

# CHAINYARD

an IT People Company



WE TURN BLOCKCHAIN INTO BUSINESS RESULTS.



**CONSULTING**



**ENGINEERING**



**OPERATIONS**



**CONSORTIUM  
BUILDING**

# INTRODUCTION

## Blockchain: A major shift in business thinking

Blockchain technology, has its underpinnings in software engineering, distributed computing, game theory and cryptography. This combination gives blockchain platforms four core characteristics of immutability, decentralization, consensus and transparency. They improve operational efficiencies and increase security causing a paradigm shift in the way businesses are thinking. The potential to transform most industries has been noticed by enterprise, government and education leaders across the globe.

### Why should companies care?

Blockchain guarantees secure, transparent and immutable exchanges of value, enabling a true peer to peer sharing economy without the need for a centralized authority.

Gartner  
**\$3.1 trillion**  
Blockchain business value by 2030

Blockchain's shared ledger eliminates all remediation associated with companies maintaining separate transactional databases.

World Economic Forum  
**10% Global GDP**  
Will be stored in blockchain by 2027

Business rules and data only change with the collective approval of the network (consensus).

Blockchain will become a major component of GDP. Enterprises should incorporate blockchain

into their strategic plans to improve operational efficiencies and open new revenue streams.

## About this playbook

### This playbook is meant for:

- Large enterprises who can benefit from forming a blockchain-based business network
- Start-ups who are looking to disrupt an industry or set of business processes
- Consortiums or industry groups who want to help their participants work together with less friction
- Software providers who are considering updating their software to use blockchain technology

### What's inside this playbook?

- Approaches to explore, define and realize blockchain solutions
- Reference models and key execution steps across the blockchain realization lifecycle
- Examples of blockchain solution implementations
- Initial steps to start your blockchain journey

## About Chainyard

**We turn Blockchain into Business Results.** We are a team of blockchain enthusiasts which form a dynamic organization with the expertise, process, and technology required to develop world-class business and software solutions.

# APPROACH SUMMARY

Deliver business results faster with a blockchain specific design and execution approach

## DISCOVER (WHY):

Uncover business areas and processes where blockchain technology can be applied to solve problems, improve operations and create new business opportunities via innovative business models.



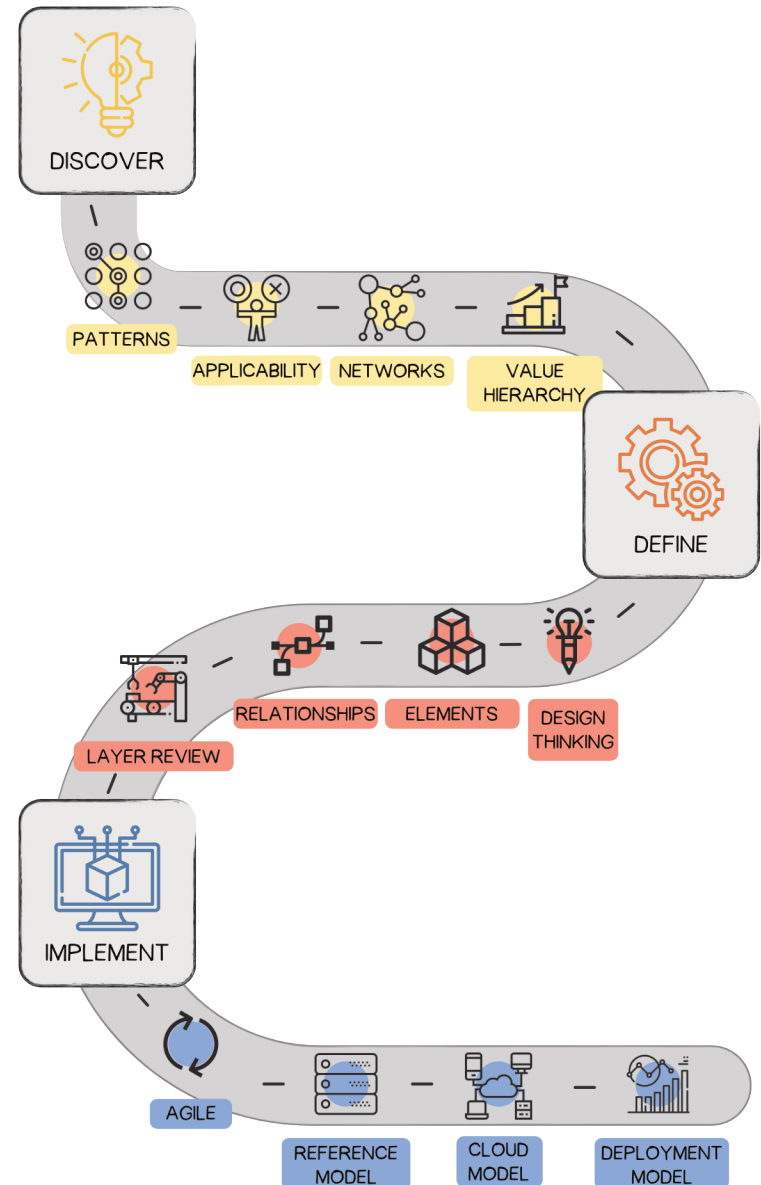
## DEFINE (WHAT):

Decompose a valuable opportunity into its blockchain specific elements. Incorporate the elements into the multiple facets that need to be considered in a blockchain solution. Define the solution by taking into consideration the technical constraints across the architectural layers of the system.



