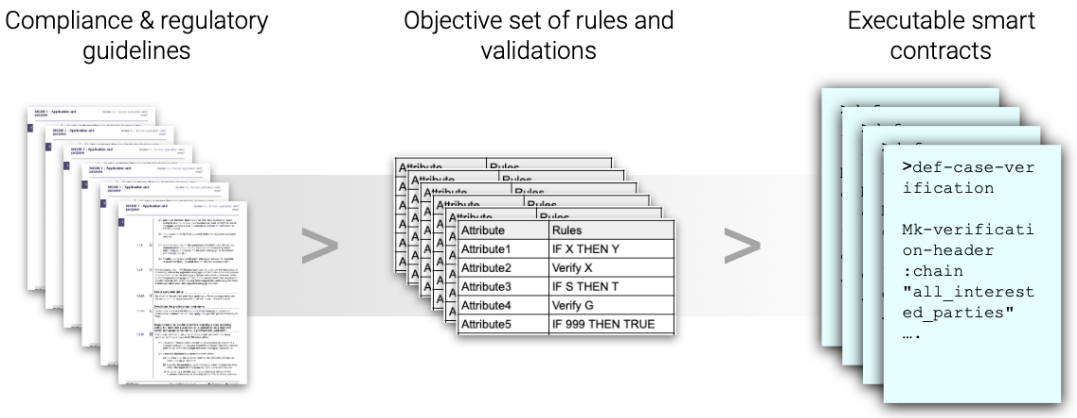
The TOKO platform utilises Luther's compliance by design capability, which provides its users with execution certainty and the systemic assurance that the process is executed as per custom compliance rules.
In the case of TOKO, every investor request must comply with a set of compliance rules that vary depending on (i) issuer, (ii) investor, (iii) token (asset) type.

Based on these parameters, a selection must be made from a large pool of potential compliance rules to govern the process.

However, while some of the regulations readily translate into objective instructions (e.g. if this then that), others leave room for interpretation.

Working with DLA Piper and subject matter experts, the Luther team followed a rigorous process to turn somewhat subjective guidelines into objective executable programs:

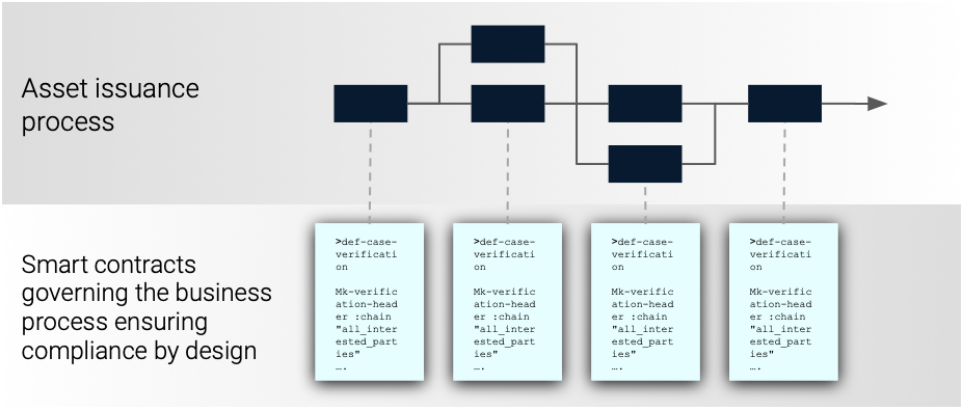
- The regulatory guidelines were studied with industry experts to extract a pool of both subjective and objectives guidelines
- All guidelines were then turned to logical instructions that leave no room for interpretation and approved by industry experts
- These logical instructions were finally developed as programmable scripts (smart contract) for the TOKO product to execute



Compliance rules for issuance, eligibility checks and transfer of tokens were codified into scripts (smart contracts) that allows for:

- automated verification of compliance rules at each step of the process
- direct integration of compliance into the process

These scripted rules act both as gateways for the process, ensuring that the right sequence of events is followed, but also provide guardrails for the participants that protect them from the risk of inadvertently breaking compliance due to their interpretation of guidelines.



Through smart contract execution, the process - and by extension its participants - is compliant by design.

Further technical documentation is available on request to detail how smart contract and data validations are developed, orchestrated and executed on the Luther platform.

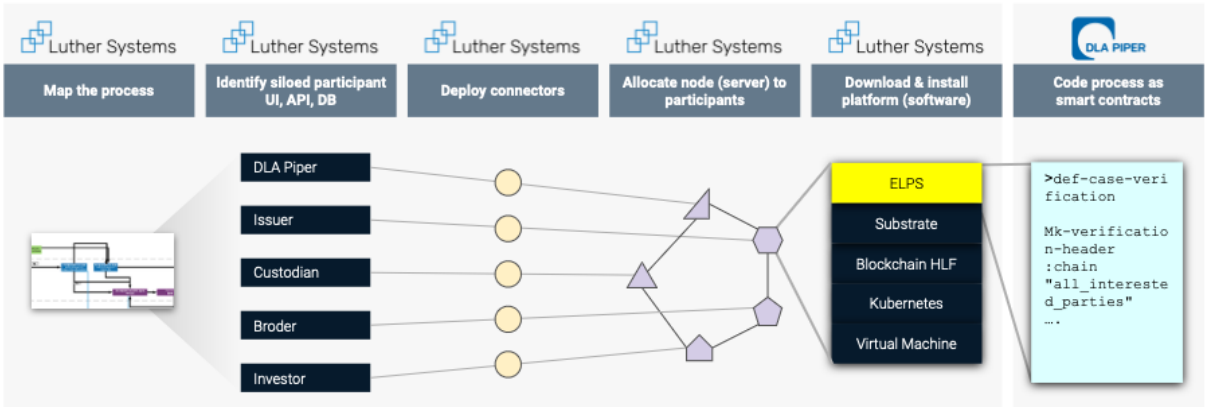
Finally, and for additional assurance, the solution's ledger also keeps a tamper-proof record of events that can be consulted retrospectively by any compliance team or regulator.

