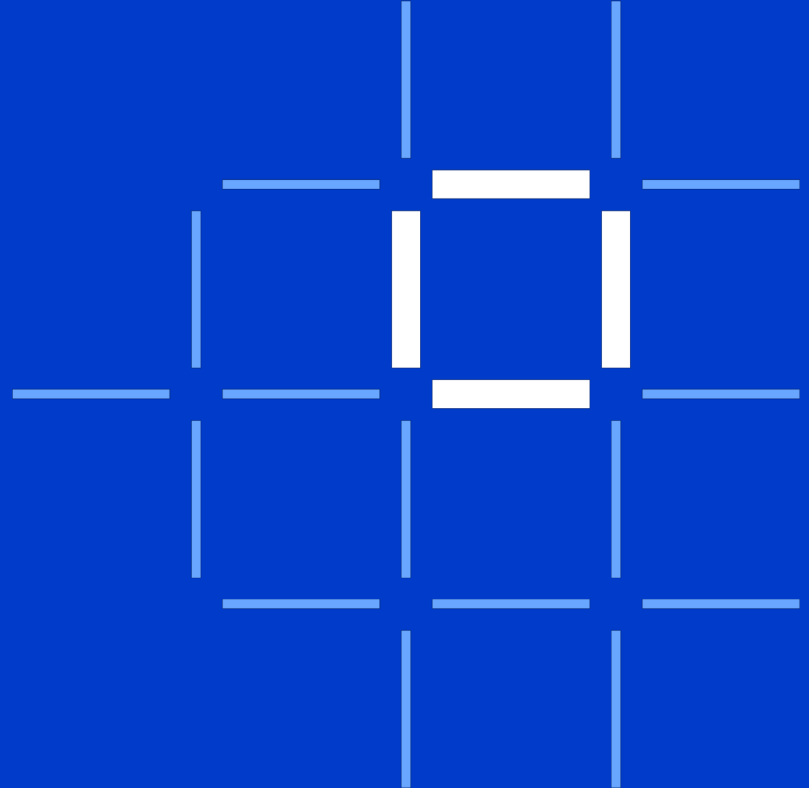# Enabling Open Standards at Scale

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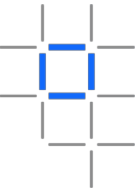- linkedin.com/in/alexkaplanibm

By strengthening our trust, we change the world

What can we do together?

We're entering a new age of education

Education must address the technological disruption upon us.

Trust disruption
Trusted communications and information are more important than ever—but serious challenges remain.
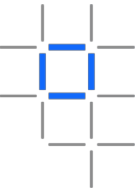
Data disruption
Data is the world's next natural resource—we need to put it to good use.

Business disruption
Future collaboration with new kinds of partners will be required—future growth depends upon it.
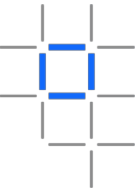
Credentials unlock the value of our experiences

- Credentials are evidence of mastery of skill.

- Credentials are issued by 1000s of organizations.

- Mastery can be demonstrated multiple ways.

- The emerging concepts of credentials can unlock their value.
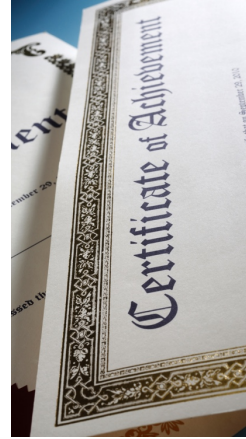
To unlock the value of credentials we need to address their current weaknesses

Reducing costs

Verifying, assessing and qualifying credentials is costly and inefficient.

Trust and fraud

Twenty percent of applicant degree credentials are reported to be inaccurate.

Regulatory requirements

Professional licensing and ongoing credentialing is inefficient and expensive.

Pathways to employment

Personalized learning pathways are complex and inefficient.
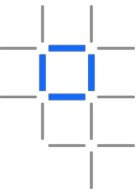
Empowered learners

Learners have weak insight to their accumulated skills causing difficulties.

Transparency and insight

Lack of insight into credentials impedes critical decisions.

