







# Blockchain Use Cases

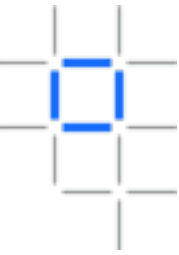
## IBM Blockchain Networks



### Blockchain Explained Series

-  Blockchain Explained
-  IBM Blockchain Platform Explained
-  IBM Blockchain Usage Patterns
-  **Solutions Explained**
-  What's New
-  Labs Explained

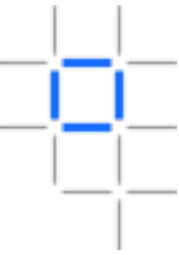
# What makes a good blockchain use case?



- Identifying a good blockchain use-case is not always easy!
- However there should always be:

1. A **business problem** to be solved
  - That cannot be more efficiently solved with other technologies
2. An identifiable **business network**
  - With Participants, Assets and Transactions
3. A need for **trust**
  - Consensus, Immutability, Finality or Provenance

# What makes a good first blockchain use case?

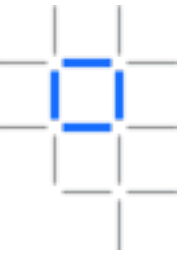


– First use-cases are even more difficult to identify!

1. A **limited scope**, but still solves a real business problem
  - Minimum Viable Product in a few weeks of effort
2. A smaller **business network**
  - Usually without requiring regulators and consortia
3. Allows for **scaling with more participants and scenarios**
  - Consider shadow chains to mitigate risks

**Start small, succeed and grow fast!**

# Good blockchain use-case or bad?



Food  
Provenance

Holiday  
Tracking Tool

Know Your  
Customer

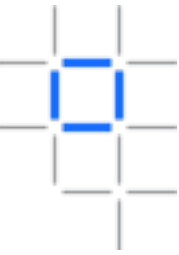
Secure  
Document  
Store

Track Your  
Child

Electronic  
Medical  
Records



# Assessing Business Value




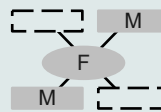
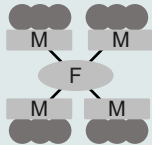
- It can be difficult to accurately quantify investment case for blockchain
- Things to consider:
  - Existing Pain Points
  - Scope – participants, assets, transactions
  - Benefits: baseline, minimum viable ecosystem (MVE) & mature network
  - Blockchain Design Points
  - References

Blockchain Value Design (BVD) activity will help elaborate these items!

# Template – example only (Cross Border Supply Chain)

Problem	90% of goods in global trade are carried by the ocean shipping industry each year. Costs associated with trade documentation processing and administration are estimated to be up to 20% the actual physical transportation costs.
Solution	Manage and track the paper trail of tens of millions of shipping containers across the world by digitizing the supply chain process
Participants	Supplier, couriers (*2), customs (*2) , ports (*2), shipper and retailer ....
Asset & Trust	Need for trust around paperwork associated with a container
Transactions	Supplier prepares to ship, release container to courier, load to ship, clear customs, retailer receipt

Pain Points
<ul style="list-style-type: none"> <li>• Transport remains highly dependant on a flood of paper that is never digitised</li> <li>• Shipping information must pass through many hands, increasing potential for delays in transport.</li> <li>• One shipment can require sign-off from 30 unique organizations and up to 200 communications.</li> <li>• One lost form or late approval could leave the container stuck in port</li> <li>• The entire process can take more than one month..</li> <li>• Fraudulent changes may be made to the Bill of Lading</li> </ul>

