Securing the future of education with Blockchain

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Learning Futures

knowledgehut

Curtin University

Perth Blockchain Conference
May 18, 2018

ABSTRACT

As all levels and sectors of education contemplate ongoing developments in digital technology, distributed and fragmented models of learning, stackable credentials, and educational unbundling the potential for a system like blockchain to bring security to a diverse landscape of evidence of learning, recognition of learning and acknowledgement of learning becomes more relevant.

As MOOCs, SPOCs, online courses, RPL and alternative credentialling become more ubiquitous the main stakeholders in education, industry and government are realising the need for systems that enable higher levels of trust when certificates, awards and prior learning recognition are at stake.

This session will discuss some of the needs and some of the attempts already in place globally.

Curtin University

Learning Futures Network

Building solid learning relationships across communities

Curtin partners with progressive schools, industry, cultural and community organisations to build deep learning relationships with a futures focus.

http://learningfuturesnetwork.org

Curtin University

UNESCO Chair of
Data Science in Higher Education
Learning & Teaching

UNESCO

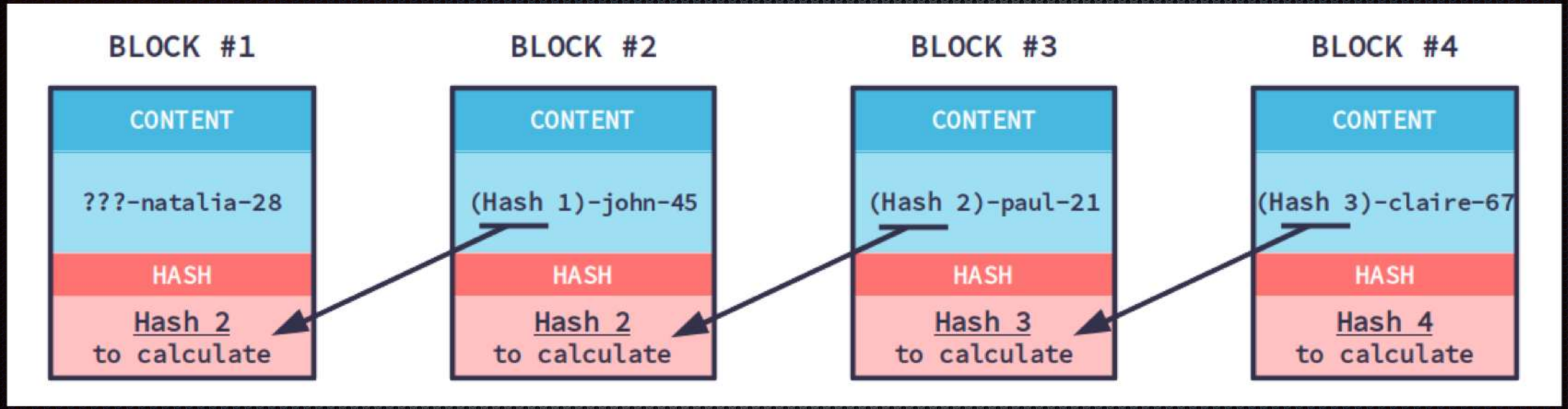
Curtin University

Curtin academic to Chair new UNESCO position

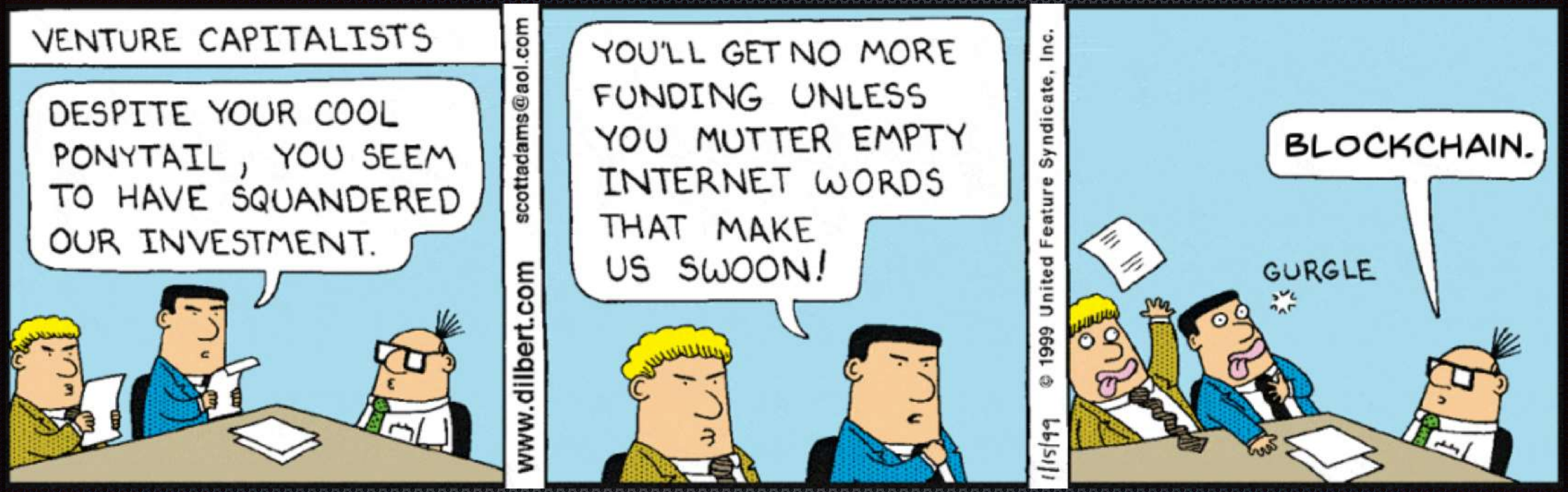
MEDIA RELEASE

Tuesday 15 November 2016

A Curtin University professor has been appointed the inaugural United Nations Educational, Scientific and Cultural Organisation (UNESCO) Chair for Data Science in Higher Education Teaching and Learning.



Many discussions begin without even this simple insight


VENTURE CAPITALISTS
DESPITE YOUR COOL PONYTAIL, YOU SEEM TO HAVE SQUANDERED OUR INVESTMENT.
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YOU'LL GET NO MORE FUNDING UNLESS YOU MUTTER EMPTY INTERNET WORDS THAT MAKE US SWOON!
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BLOCKCHAIN.
GURGLE