A credential blockchain: the transformative technology to unlock their value

"A shared, replicated, permissioned ledger with consensus, provenance, immutability and finality for credentials*"

- Built on existing education industry and technical standards
- Founded by key education institutions and leaders of the education industry
- Supporting all credential use cases
- Available to all stakeholders working with credentials

* "Blockchain: What It Is, What It Does, and Why You Probably Don't Need One" David Andolfatto, Economic Research Federal Reserve Bank of St Louis, Vol. 100, No. 2 Posted 2018-04-16

Regulator
- Professional certification
- Regulatory compliance
- Articulations

Education Institutions
- Academic learning profile
- Course offering
- Certifications
- Credit transfer
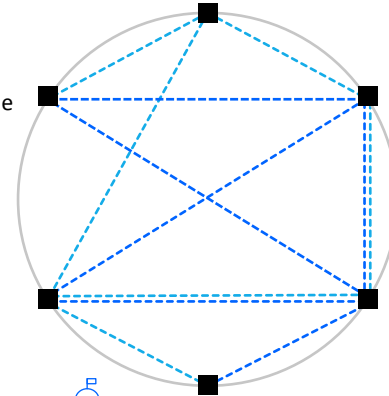
Business
- View academic profile
- Verify certifications
- Micro-credentials
- Recruitment

Learner
- Personal learning pathways
- Career pathways
- Credentials
- Jobs

Government
- Education provider accreditation
- Regulatory compliance
- Funding determination

Education service provider
- Credentials
- Content
- Learning platforms

IBM is exploring a Learning Credential blockchain to focus on six core functions

Issue Credential: Streamline the issuance of credentials that demonstrate skill mastery.
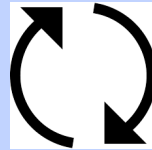
Search Credentials: Look inside an individual's skill-wallet and find credential matches for job candidates, school admission, projects, etc. ("the job will find me").
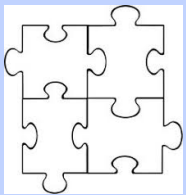
Manage Credentials: Update, revoke, and aggregate view of credentials from multiple organizations.
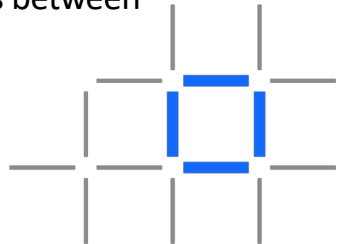
Verify Credential: Instant verification by issuer that a learner credential is authentic.

Exchange Credential: Share *MY* credentials with others for jobs, admissions, certifications, etc.
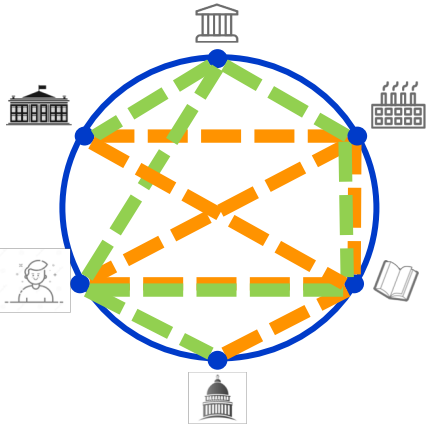
Articulation agreements: Identify equivalency of credentials between organizations.

IBM and CNM are partnered on exploring the creation of a global learning credential blockchain

CNM and IBM believe they will **expand both organizations' opportunities and skills in supporting the transformation of the education industry through blockchain**.

- **Envision the use of blockchain** by and between institutions, stakeholders, providers, employers and other interested members.
- Envision the **creation of a global learning credential blockchain** and collaborate with others with similar objectives.
- Utilize **IBM as an experienced advisor** in the domain of blockchain governance, methodology, tools and technologies.
- **Collaborate, as appropriate, with standards setting bodies** such as IMS Global, the Sovrin Foundation and PESC.
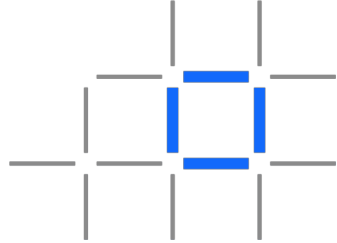
CNM and IBM's exploration was informed through a collaborative design thinking workshop