5.4. TOKO Network Overview

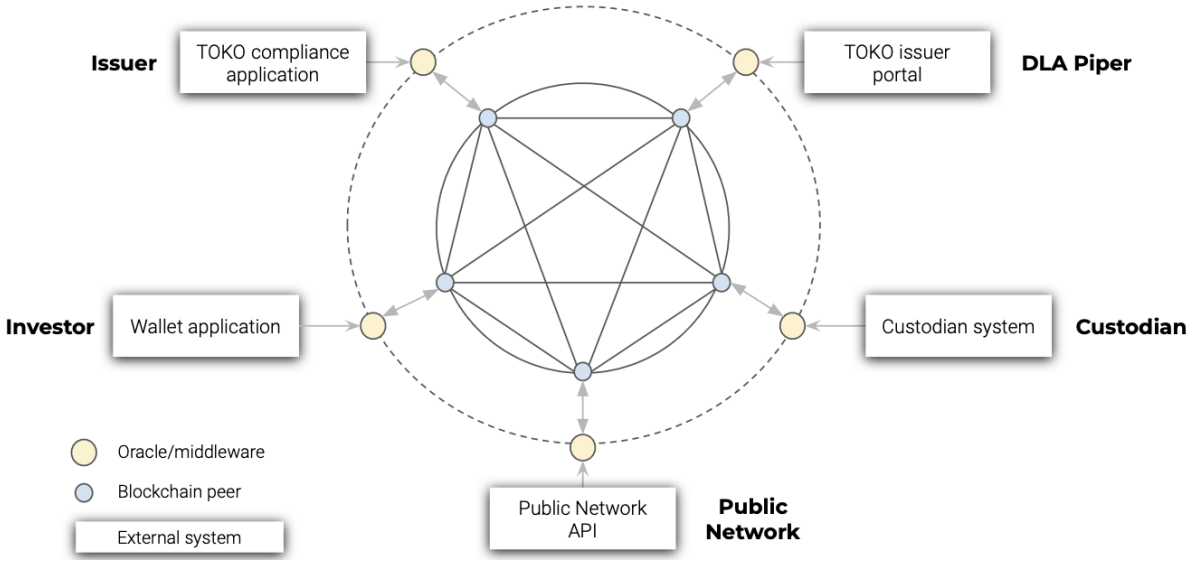
In order to describe the required functionalities of the product, Luther worked with DLA Piper subject matter experts to develop process maps and identify all the participants involved. The below figure illustrates this participation for four core processes:

Asset (Token) Issuance	Primary Market Offering	Secondary Market Offering	Asset (Token) Redemption
• DLA Piper ✓	• DLA Piper	• DLA Piper	• DLA Piper ✓
• Issuer ✓	• Issuer ✓	• Issuer	• Issuer ✓
• Custodian ✓	• Custodian ✓	• Custodian ✓	• Custodian ✓
• Broker	• Broker ✓	• Broker ✓	• Broker
• Investor (Buyer)	• Investor (Buyer) ✓	• Investor (Buyer) ✓	• Investor (Buyer)
• Investor (Seller)	• Investor (Seller)	• Investor (Seller) ✓	• Investor (Seller) ✓
• Public Network ✓	• Public Network ✓	• Public Network ✓	• Public Network ✓

Each of these participants plays a specific role in a re-imagined set of end-to-end processes which can be seen as a series of logical steps, each of which includes a number of tasks and business rules. Where necessary, the participants can continue to use their local systems (e.g. Broker CRM systems, Custodian KYC applications, etc…) which are connected to the common network via APIs and Oracles.



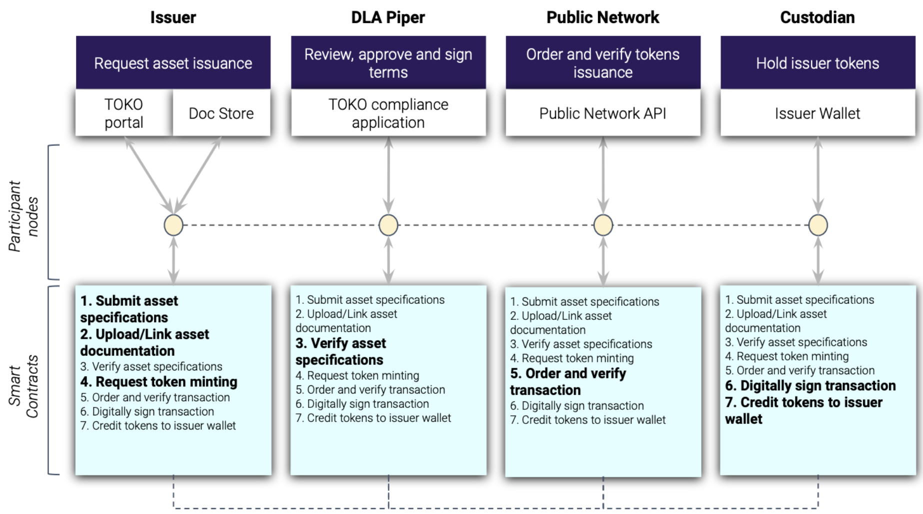
The result is a platform and ecosystem for issuance, servicing and trading of financial digital assets, which is illustrated in the following figure.



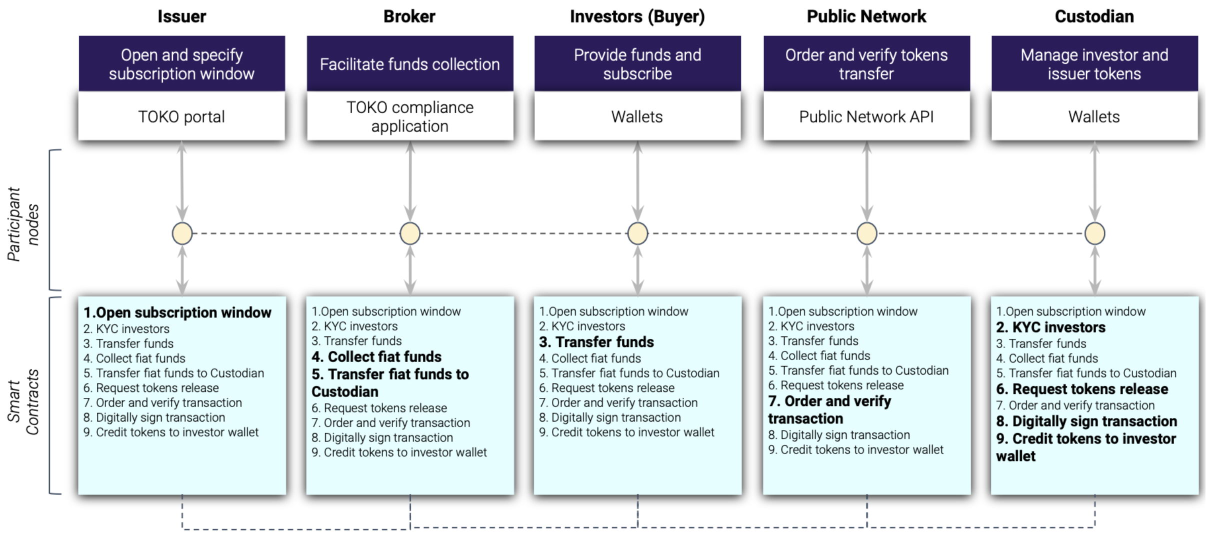
While every participant remains free to shape their respective operations internally and to decide how to best perform their duties, the TOKO platform ensures that all participants share a common set of scripts (smart contracts) running on a network of blockchain peers for critical interdependent process steps. These scripts act as guardrails for the operations while leaving a transparent and tamper-proof trail for auditability.