I THINK WE SHOULD BUILD A BLOCKCHAIN
UH-OH
S. Adams E-mail: SCOTTADAMS@AOL.COM
DOES HE UNDERSTAND WHAT HE SAID OR IS IT SOMETHING HE SAW IN A TRADE MAGAZINE AD?
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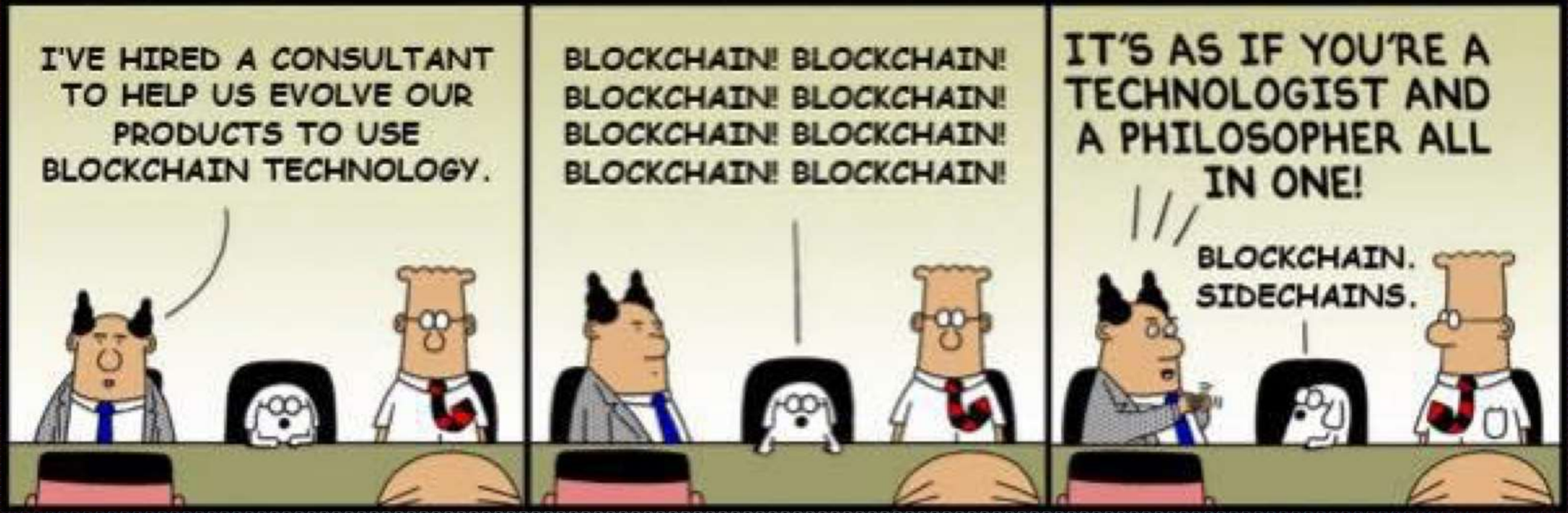
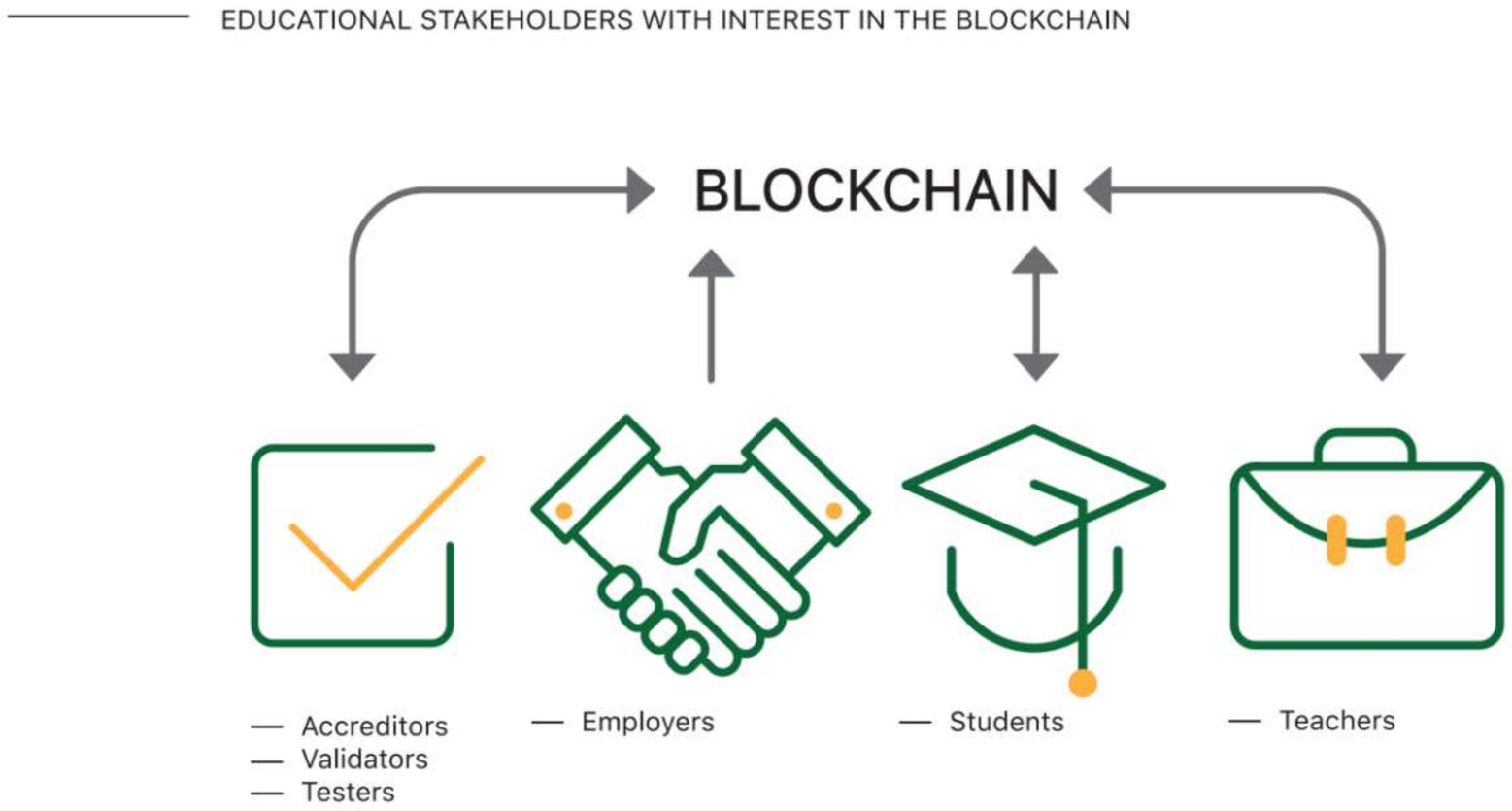
WHAT COLOR DO YOU WANT THAT BLOCKCHAIN?
I THINK MAUVE HAS THE MOST RAM.


I'VE HIRED A CONSULTANT TO HELP US EVOLVE OUR PRODUCTS TO USE BLOCKCHAIN TECHNOLOGY.
BLOCKCHAIN! BLOCKCHAIN!
BLOCKCHAIN! BLOCKCHAIN!
BLOCKCHAIN! BLOCKCHAIN!
BLOCKCHAIN! BLOCKCHAIN!
IT'S AS IF YOU'RE A TECHNOLOGIST AND A PHILOSOPHER ALL IN ONE!
BLOCKCHAIN. SIDECHAINS.