## IMPLEMENT (HOW):





Leverage the 'Chainyard Blockchain Reference Model' to architect the solution. Develop the detailed user stories for the product backlog to drive the execution sprints. Iterate on the solution using an agile delivery approach. Take the necessary actions to build and operate a successful network.

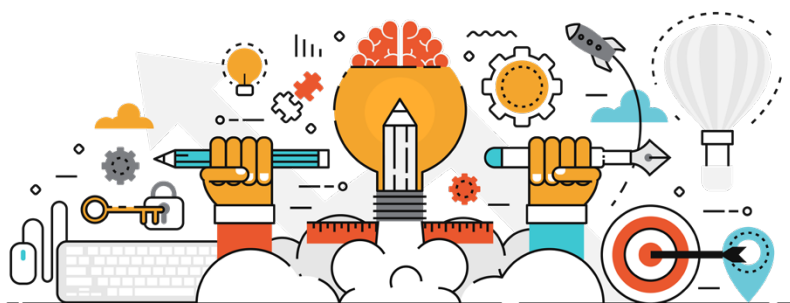


## DISCOVER (WHY)

Why is blockchain important for your business?

Identify:

-  Opportunities through 'Common Business Patterns'
-  Value through 'Discovery Questionnaire'
-  Transformation potential through 'Business Networks'
-  Strategy through 'Business Value Hierarchy'



## BUSINESS PATTERNS

Identify which blockchain business patterns may solve problems or create new opportunities in your business.

Enterprises can leverage blockchain technology in different business functions to transform business processes and transactions. Blockchain enables enterprises to start collaborating with each other instead of integrating across their platforms. Understanding the business patterns where blockchain adds business value helps ensure wise investments and helps avoid missteps along the blockchain journey.

Examples of a few such patterns:



Asset Track & Trace



Real - Time Visibility



Compliance Simplification



Dispute Resolution



Remove Intermediaries



Profile/Identity Management



Process Simplification

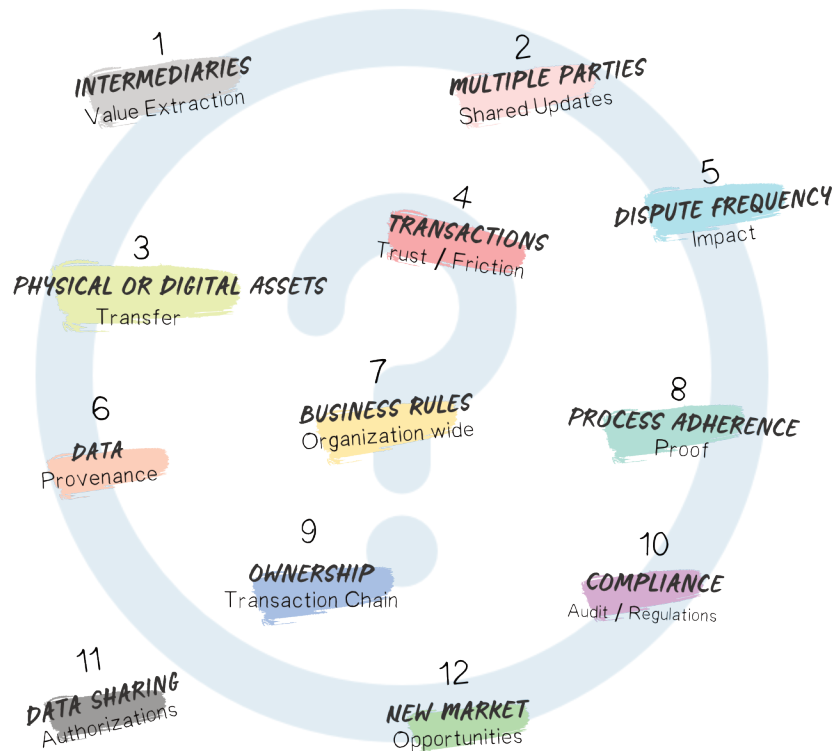


Data Monetization

## DISCOVERY QUESTIONNAIRE

Know what questions to ask to identify blockchain business value.