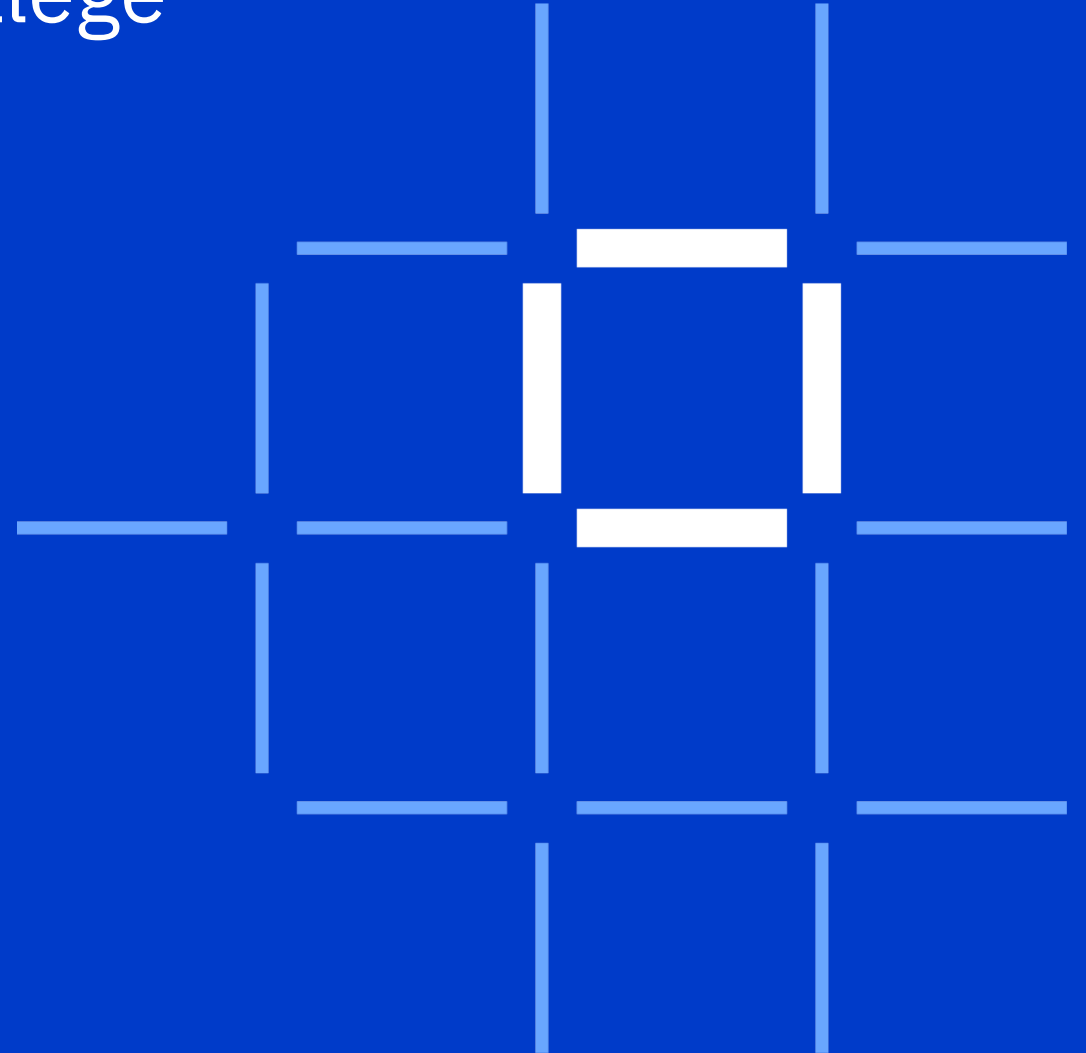
Benefits benchmarks - Value Tree		Baseline	Phase 1	Phase 2-3	Blockchain : Design Points	References
KPI's (e.g.)						
New revenue	# new value propositions	-	-	1 to 3	<ul style="list-style-type: none"><li>Find new value propositions to exploit the network effect between members</li></ul>	ANO -1
Improve client experience	Increase in customer satisfaction	-	5%	10%	<ul style="list-style-type: none"><li>Securely and transparently trace the container's path through the supply chain on the blockchain</li><li>Add trust (Immutability and Provenance) around the Bill of Lading and other container paperwork</li></ul>	
	Increase in trade volumes	-	+5%	+15%		
	Cycle times (transit & shipping)	30 days	25 days	10 days		
Reduce transport costs	Waste as % of total shipped	6%	5%	1%	<ul style="list-style-type: none"><li>Automate the transit and shipping process with Smart Contracts reducing cycle times and delays</li><li>No reconciliation or matching of documentation with near instant updates - eliminates the need for audit and verification</li><li>Removes paper and intermediaries</li></ul>	ANO -2
	Fraud and errors as % of total costs	5%	4%	0.5%		
	Documentation admin. as % of total costs	20%	15%	5%		