Stakeholders in Education

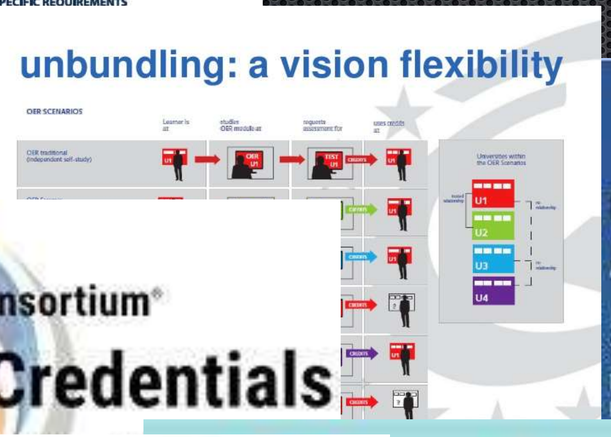
Figure 1: Educational stakeholders likely to utilise blockchain technology

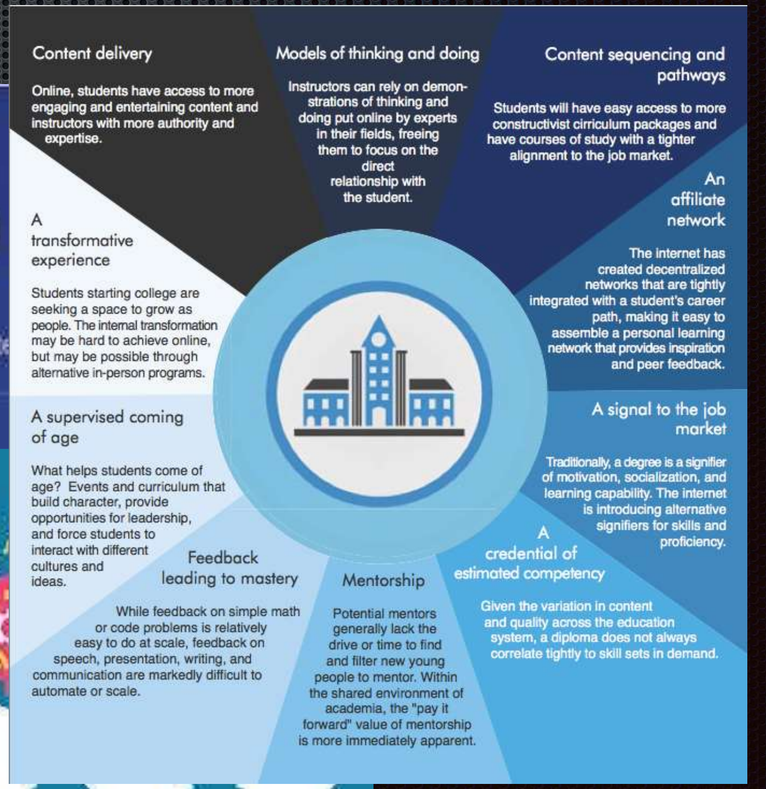


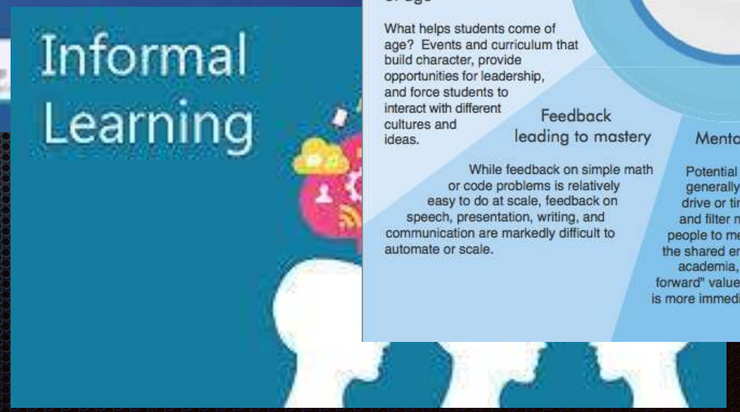
http://publications.jrc.ec.europa.eu/repository/bitstream/JRC108255/jrc108255_blockchain_in_education(1).pdf