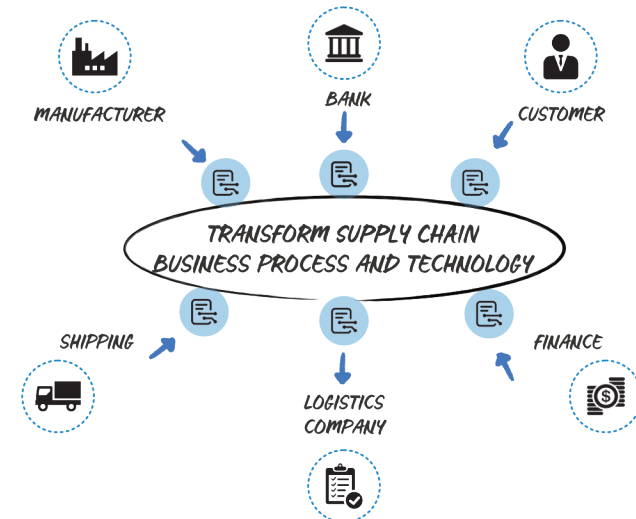
The Chainyard Value Discovery Questionnaire helps to assess the applicability of blockchain. Depicted below is a sample list of aspects that are examined through our value discovery questionnaire. This allows for assessment of blockchain value specific to the context and goals of an enterprise.



## BUSINESS NETWORKS

Identify the transformation potential of trustable and auditable business networks.

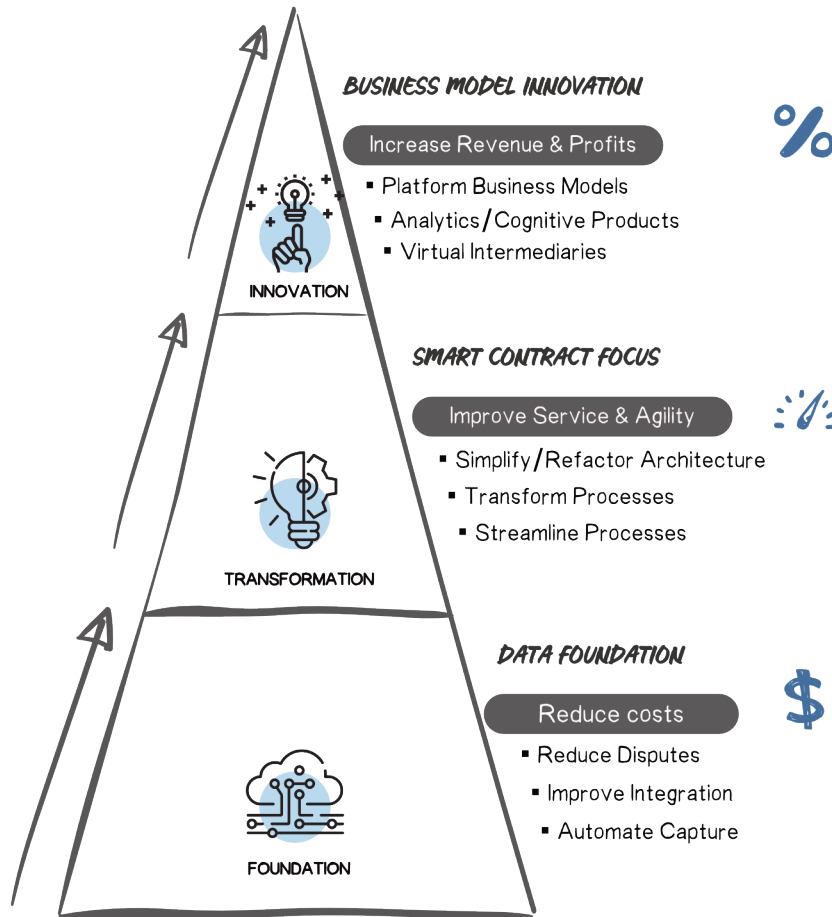
Blockchains are distributed ledgers that allow multiple parties to access and update a single version of a ledger, while maintaining shared control, thus radically transforming business processes, enabling significant cost and risk reductions, improving trust, and creating new business models. Understanding the value of a blockchain solution requires considering how all participants in the ecosystem will interact with and gain value from the blockchain business network.



*"Whereas most technologies tend to automate workers on the periphery doing menial tasks, blockchains automate away the center. Instead of putting the taxi driver out of a job, blockchain puts Uber out of a job and lets the taxi drivers work with the customer directly." - Vitalik Buterin (Co-Founder of Ethereum)*

## BUSINESS VALUE HIERARCHY

Understand the stages of a blockchain transformation journey to sequence investment opportunities into a strategic roadmap and short-term action plan.



## HOW CHAINYARD CAN HELP

Chainyard has years of experience helping the world's largest enterprises, software product companies and innovative startups make the best use of blockchain technology. We have a range of offerings to get started, including our:





-  Executive Blockchain Workshop to provide executives with foundational knowledge, identify areas of opportunity, and develop an action plan.
-  Blockchain Value Discovery Workshop to expand the range of knowledge among business and IT leaders, focus on opportunities within a particular business area, and develop a model for a new blockchain network.
-  Blockchain Strategy Consulting tailored to your requirements to create, validate and/or execute your blockchain strategy.



## DEFINE (WHAT)

What does a blockchain technology solution approach look like?