Below are illustrated four of the core processes as orchestrated by smart contracts.

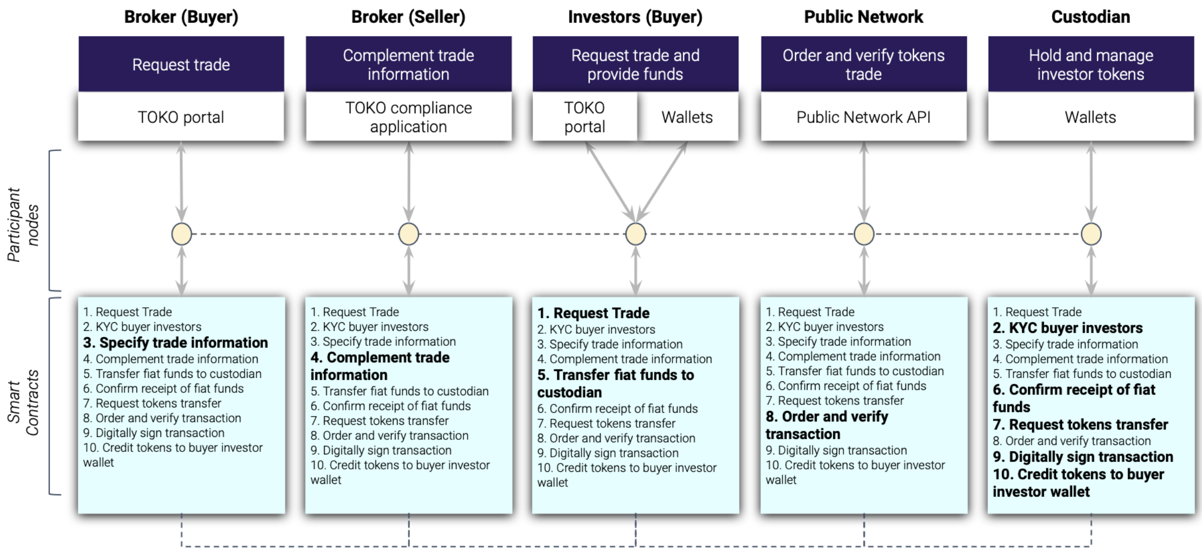
Asset (Token) Issuance



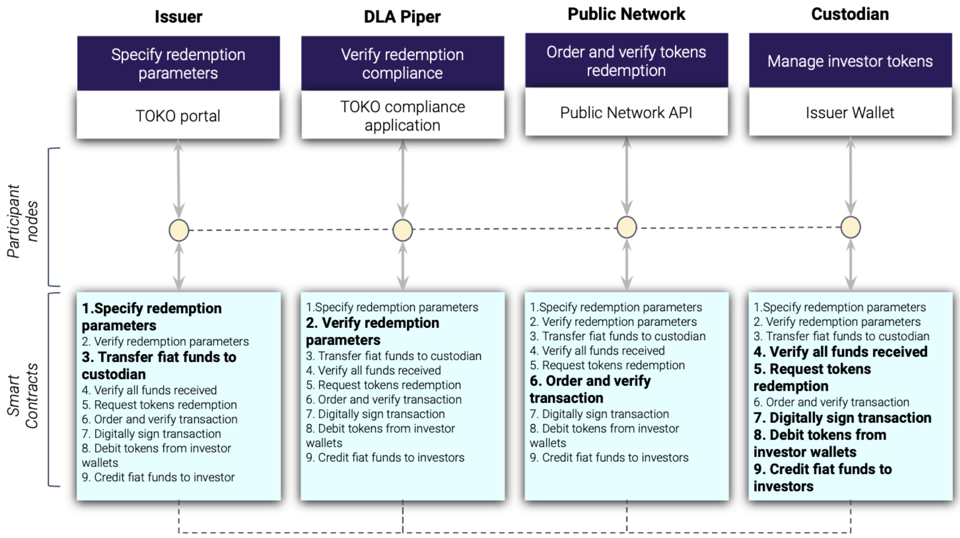
Primary Market Offering



Secondary Market Trade Execution



Asset (Token) Redemption



5.5. TOKO Architecture Benefits

5.5.1. Hybrid public and permissioned blockchain architecture

TOKO's core technology stack is designed to achieve ledger agnostic functionality by implementing a hybrid permissioned plus public chain environment. The Private environment enables privacy and security of asset information, investor information, as well as token event histories. The Public environment enables fair ordering, encryption, and verifies every transaction that originates or passes through the platform.
The choice of private blockchain technology for process orchestration and automation sets the platform on a strong footing for the future:

- Enables cross-organisation automation with process execution certainty
- Provides real-time event-based architecture with multi-organisation support
- Allows each current or future participant to have their own independent technology stack with a complete copy of all processing history, events, and transactions for their products
- Participants specify their data storage and model requirement according to which all the network operates
- Enforces strong integrity protection of each participant's data
- Enforces data dissemination policies to meet compliance rules through Private Data Collections
- A federated architecture allows each participant to operate independently (operations and technology) while participating in the execution of the financial asset issuance, trading and servicing processes

Most importantly, the chosen architecture enables the TOKO partners to continue growing the network over time, adding new participants and services while preserving process and data integrity, fast on-boarding scalability and data privacy.

5.5.2. Multi layer-1 public network compatibility

TOKO issues the tokens to public networks. By the nature of existing on a public network, token information is available within the public domain at all times to ensure that the benefits of decentralisation are realised, while private information is safeguarded behind a private blockchain.

In addition, it allows TOKO to integrate with the large public ecosystem of wallets, exchanges, and explorers by being compatible with public smart contracts and distributed exchanges.

With regards to public chain compatibility, TOKO was built with multi-chain support in mind and supports multiple token protocols, with the ability to further integrate additional token protocols moving forward.

5.6. Tokenization

The issuance process includes a critical step called tokenization. To fulfill this, the TOKO platform includes a tokenization layer which has for purpose to 'mint' the tokens.