Current debates in education

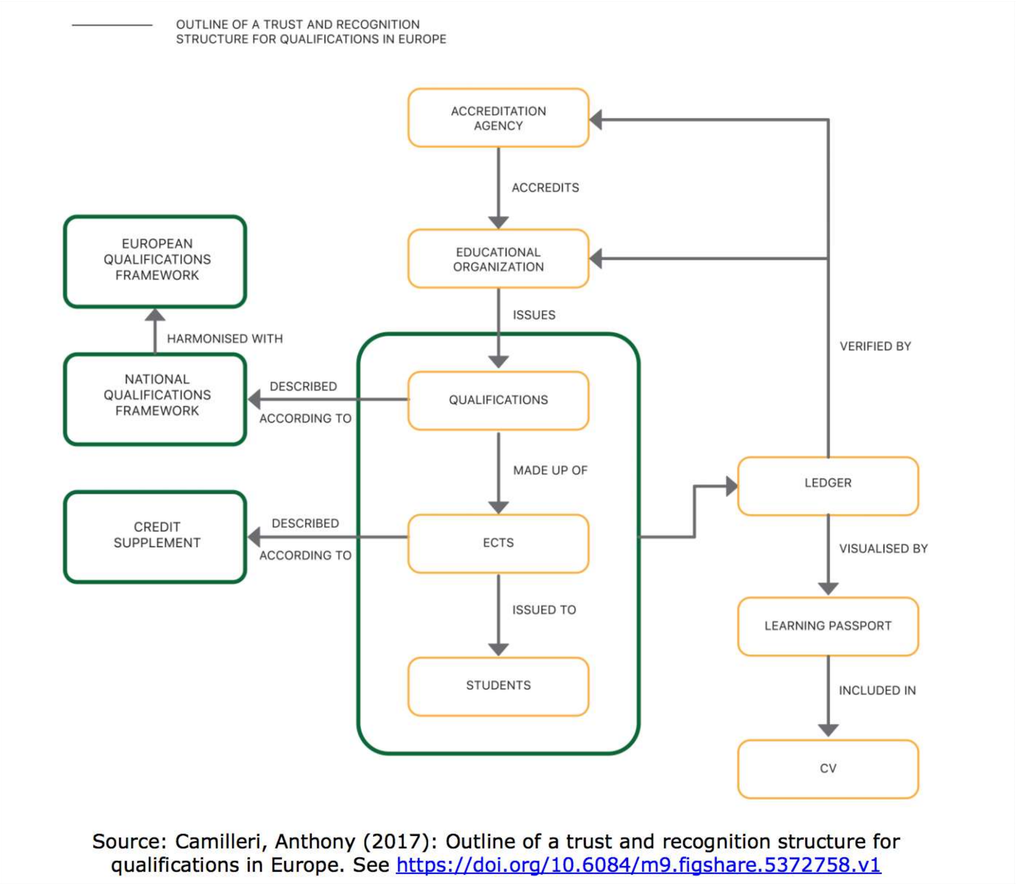
Is Blockchain a reasonable solution for any of these?







Qualifications?



Source: Camilleri, Anthony (2017): Outline of a trust and recognition structure for qualifications in Europe. See https://doi.org/10.6084/m9.figshare.5372758.v1

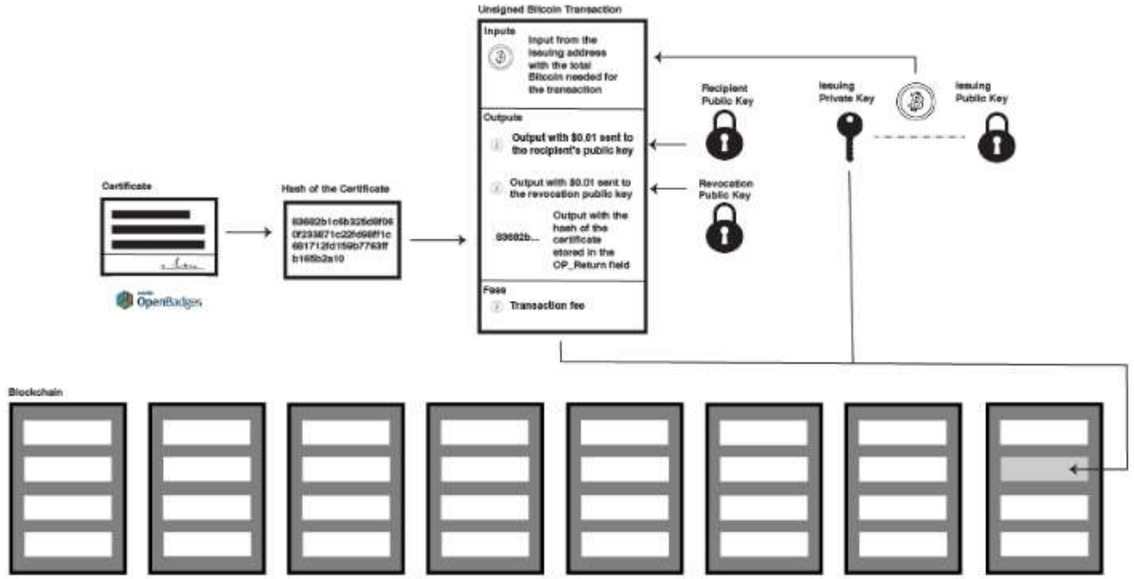
Australian Qualifications Framework

MIT Media Lab Following

Ideas and goings-on from the Media Lab community. Find our blog archive at http://blog.media.mit.edu/