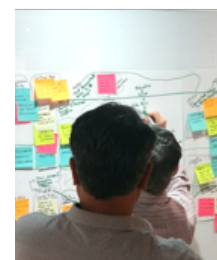
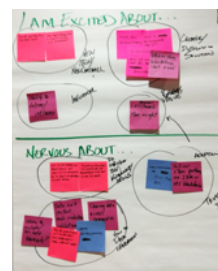
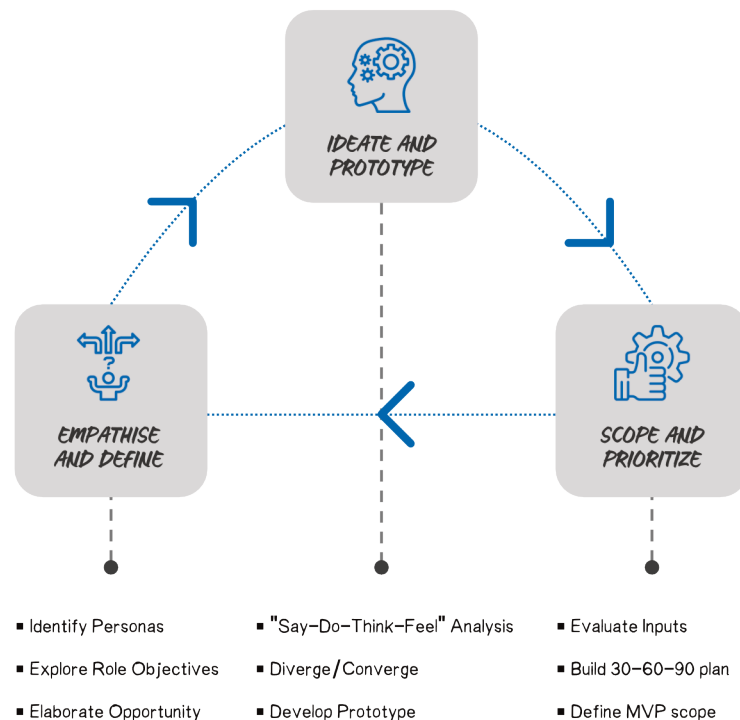
Define:

-  Needs & priorities through 'Design-thinking Workshop'
-  Key entities through 'Blockchain Specific Elements Model'
-  Entity relationships through 'Blockchain Meta-Model'
-  MVP considerations through 'Full-stack Layer Review'



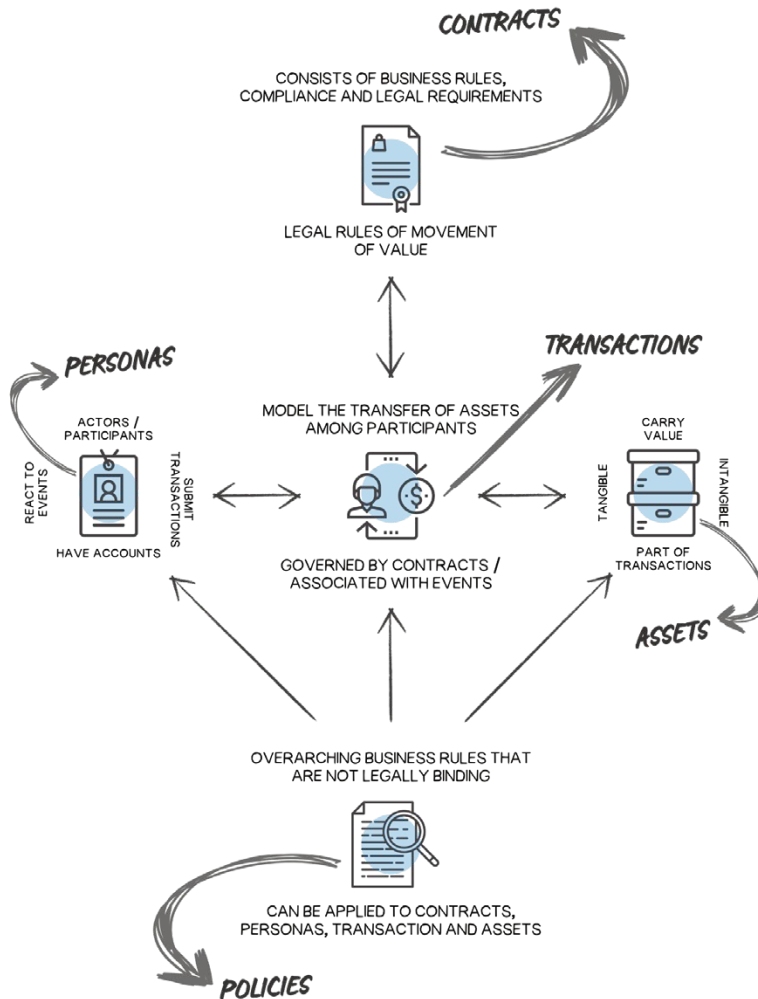
## DESIGN THINKING WORKSHOP

Define key needs and priorities by applying an iterative process and people-oriented approach.