# CNM, Ingenuity Blockchain in education

## Central New Mexico Community College Learning Credential Network

March 2020

- *Victor Leon, Kyle Lee, Tobe Phelps and Bill Halverson*



# The IBM Learning Credential blockchain will focus on six core functions, with an initial focus on three

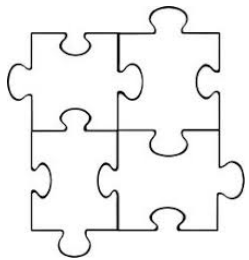


**Issue Credential:** Streamline the issuance of credentials that demonstrate skill mastery.

- Degree, certificate, course, badge
- Credential data mgmnt; on-chain and off-chain



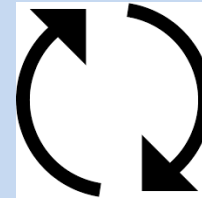
**Search Credentials:** Look inside an individual's skill-wallet and find credential matches for job candidates, school admission, projects, etc. ("the job will find me").



**Manage Credentials:** Update, revoke, and aggregate credentials from multiple sources



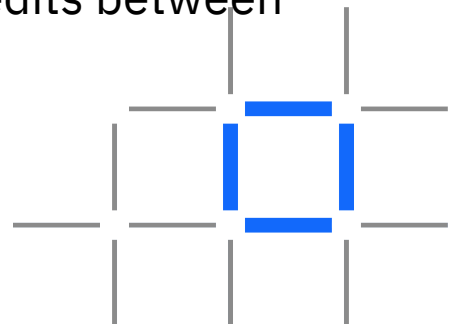
**Verify Credential:** Instant verification by issuer that a learner credential is authentic.



**Exchange Credential:** Share *MY* credentials with others for jobs, admissions, certifications, etc.



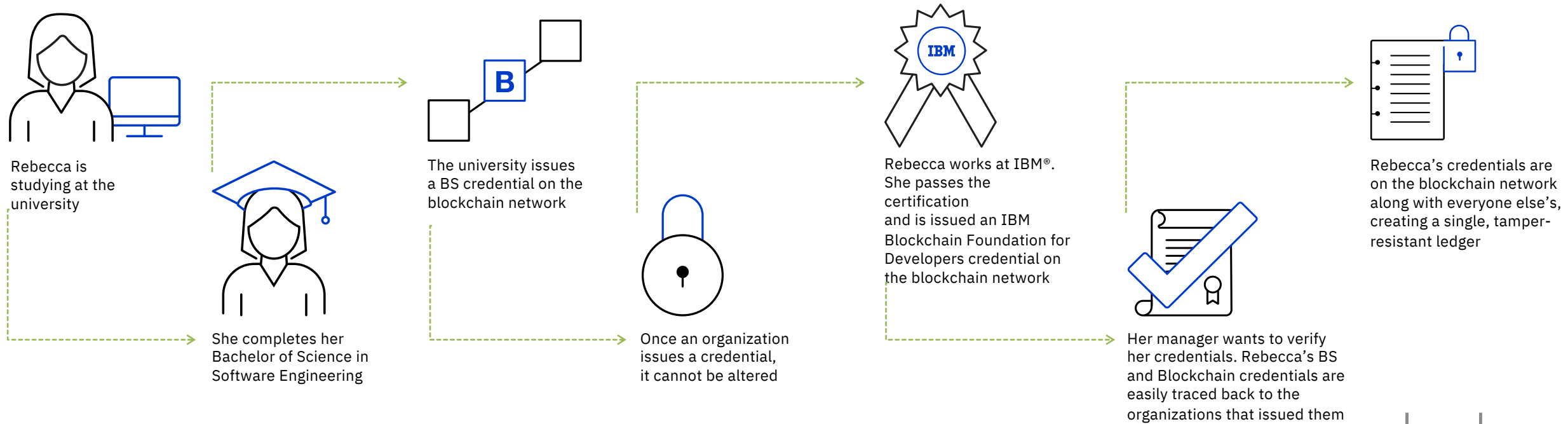
**Articulation agreements:** Automatically move credits between organizations.





# Technology skills professional credentialing within the LCN

***Credentialing with blockchain reduces paper processes, speeding up transaction times and increasing efficiency.***



# CNM conducted a blockchain design thinking workshop with UNM & Presbyterian

## Design Thinking Overview

Using user-centered practices, the team sought to understand the target personas by working through the **As-Is Process** and identifying key **Pain Points**.