Jun 3, 2016 · 11 min read

What we learned from designing an academic certificates system on the blockchain



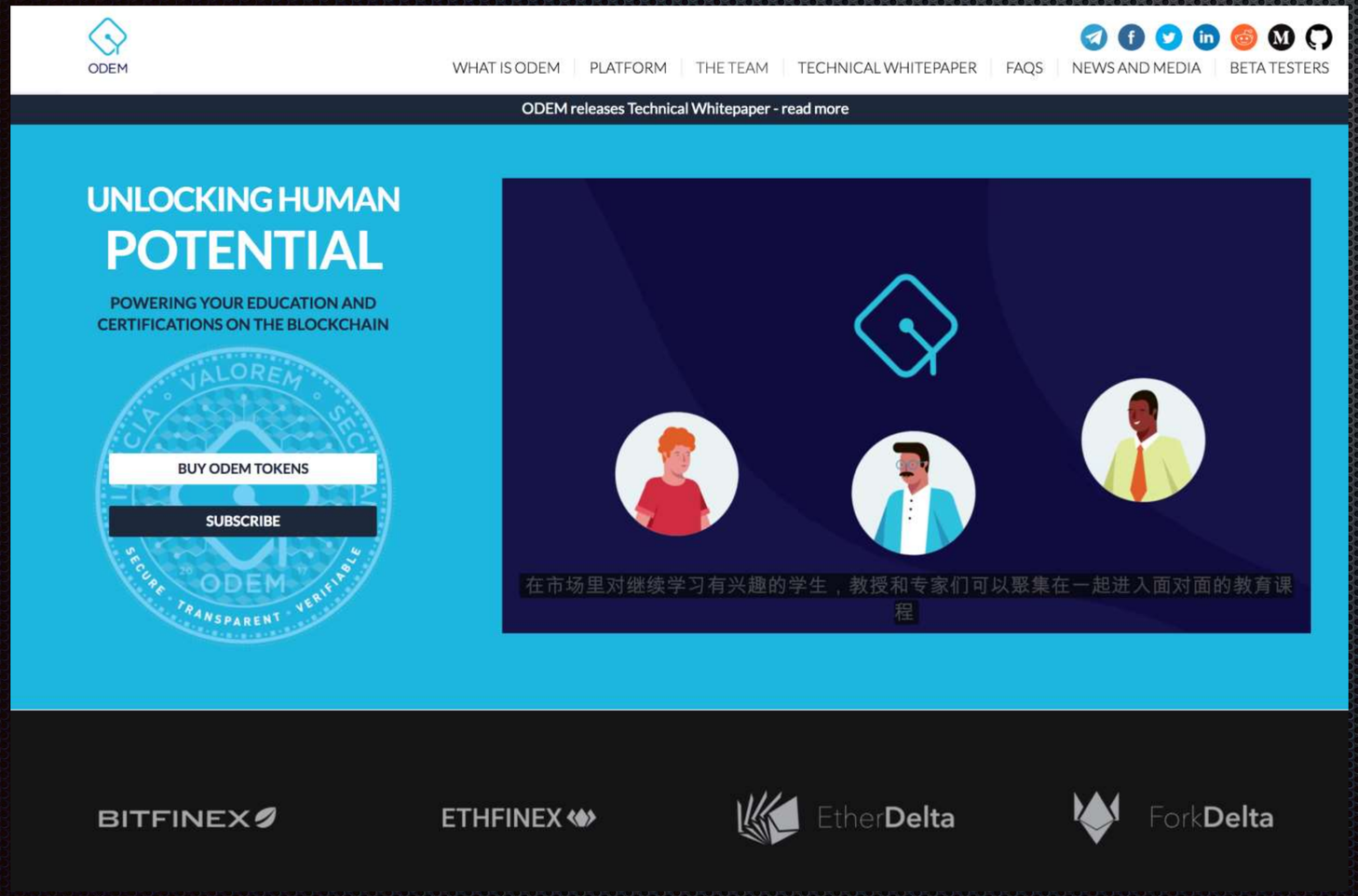
Overview of our digital certification architecture

“The blockchain is not a simple solution that will fix everything that is wrong with today’s credentials. But it does offer some possibilities for improving the system we have today– and that’s what we are excited to explore.”

“We wanted to reserve the possibility to revoke a certificate.”

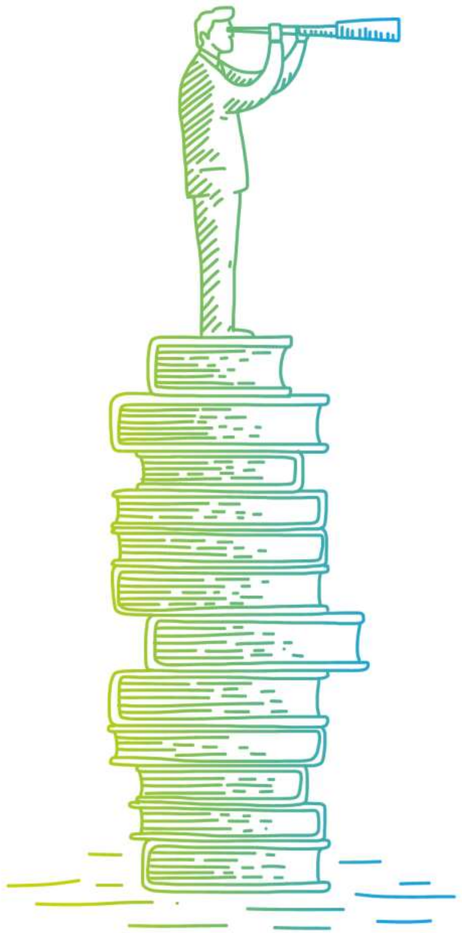
https://library.educause.edu/resources/2016/6/what-we-learned-from-designing-an-academic-certificates-system-on-the-blockchain

Democratising education?