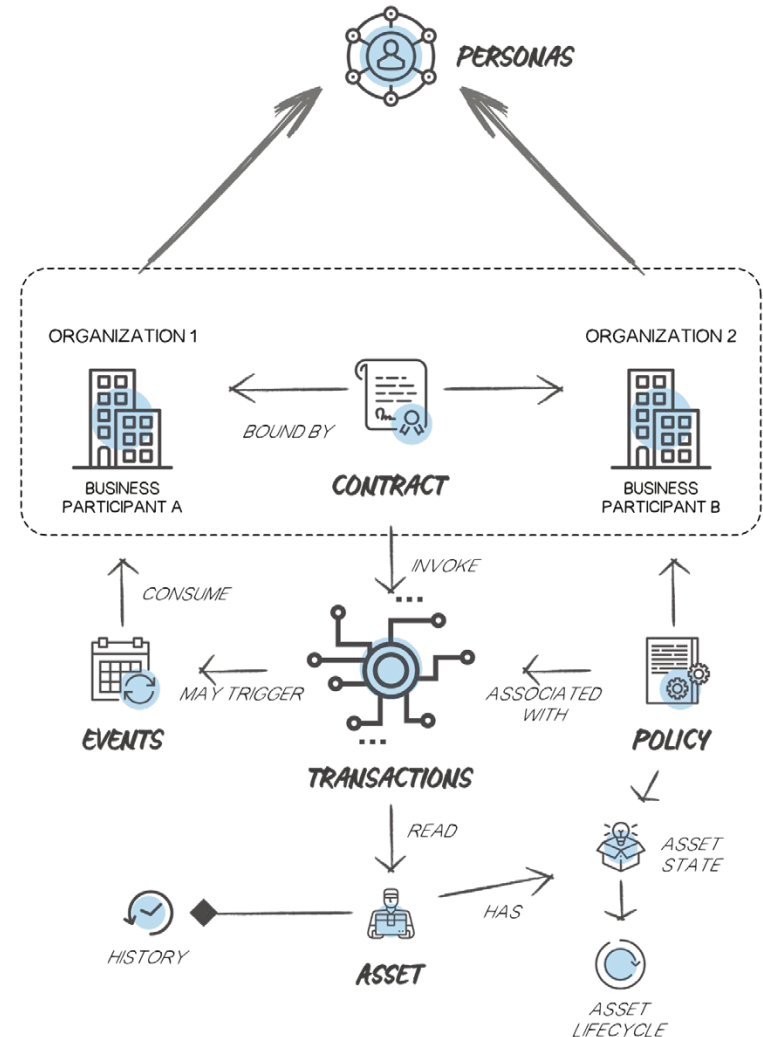
# BLOCKCHAIN ELEMENTS

Identify key elements of the blockchain solution.



# BLOCKCHAIN METAMODEL

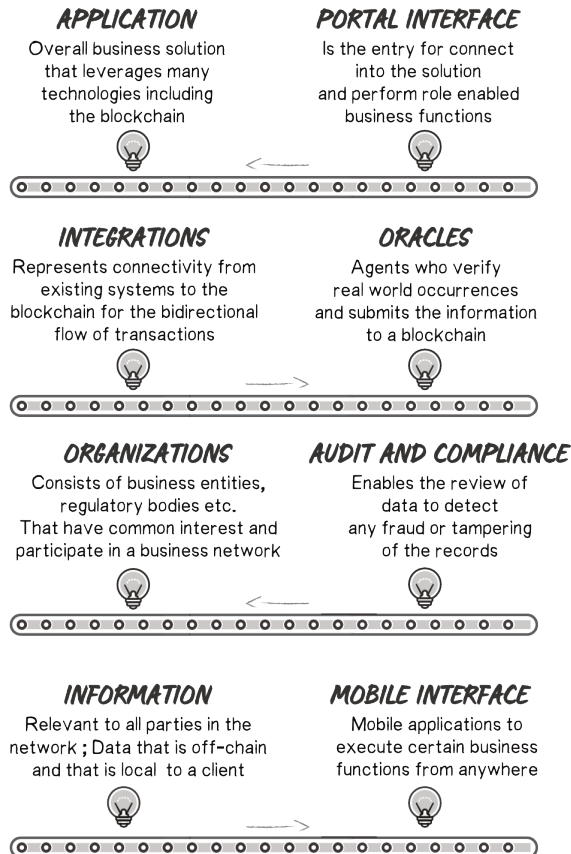
Define relationships between the key elements.





## FULL-STACK LAYER REVIEW

Do a blockchain specific full-stack layer review to ensure all aspects of the blockchain solution have been considered.



## HOW CHAINYARD CAN HELP

Chainyard collaborates with our clients to define high value blockchain solutions. Our offerings include:

- Design Thinking Workshop to identify what is needed to maximize value for stakeholders and users, model the solution, define the scope for a minimal viable product and ecosystem, and create an initial roadmap.
- Business Model and Governance Definition to develop and/or validate the business and governance model.
- Requirements and Roadmap Elaboration to further develop the requirements identified in the workshop, translate them into user stories for implementation, and build out the roadmap to continually deliver value to stakeholders.