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 helped identify the compelling value proposition of a blockchain for the learner, institution, and employer

Learner

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

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

Institution

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

Employer

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

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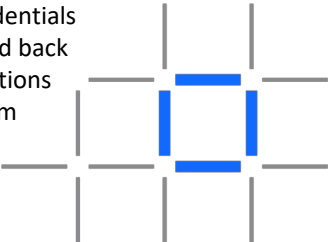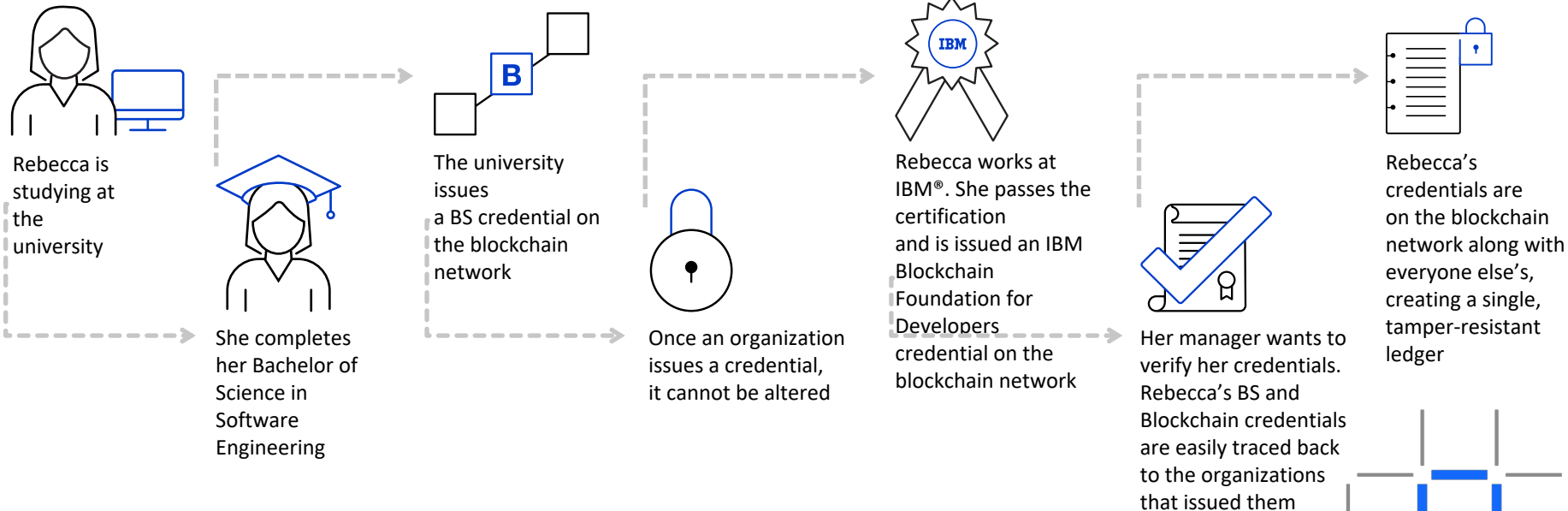
As an Institution, I will be able to process transfers quickly and efficiently, which will encourage people to apply and avoid administration costs.

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.
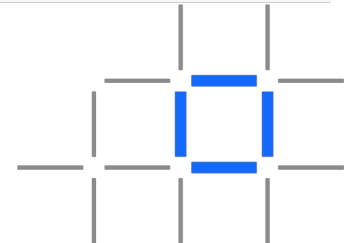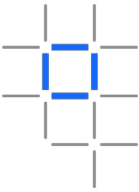
Our joint vision would result in use case(s) that would further CNM's mission and improve the student experience

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

Rebecca is studying at the university

She completes her Bachelor of Science in Software Engineering

The university issues a BS credential on the blockchain network

Once an organization issues a credential, it cannot be altered

Rebecca works at IBM®. She passes the certification and is issued an IBM Blockchain Foundation for Developers credential on the blockchain network

Her manager wants to verify her credentials. Rebecca's BS and Blockchain credentials are easily traced back to the organizations that issued them