Each participant then ideated potential solutions using **Vision Storyboards** before combining and presenting them as a group. The storyboards were designed to consider how we might solve the key pain-points. This allowed us to draft a **Vision Statement** for each persona's future experience.

In order to define an MVP, the team discussed and prioritized the **Assumptions & Risks** involved in our vision. We then designed an **MVP Process** that would test our biggest assumptions.



### 1. Understand

Exercises to identify and empathize with a user and their pain points.

Persona As-Is Maps  
As-Is Process Map  
Need Statements



### 2. Explore

Exercises to ideate ways to fix the user's pain points.

Storyboards  
Vision Statements



### 3. Define

Exercises to decide on the right place to start with an MVP.

Assumptions & Risks  
MVP Process Map  
MVP Statement

Together we brought expertise in university administration, university admission, HR, IT, recruiting, and much more!



# The workshop was a success; great outcomes & collaboration

## Learner

As a Learner, I need a dynamically evolving record of skills and certifications and easy process of sharing so that I don't have to repeat the process for every application.

As a Learner, I need a way to demonstrate skills that aren't on my transcript so that I can show my unique competitive edge.

## Institution

As an Institution, I need to transfer ownership of credentials to students so that I'm no longer the middle man between the student and employers.

## Employer

As an Employer, I need a way to quickly verify credentials so that we don't miss out on the opportunity to hire a qualified person.

WHO

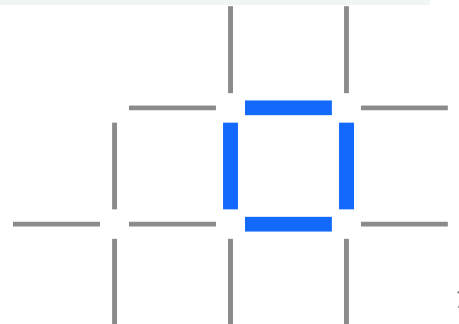
WHAT

WOW

As a Learner, I will have a single evolving verified record of skills and qualifications that I can selectively share instantly and cost effectively anytime, anywhere, forever to help me differentiate myself when applying for a job or to a institution.

As an Institution, I will be able to process transfers quickly and efficiently, which will encourage people to apply and avoid administration costs.

As an Employer, I will be able to proactively invite qualified applicants to apply, and find the perfect candidate for the position I'm looking to fill.



# The plan and next steps are to build the blockchain solution

## Plan

**Institutions** will award IT Learners with a blockchain credential for each course, certificate, diploma, and optionally a “skill” credential (i.e. R programming language).

**IT Learners** will be able to log in, choose the employer/institution with whom they would like to share their credentials, and then withhold any credentials they don’t want to share.

**Employers** and **Institutions** will immediately be able to see a student’s blockchain transcript and verified credentials.

There will be a shared definition for macro/micro credentials.

The system will cost less than the current process.

Student would adapt to the new process.

The members issuing credentials will be trusted.

## Next Steps

1

### MVP Build - Design & Development

Building an MVP is the best way to learn about your problem and make progress towards your vision.

We'll help you gauge how long your MVP would take to build and be with you the whole process to make it a reality!

2

### Broader Network Alignment

The participants in the workshop should be enough to test the MVP but who would you want to be involved in the future?

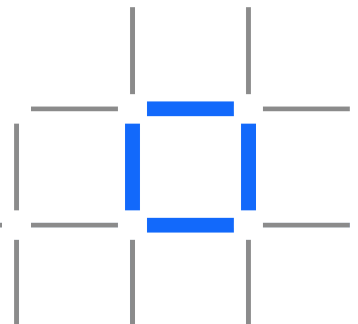
We can help facilitate meetings with those other potential participants and start to gather their perspective/input.

3

### Define Micro Credential and its Requirements

We discussed awarding at least one Micro-Credential in the MVP. In order for this to be possible, we need to agree on a definition and requirements for receiving that credential.

We should start this effort before development kicks starts on the MVP.



# Call to action

**Continued collaboration between IBM and CNM on technical, strategic and economic issues for the learning credential blockchain**

**Continued collaboration from HED, UNM & Presbyterian**

**Continue the development work in Jan 2020**

**Collaborate with IBM on launch and awareness marketing activities in 2020**

**Demonstrate MVP to potential community partners and recruit Employers and Educators in our Community.**