ODEM is an **O**n-**D**emand **E**ducation **M**arketplace

https://odem.io/what-is-odem/



Inside magazine issue 16 | Part 03 - From a risk and cyber perspective

EduChain

Validating your Educational Identity

David Dalton
Partner
Consulting
Deloitte

Eric Piscini
Partner
Consulting
Deloitte

Lory Kehoe
Director
Consulting
Deloitte

Lisa Simpson
Manager
Consulting
Deloitte

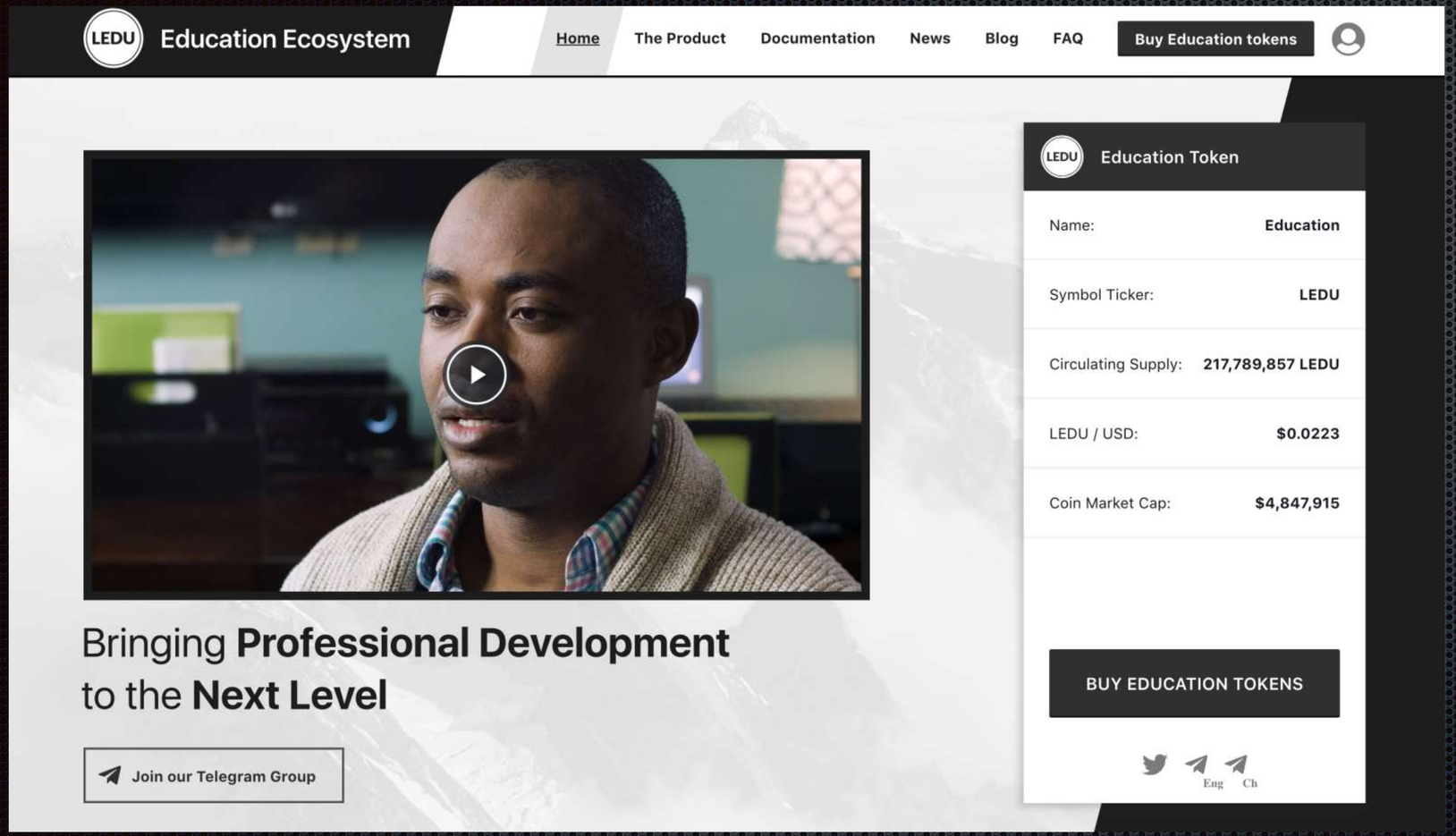
Blockchain is fast becoming more than just a buzzword. As organizations continue to educate themselves on the technology and its capabilities, the number of potential use cases where blockchain can play a real and disruptive role is rising. With bitcoin cryptocurrency as the first use case, the main focus has been on the financial services industry; particularly around payment, capital markets, lending, and regulatory reporting. However, there has been a recent shift to looking beyond these use cases and identifying other areas or processes across industries where blockchain would have an impact. One such area is education qualifications.