## AGILE EXECUTION APPROACH

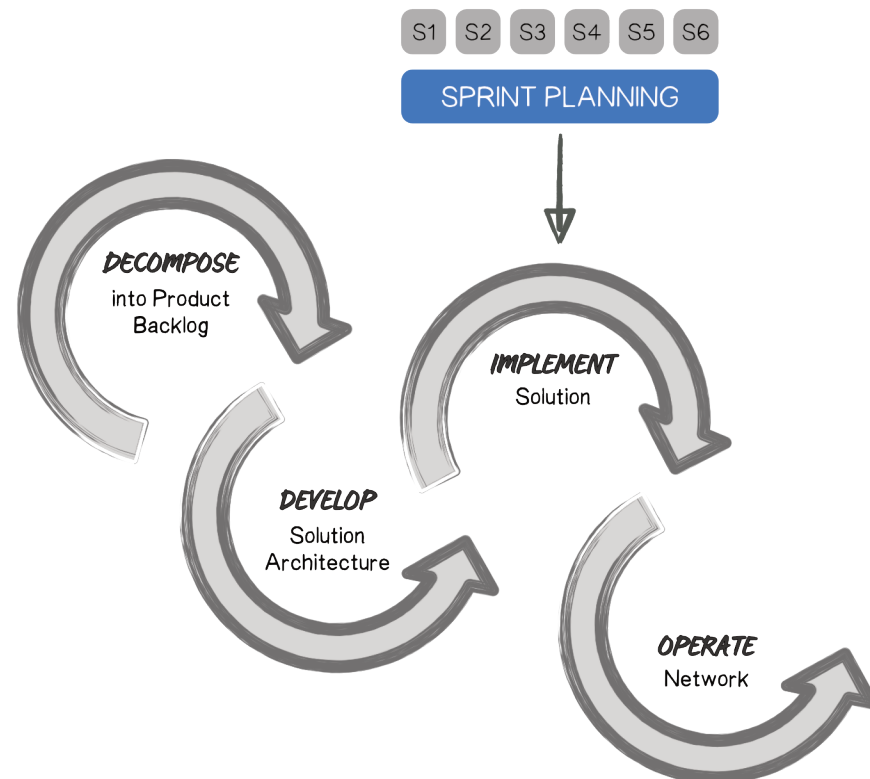
Follow an iterative & incremental development approach, executed as well-defined sprints to accelerate value realization.

## IMPLEMENT (HOW)

How is a blockchain solution implemented?

Implement:

-  Iteratively with an '*Agile Execution Approach*'
-  User stories guided by '*Blockchain Reference model*'
-  Distributed operations guided by '*Cloud Reference Model*'
-  Scalability guided by '*Deployment Reference Model*'
-  Consortium governance guided by '*Business & Technology Considerations*'



# CHAINYARD REFERENCE MODEL

Platform and application reference model as a foundation to build the blockchain solution.

In order to have a comprehensive backlog for a blockchain project, it is essential to apply a blockchain-specific reference model that acts as a guideline for developing the user stories.



## BUSINESS

BUSINESS MODEL	CURRENT & TARGET PROCESS	BUSINESS USE CASE OR OPPORTUNITY	BUSINESS ARCHITECTURE	DELIVERY PLAN (PROJECTS /SPRINTS)
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## USER

BUSINESS PARTICIPANTS (ORGANIZATIONS)	SYSTEM AND HUMAN USER	GOVERNANCE BODY MEMBERS	ACCESS CONTROL
TECHNICAL PARTICIPANTS	PASSIVE OR EXTERNAL USERS	ROLES AND PERSONAS	



## BLOCKCHAIN

ASSETS	TRANSACTIONS & EVENTS	INFORMATION	CONTRACTS	POLICIES
AUDIT & COMPLIANCE	ORACLES & INTEGRATIONS	CUSTOM ENDORSEMENTS	TOKENIZATION	DOCUMENTS



## APP

PRESENTATION UI/UX	MOBILE UI	APPLICATION COMPONENT(S)
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## OTHER SERVICES

BLOCKCHAIN CORE	INTEGRATION	GOVERNANCE	DATA & ANALYTICS	SECURITY	CLOUD SERVICES & INFRA
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# COMMON COMPONENTS

Leverage re-usable components to accelerate blockchain solutions development.

In order to reduce risk and accelerate solution development, enterprises can leverage licensed components from Chainyard's library of specialized components that include everything from kick starting a project to basic encryption to definition of a secure network.