Tokens are a digital representation of securities, and entail a number of attributes describing issuance and properties of the securities they represent. There are considerable overlapping characteristics common to these digital representations across and within asset classes. This commonality can be leveraged to create token templates.

Minting a token is the act of creating this digital representation of a financial asset in the form of a smart contract by following an approved program.
By developing a tokenization engine which parameterised token issuance into a catalogue of templates, the TOKO platform makes the issuance of tokens a highly scalable, repeatable and automated process.

5.6.1. Asset classes

As of November 2021, TOKO already had the capability to issue tokens representing 7 asset classes. Further asset types are under development and even more under discussion.

Company Shares	Artwork NFT
Real Estate Asset	Generic Good NFT
Project Financing	Digital Bond - *Future*
Fixed Yield Debt	Intellectual property Rights NFT - *Future*
Company Share Certificate NFT	

Across these asset classes TOKO is able to issue regulated and non-regulated assets by embedding compliance rules directly into the smart contract so that security token offerings which need to meet certain regulations are compliant, while providing the option for Issuers to issue non-regulated assets too.

5.6.2. Multi public chain token support

Token wallets are built to support specific token platforms. Tokens designed as per the standards of a platform can be transferred to all wallets that support that standard. The TOKO platform is capable of minting both private or public tokens that can be transferred to investor wallets. In the case of public tokens, to ensure compatibility with the wider ecosystem, TOKO's strategy is to support a wide variety of public chains

Ethereum:
Ethereum has the most popular token standards in the market and as a result ERC standard tokens are supported by most digital asset custodians.
In the case of Etheruem, TOKO adopts the well established and tested ERC Ethereum standards.

However, it must be noted that as of 2021 Ethereum and alternative public blockchains prove to have expensive and unpredictable fees, sluggish transaction speeds, forking, and unfair transaction ordering. Moreover, running the tokenisation engine solely on the Ethereum public network could pose a higher risk to the security of the system & data in that the history of all transactions is visible to the public, including counter-parties, timestamp, amounts, and compiled smart contract details.

While TOKO continues to support and closely monitor the Ethereum network, DLA Piper required a public distributed ledger that offered native tokenization with speed, cost-effectiveness, and compliance. They also required the ability for permissioned blockchain framework transactions to be timestamped and publicly verifiable.

Hedera:
To achieve this the TOKO solution uses the Hedera Token Service which improves settlement time from minutes to seconds, reduces transaction and minting fees by over 99.98%, and enhances the end-user experience for participants to drive greater adoption and retention.
Moreover, Hedera provides additional compliance mechanisms built-in for their token services. In particular:

- The ability for wallets to be tagged as approved for KYC
- The ability for investors to consent to receiving tokens before the transfer is executed

Algorand:
In addition to the Hedera public network, TOKO has implemented an integration to another layer 1 public blockchain: Algorand, which also provides the aforementioned compliance mechanisms built-in for their token services. Through this integration, TOKO is able to issue and manage ASA tokens on the public ledger to represent ownership rights of financial assets. TOKO is able to interact with fungible and non-fungible ASA tokens deployed on the public ledger to automate the issuance and lifecycle management of the underlying asset.

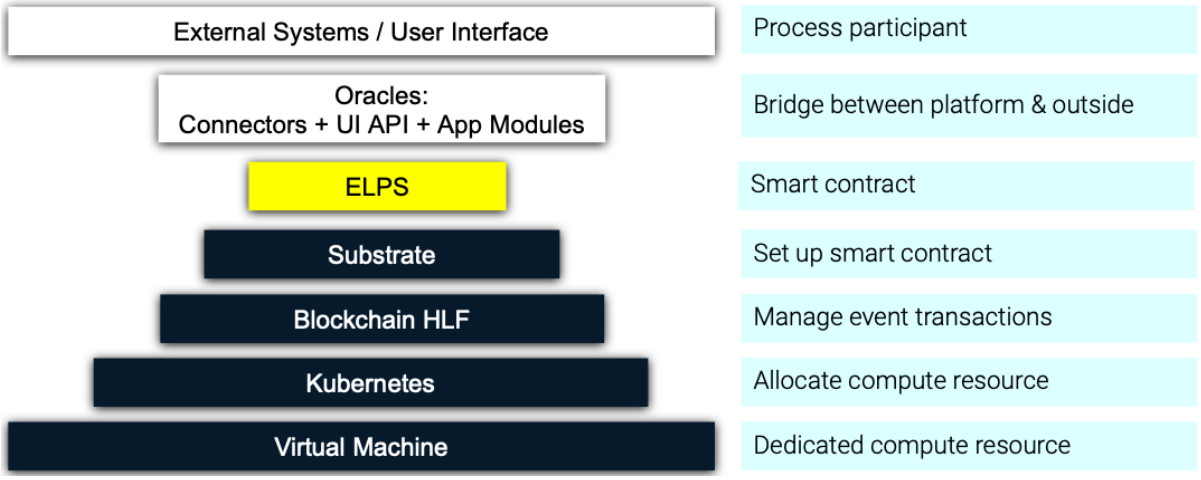
Algorand's technology provides security, scalability, complete transaction finality, built-in privacy, and is built from the ground up to operate as a fully carbon-negative network.

6. Technology Insights

The network developed for TOKO is a collection of virtual machines, running on Kubernetes in Azure Cloud. The network uses the open Hyperledger Fabric protocols to establish a distributed ledger, which manages transactions. Luther's platform runs the business logic held within smart contracts which orchestrate and execute the financial asset issuance, trading and servicing processes.

6.1. Luther Technical Stack

Below is a closer look at the technical components that make up this Hyperledger Fabric network starting with an overview of the software stack.