Rebecca's credentials are on the blockchain network along with everyone else's, creating a single, tamper-resistant ledger

The IBM Blockchain platform

A fully integrated enterprise-ready blockchain platform designed to accelerate the development, governance, and operation of a multi-institution business network

- Developer tools make use of Hyperledger Composer to quickly build blockchain application
- Hyperledger Fabric provides the ledger, managed through a set of operational tools
- Governance tools for democratic management of the business network
- The highly secure and performant IBM Cloud™ environment

Developer Tools		Operational Tools	Governance Tools
	Blockchain application		
	Hyperledger Composer		
	Hyperledger Fabric		
	IBM Cloud		
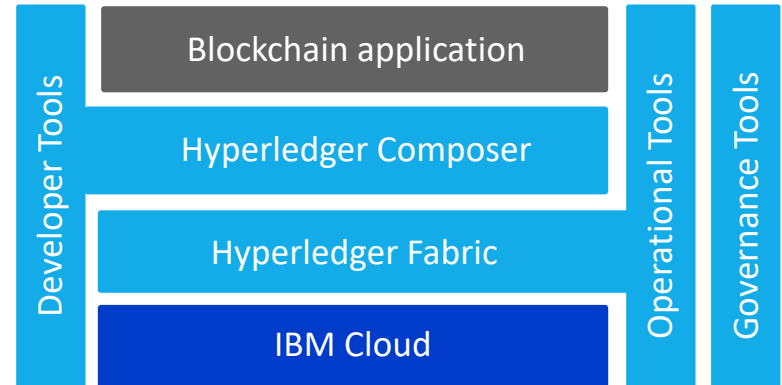
Network convening power

IBM provides global leadership in education and blockchain.

IBM Blockchain platform

IBM's depth and breadth of blockchain technical and industry experience is an essential aspect of success.

Technical expertise

IBM depth and breadth of expertise leads the education industry in blockchain transformation.
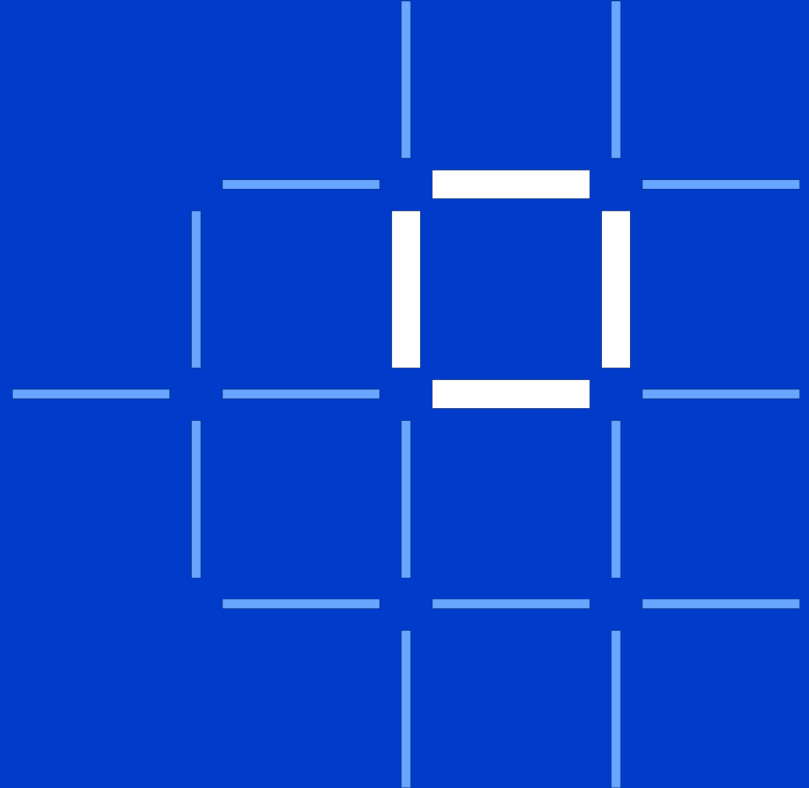
Roadmap for the future

IBM's guidance on education blockchain will assist the industry in growing its network.

Thank you

For more information on IBM and Blockchain:

- https://www.ibm.com/blockchain