## COMMON COMPONENTS

DOCUMENT ACCESS LIB	LEDGER CRUD UTILS	CHAIN CODE ACCESS	NOTIFICATION
ATTESTATION	CHAIN CODE	SAP INTEGRATION	SECURE SHARING
CRYPTO LIBRARY	GDPR	SESSION MANAGEMENT	TOKEN LIBRARY
ROLE MANAGEMENT	BASE UI	MQ	USER ENROLLMENT
IMAGE ACCESS	AUTHENTICATION & AUTHORIZATION	USER	



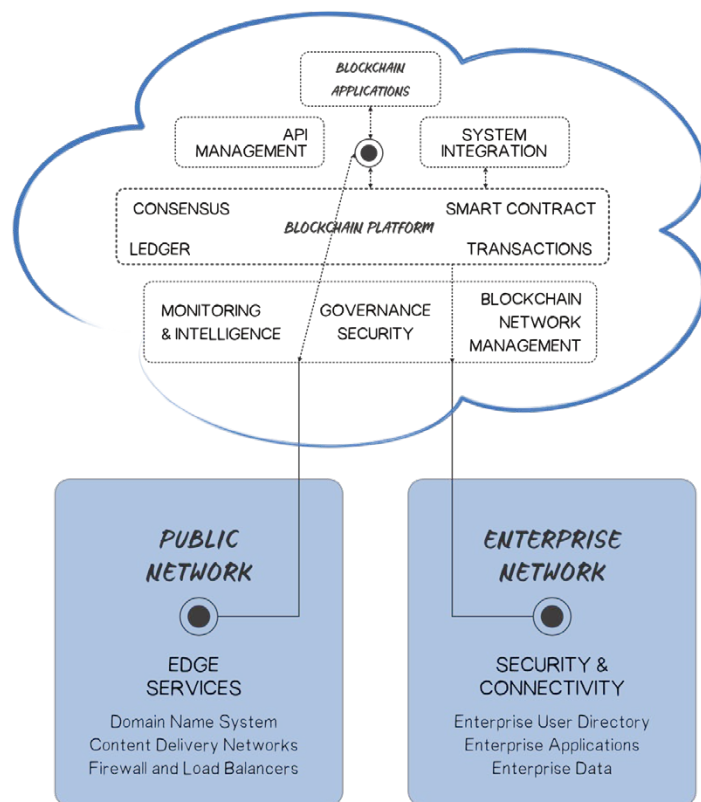
## TOOLS

DEVELOPMENT	DEVOPS	COLLABORATION	NETWORK ENGINEERING
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## CLOUD REFERENCE MODEL

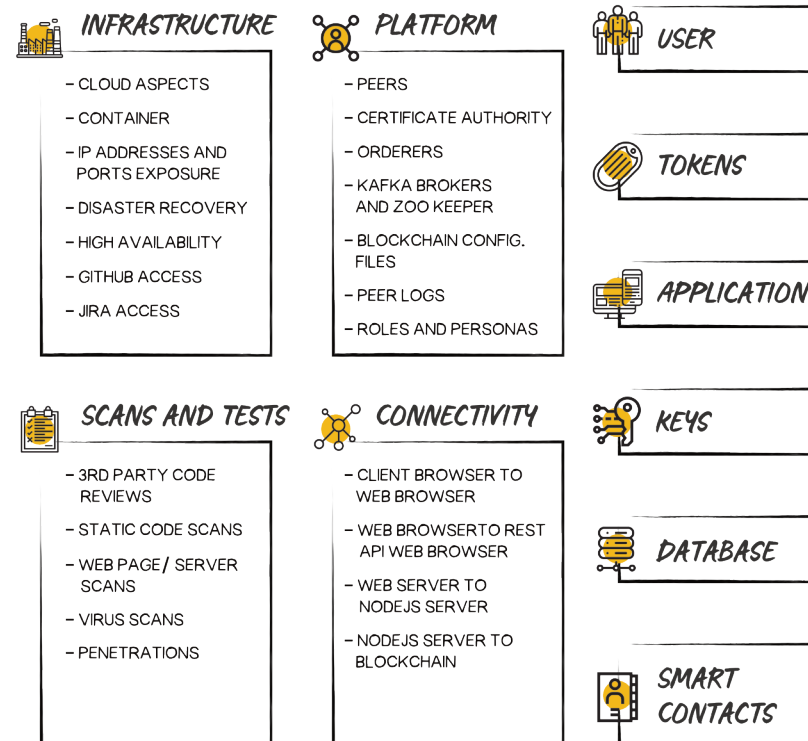
A reference model that takes into account various cloud configurations that a blockchain solution might require – this can include private cloud, public cloud, or multi-cloud.

The reference model explores the typical capabilities needed for an enterprise participating in the blockchain ecosystem. The reference architecture is demonstrated across three networks – public, cloud, and enterprise.



## DEPLOYMENT REFERENCE MODEL

A reference model that supports development of a blockchain solution to ensure stability and scalability in production.




# CONSORTIUM GOVERNANCE MODEL


Understand the critical aspects of both building and operating the business network from both technology and business perspectives.


A consortium is an association - typically of participants in the solution – that work together to operate the business network. Creating a consortium requires proper governance for both the technology and business. It is the consortiums job to ensure the solution incentivizes all participants with the potential to attract more partners to the network.