6.2. Kubernetes to manage compute resources

Kubernetes, used here, is the standard cloud-native container orchestration platform.
The network runs on the managed Kubernetes offering by Azure, Azure Kubernetes Service (AKS) driving the following benefits:

- Resilient and scalable container (docker) execution
- Seamless integration with Azure services including VM, API gateway, and Load Balancers
- Low maintenance effort to stay up to date with latest kubernetes releases

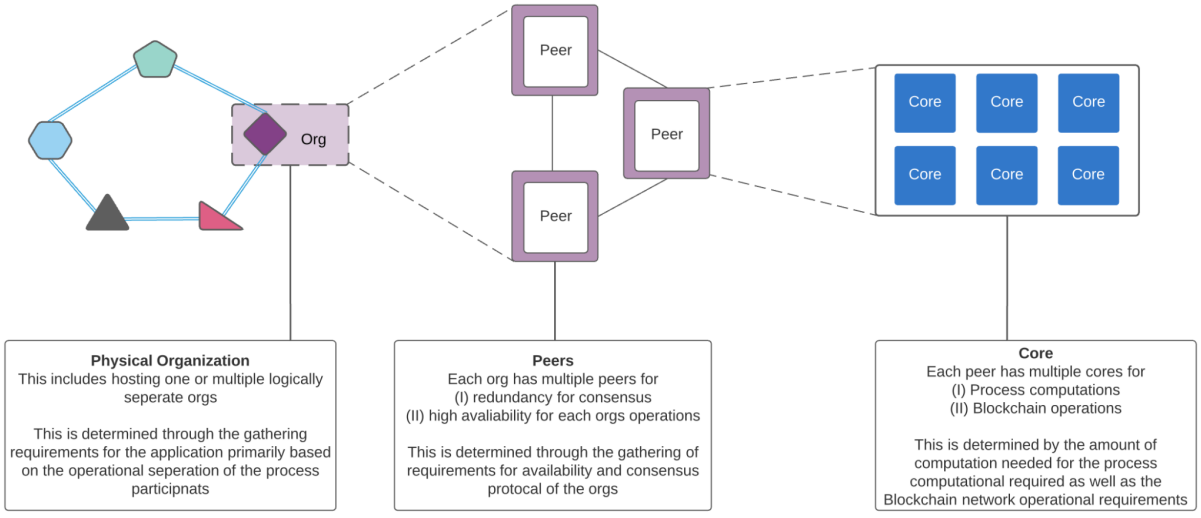
6.3. Blockchain peers and orderers

As of the end of the first production release of the platform, there are 5 peers on the TOKO blockchain network:

- 2 x endorsing peers
- 1 x read-only peer

These peers are supported by 3 orderers

All organisations in the financial asset issuance process participate through the blockchain network to improve efficiency, security and auditability of the end-to-end process.



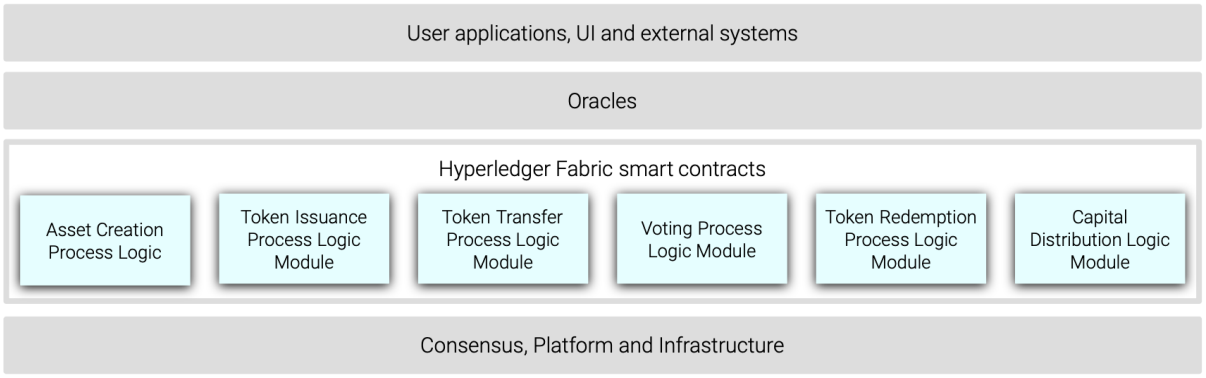
6.4. Smart Contracts

The process of issuing a financial asset is essentially a series of steps, each of which includes a number of tasks and business rules.
In the solution, process steps are referred to as events and every event is executed and stored as a transaction on the blockchain network.

The smart contract is the script that:

- Captures the orchestration and execution events (steps) along the entire financial asset issuance, trading and servicing processes
- Enforces the authorisation & permission logic for updating TOKO's data
- Maintains the source of truth for TOKO's data that remains common to all parties on the network
- Enforces a standardised & common data model and common process logic across the entire network
- Enforces the business logic rules to ensure these processes are executed accurately

For the TOKO platform, the smart contract execution can be split into a set of logical components (or modules) covering the end-to-end processes in TOKO's scope.



In TOKO, in addition to the processes outlined above, the tokens themselves are smart contracts governing the token behavior and history.

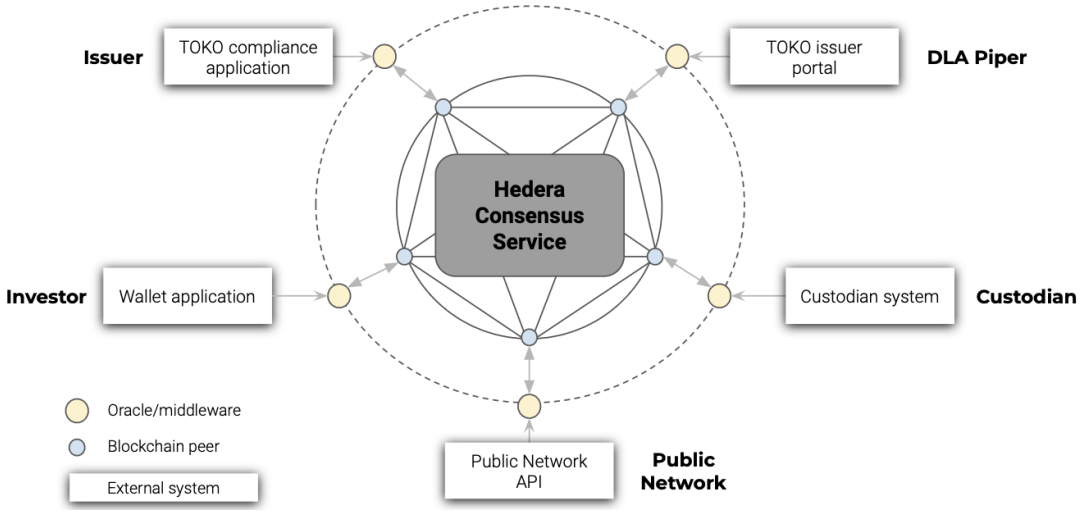
6.5. Oracles

Oracles (middleware) are used to access off-chain data, user interfaces and local systems. They include a Distributed Ledger Technology client (SDK) to initiate transactions that read and write data from the ledger. This allows:

- Provision of data from external systems into the blockchain network for subsequent smart contract processing
- Response to events triggered by the blockchain network in response to smart contract processing

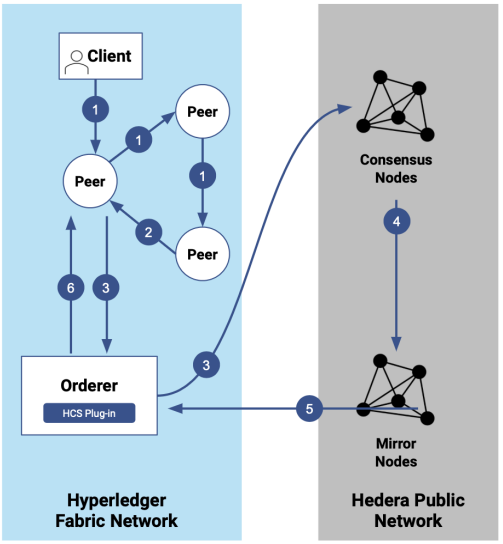
6.6. Hedera Consensus Service

TOKO also utilizes the Hedera Consensus Service to ensure transparency and trust in transactions that require privacy, while meeting regulatory compliance.



Below is an overview of the process:

1. A node sends a proposed transaction to other nodes to endorse.
2. The initiating Node receives a proposal response after gaining sufficient validation from other nodes. The transaction is now endorsed.
3. The entire endorsed transaction is encrypted and sent to the Hedera Public Blockchain via the Hedera Consensus Service.
4. The Hedera consensus nodes check the validation history, order the validation records and create a hashgraph of the transaction.
5. The mirror node reads the encrypted transaction and hasgraph from consensus nodes. then send the encrypted transaction and hashgraph back to the Hyperledger Fabric network.
6. The Hyperledger Fabric orderer orders the transaction into blocks and distributes the blocks into each node to commit to their blockchain.



The Hedera Consensus Service unlocks the following benefits for TOKO:

- Ensure a fair and final consensus timestamp on when the transaction occurred
  - It synchronises the fair order of messages for distributed systems without relying on a centralised clock
  - At scale, HCS can determine which endorsed transaction comes first
- Transparency into the history of events over time
  - Anyone could query the Hedera mainnet to confirm the record of a given transaction
- A fast, fair, and secure consensus at lower cost than any other public distributed ledger network

6.7. Discussion - benefits of tokenization

Tokens are gradually emerging as a new asset class that offers a new way for corporates to raise funds using their high-value assets. Regulatory bodies, law firms, custodians, broker-dealers and exchanges across the world are gearing up in preparation for the acceleration of this revolution. Compliance rules and licenses are evolving but remain stringent in order to provide sufficient support and protection to issuers and investors.
Owning a token means having certain rights to the asset. The simplest forms are ownership, or a share of ownership which entitles owners to voting rights and dividends.
When a financial institution transfers assets to investors, it often represents a fraction of the original asset, and the digital version of this fraction is a token.

Note that assets here can either be tangible, (examples of which include real estate or wine), or intangible (examples of which include intellectual property and equity). The first project of TOKO was the tokenization of an art piece with high growth potential.

The benefits of tokenizing an asset via TOKO's platform include:

- Fractionalisation increases liquidity for the underlying asset by bringing in more investors with lower commits and smaller share of the asset
- Enable secure and rapid transactions leveraging blockchain technology
- Reduce the cost of trading traditional assets

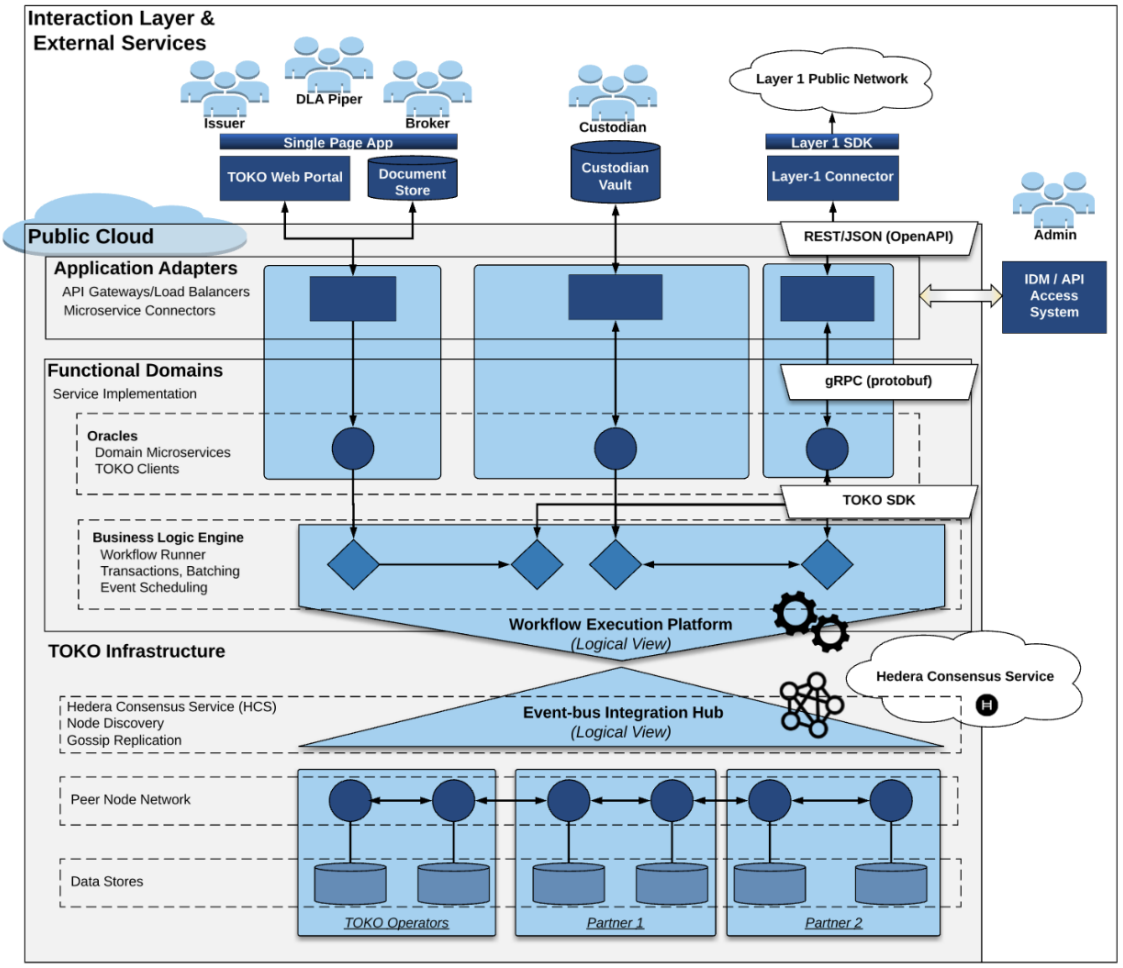
An important distinction between tokens available in today's market is that of an asset-backed token.