## BUSINESS CONSIDERATIONS

 By-laws or articles of engagement among consortium members

 Governance Process


 Governance Structure

 Financial Model

 Incentive Model




## TECHNOLOGY CONSIDERATIONS

 Network, Security & Operation guidelines across node operators

 Operations Management





 Standards & Guidelines

 Auditing & Control

 Change Control Board

# HOW CHAINYARD CAN HELP

Chainyard has years of experience building and operating blockchain solutions. Our offerings include:

-  Solution Architecture Definition to ensure the current best practices and technologies are used to create a scalable and flexible foundation for ongoing development.
-  Solution Implementation to build complete solutions or integrate with your team to accelerate development.
-  Network Engineering and Operations to stand up and maintain blockchain networks that can span clouds and continents.
-  Consortium Support to define and execute processes for onboarding, user support, governance, and research.



## HOW WE ARE HELPING CUSTOMERS

Chainyard works with its clients to develop solutions that deliver tangible business results.

Our work is improving efficiency, creating competitive advantage and enabling new revenue models for our clients in manufacturing, transportation, supply chain, financial and insurance services, retail, entertainment and government sectors. Examples of major projects delivered include:

### BLOCKCHAIN FOR ENTERPRISE ASSET MANAGEMENT

Real time product visibility of asset life cycle, traceability of software entitlements, improved shipper – 3PL relations, and opportunities for new fulfillment channels are a few of the benefits that we have delivered for this blockchain solution.



### WORLD'S FIRST PRIVATE EQUITY BLOCKCHAIN

Securely record and store live fund documents and transactions on a blockchain and provide real time visibility to partners and regulators. Solution was developed and deployed into production in only 4 months.



### BLOCKCHAIN FOR CONTINGENT LABOR MANAGEMENT

Minimizes billing disputes due to a single, shared ledger that tracks POs, timesheets & invoices leading to up to 50% reduction in cost per invoice and faster payments for delivered services.



## OUR STRENGTHS AND DIFFERENTIATORS

Chainyard's deep blockchain expertise, design thinking approach, blockchain specific analysis method, comprehensive reference model, pre-defined frameworks, development tools, and components that accelerate time to value for enterprises.

### BLOCKCHAIN EXPERTISE

Chainyard has been working on blockchain since 2016. Specifically, Chainyard is both a contributor and member of The Linux Foundation Hyperledger project and has developed solutions across several blockchain platforms.

### DESIGN THINKING

Iterative, people-oriented workshops that complement Chainyard's proven approach for business & technology analysis of blockchain solutions.

### ANALYSIS APPROACH

A blockchain specific analysis method, discovery questionnaire, business value hierarchy model, and years of blockchain experience are the key elements of Chainyard that enterprises leverage to deliver business value.

### ACCELERATORS

Chainyard's expertise lies in building not only innovative blockchain solutions but also reusable components that accelerate development, Accelerators. These reusable components arguably give us an advantage in delivering solutions that decrease development timeframes relative to many competitors. These components, some blockchain specific and others non-blockchain specific, help with the full software development cycle and software stack, and include components to help with application development, network definition and deployment, UI/UX development and core blockchain services.

## A NOTE TO BUSINESSES

*“The technology most likely to change the next decade of business is not the social web, big data, the cloud, robotics, or even artificial intelligence. It’s the blockchain” – Don Tapscott, Author.*

*Blockchain technology continues to mature and adoption of blockchain is accelerating. Many enterprises are implementing blockchain solutions for the wrong reasons. Blockchain is a complex technology and having a technology partner to help navigate your blockchain journey is critical to success – delivering value to the business.*

*Blockchain projects require end to end considerations on strategy (functionality, incentives, business models), technology (roadmaps, frameworks, smart contracts, platform maturity), and finally, on ensuring the company culture is one that can create & govern a consortium. It is a complex journey where experience and expertise can make the difference between a successful or failed product launch.*

*An endless number of use cases with potential have been proposed. A vast number of platforms have been launched with permission and permission less access. Governments across the world are increasing regulations to ensure security and privacy of data. Regulators are trying to understand cryptocurrencies.*

*Specialists who follow blockchain developments matter. Chainyard, with its experience working on dozens of real blockchain projects, helps customers mitigate risks and deliver business value with their blockchain projects.*

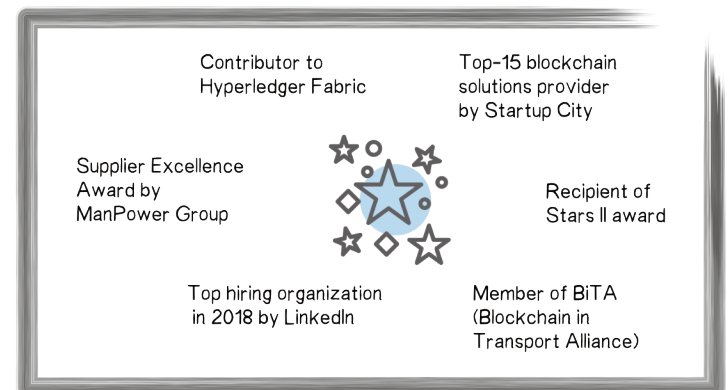


**Isaac Kunkel**

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Chainyard Consulting Services

## CHAINYARD BUSINESS WORKSHOP

Chainyard has developed a workshop to help enterprises jumpstart their blockchain journey.



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