Asset-backed tokens (also known as security tokens or digital securities) are digital assets whose value is tied to that of a tangible or intangible asset.

Specifically this is to be distinguished from the following other types of tokens:

Asset-backed token vs Cryptocurrency	• In contrary to asset-backed tokens, cryptocurrencies are digital currencies that are not backed by real-world assets. Their price fluctuation is driven by investor speculation • Examples: Bitcoin, Ether
Asset-backed token vs Utility token	• Utility tokens are digital assets that represent services that could be bought and spent within a particular blockchain ecosystem • Example: Dentacoin (dental services), Siacoin (computer storage)
Fungile token vs Non-fungible token	• Fungile tokens are identical to other tokens of the same type, interchangeable and divisible. Example: cryptocurrencies • Non-fungible tokens are unique, non-interchangeable and non-divisible. Example: digital certificates.

6.8. Technical Architecture overview



7. Results

The new services provided by DLA Piper and enabled by Luther System's technology have seen astounding success so far. The overall workload required to issue a financial asset has significantly reduced for both DLA Piper and the Issuer of the asset.

TOKO differentiates itself from other tokenization engines in the market as it is an initiative led by a law firm which does not only provide the technical solution, but also the legal and compliance advice on funding raising documents, prospectuses, regulatory requirements of digital assets and security law. By defining investment rights and embedding them into the "smart contract" living on the blockchain, the resulting solution assures investors of a trusted representation of their rights..

With TOKO, corporates can leverage their traditional assets to raise funds at a premium through their digital representation. The 24/7 market, low commission rate trading and high liquidity of their digital assets bring new opportunities to professional investors in a secure and regulated environment.

Overall, DLA Piper and TOKO estimate a reduction of transaction cost by 99% and 20 days of processing time. Moreover, they saw a 70% increase in deal processing speed unlocking an estimated added revenue of $3 million a year.
This was achieved within 6 months of development, leading to a 10X ROI.

6 months development to production

$3m estimated added revenue per year

20 days reduction of processing time

70% increase in deal processing speed

99% reduction of transaction cost

1000% estimated ROI

7 asset types supported

7.1. Automated TOKO Product - Commercial performance and results

	After	Before
Cost and Revenue	**99%** reduction in transaction cost	**Millions** in operational costs
	$3m estimated added revenue per year	Asset sale profit potential forgone
Processing speed	**70%** increase in deal processing speed	**100s** of manual tasks and checks
	20 days reduction of processing time	**3 months** average for asset issuance and transfer
Compliance	**500** business rules and validations	No asset issuance standardisation
	Reduced risk of compliance rules violations & fees	Manual checks and regulation interpretation
ROI estimated at 10X		

7.2. Automated TOKO Product - Product results

The team developed a network to standardise separate processes, data and documents, and record every step in an auditable, immutable manner. The solution developed demonstrates breakthrough characteristics that could not have been achieved with centralised architectures.

- Automation of processes and integrations
- Faster tokenization of digitised assets
- Transparency of transactions
- Automated compliance enforcement
- Auditability and integrity of operational data
- Flexibility to adjust the application rapidly
- Scalability for expanding core biz processes

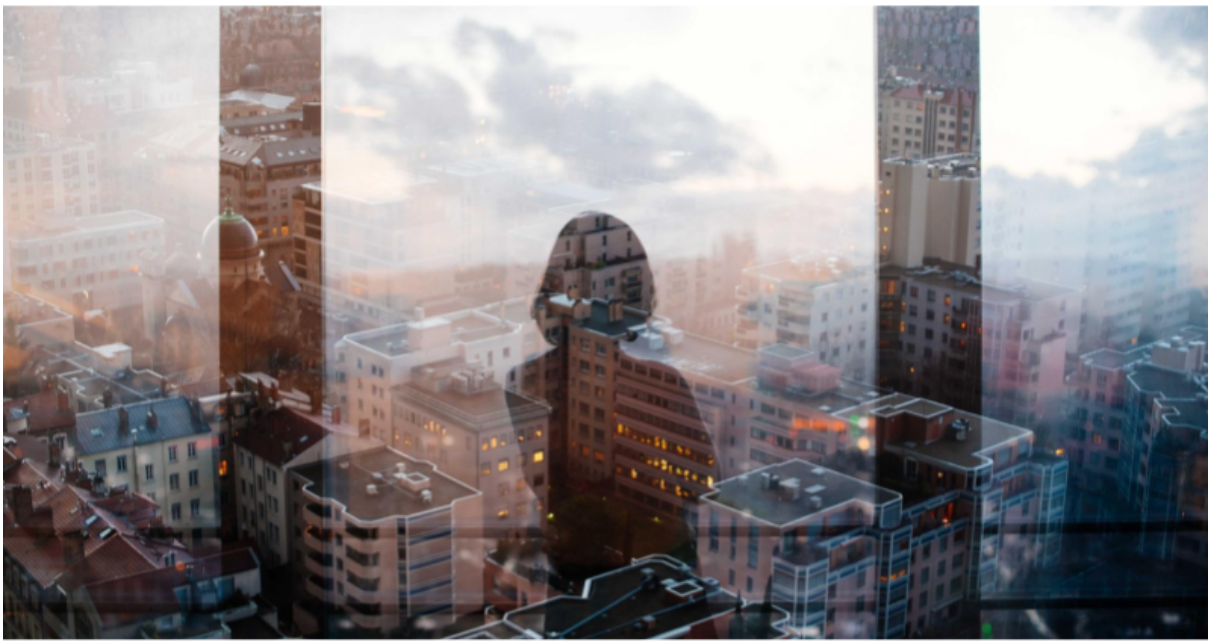
7.3. Automated TOKO Product - Technical results & benefits

The Luther Deep Automation Platform has enabled the delivery of future-proof technology demonstrating the following technical characteristics:

Auditability	Credibility and integrity of data for API calls
Scalability	Network effect provides ecosystem with opportunities for expansion
Efficiency	Process automation reduces manual steps and data reconciliation
Security	No proxy - API calls are made directly between participants
Tamper-proof	Removes risk of duplicate entry or data tampering

Moreover, the application is supported by unique infrastructure such as:

- Over-the-Air updates
- Rapid scalability & inclusion of new participants
- Stable & resilient service
- Cloud native application
- Fully automated CI/CD pipeline



8. Expansion

TOKO is a recognised trail-blazer in the industry, setting the new benchmark for digital financial asset creation and trading. It was recently the winner of the Enterprise Blockchain Awards in the Enterprise Transformation category.

Critical to TOKO's continued success are three factors:

1. DLA Piper's expertise in the Asset Issuance, Trading and Servicing processes and regulations
2. TOKO's tokenization engine, creating digital representations of real-world assets and in doing so opens up new market opportunities for issuers and investors
3. TOKO's underlying Luther platform for process and compliance automation, enabling the efficiency, repeatability and scalability that TOKO needs to take power its services

These three success factors set TOKO on a strong footing for the global expansion of its product and services. TOKO has much in store for its future including:

- Adding new asset classes and templates to serve a growing customer base
- Extending its functional range by codifying and automating additional processes in the trading and servicing of financial assets
- Expanding the ecosystem of participants by integration with the global ecosystem of tokenized securities

9. DLA Piper Company & Offerings

DLA Piper is a global law firm with lawyers located in more than 40 countries throughout the Americas, Europe, the Middle East, Africa and Asia Pacific, positioning us to help clients with their legal needs around the world.

We strive to be the leading global business law firm by delivering quality and value to our clients.

We achieve this through practical and innovative legal solutions that help our clients succeed. We deliver consistent services across our platform of practices and sectors in all matters we undertake.

Our clients range from multinational, Global 1000, and Fortune 500 enterprises to emerging companies developing industry-leading technologies. They include more than half of the Fortune 250 and nearly half of the FTSE 350 or their subsidiaries. We also advise governments and public sector bodies.

DLA Piper is one of the leading global firms advising clients on all aspects of the fintech sector on everything from new fintech platforms to disruptive fintech models and the protection of technology driven products.

Accelerating the advent of the automated enterprise

10. Luther company & offerings

10.1. Who we are

Luther Systems is a software company and a pioneer in Deep Process Automation: the business of automating, orchestrating and managing complex enterprise processes.

At Luther we build the next generation of enterprise computation technology for use by organisations with processes that have remained out of reach for prior automation platforms.

Through our platform, we enable organisations to reimagine the way they operate and unlock unparalleled levels of automation in a world where collaboration and flexibility across disparate organisations, geographies, regulations or standards are more important than ever.

10.2. Luther's platform for automation

At Luther we recognise that enterprise processes of today are complex and challenging to automate. They require orchestration across multiple participants, hundreds to thousands of tasks as well as non-standard systems and datasets. Their execution is filled with reconciliation, rework, delays and costs that have been unavoidable until now.

Luther's unique proposition lies in its ability to take on this complexity through a distributed technology architecture: a distributed solution for a distributed problem.

2.5X faster application development

10X Total Cost of Ownership reduction

7X process execution

10X ROI

Fully automated compliance by design

Highly scalable

Improved customer experience

With our proprietary LEIA platform, we provide our customers with:

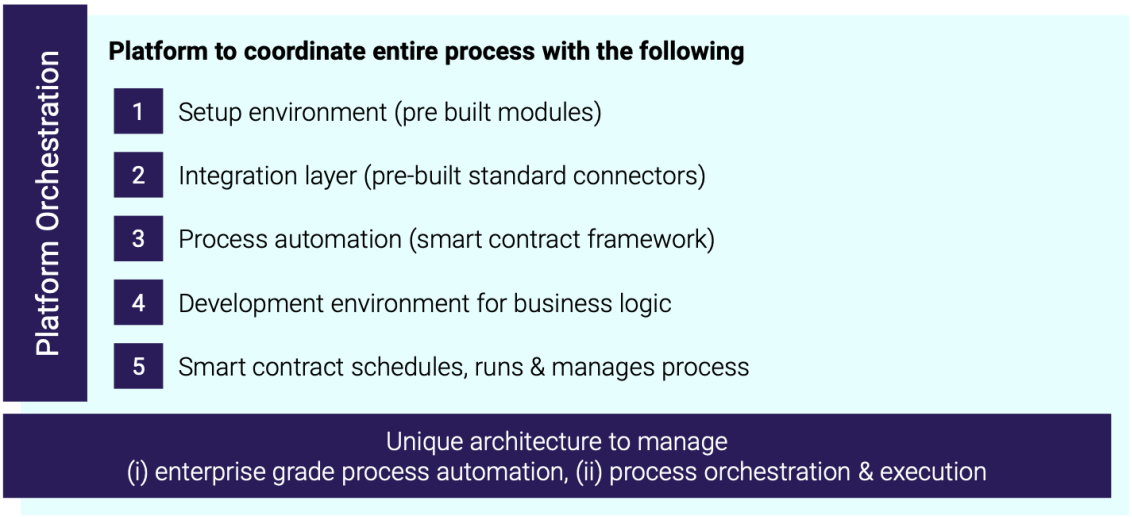
- Enterprise developers tools to automate their applications rapidly
- The operating system to orchestrate and execute their automated processes

Reports from the field have been staggering, validating our vision for the future of enterprise computing. Our customers span multiple industries and use our platform today to orchestrate complex processes such as Claims Settlement, Mortgage Sourcing, Asset Issuance or Customer 360 Views. Their execution cuts across siloed functions, teams or even organisations performing thousands of independent steps across UIs, APIs, databases, applications, workflows and Robotic Process Automations (RPA).

10.3. Luther's offerings

Luther's unique architecture combines and coordinates multiple layers of technology which enables enterprises to (i) develop enterprise grade automated processes and (ii) orchestrate & execute the automated processes in production.

Below is an overview of Luther's stack. Luther's LEIA platform automates and provides the majority of this stack so that enterprise developers can exclusively focus on developing their business process logic.



The Luther Platform is built around Luther's breakthrough insight that virtually all complex processes can be seen as a set of "smart contracts" between steps or participants in a process. Smart contracts are the rails over which the Luther Platform orchestrates, executes and monitors processes in real-time. With the LEIA platform, our customers are able to ensure that multiple steps across the entire process are executed and orchestrated in a way that follows a predefined & agreed upon business logic. This enables the Luther Platform to easily automate complex processes that were previously highly manual and non-standardised.

Luther's distributed platform also provides developers with the tools to achieve rapid development times and keep them in total control of the automation process. The LEIA Platform is designed to make the complex simple and can be used by developers with only a few weeks of training.

Luther's platform can be applied to numerous complex enterprise processes across industries.

For more information about Luther's platform please visit our website.