Deloitte's EMEA Blockchain Center of Excellence based in Dublin has developed a blockchain solution around the collection, validation, secure storage, and sharing of education qualifications. This increases the efficiency of the onboarding process of new employees along with tracking the continuous development of employees across the organization. This platform was originally designed to address a regulatory requirement within the financial sector, and can be leveraged across industries, sectors, and geographies to manage qualification requirements of all potential and existing employees.

Deloitte.

Deloitte's EMEA Blockchain Center of Excellence based in Dublin has developed a blockchain solution around the collection, validation, secure storage, and sharing of education qualifications.

https://www2.deloitte.com/lu/en/pages/technology/articles/educhain-validating-educational-identity.html



LiveEdu is working on a Blockchain based learning platform. They connect different participants like content creators, learners, API developers, moderators, etc. You can register on their platform and learn from industry experts.

https://education-ecosystem.com/

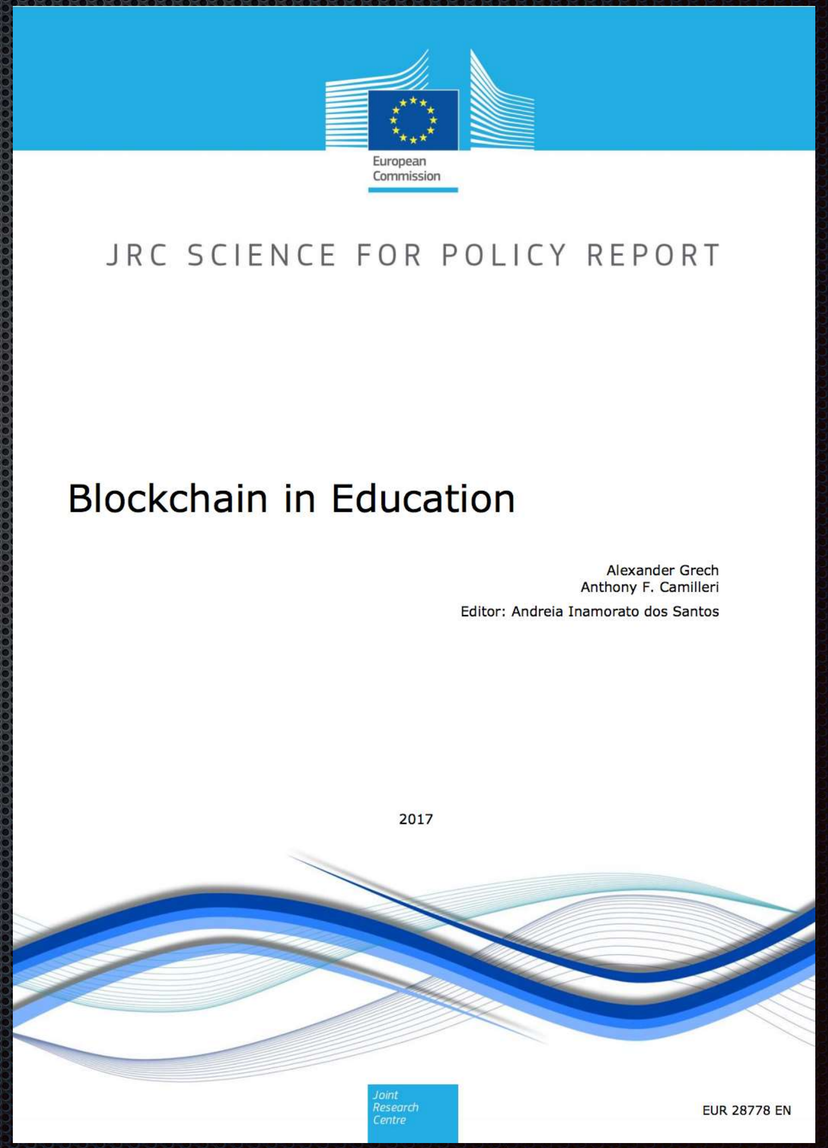
https://hackernoon.com/how-can-blockchain-technology-innovate-your-education-d1cd80c26f08

Key Advantages of Blockchain Technology

- Self-sovereignty,
- Trust,
- Transparency & Provenance,
- Immutability,
- Disintermediation,
- Collaboration.

Further applications in:

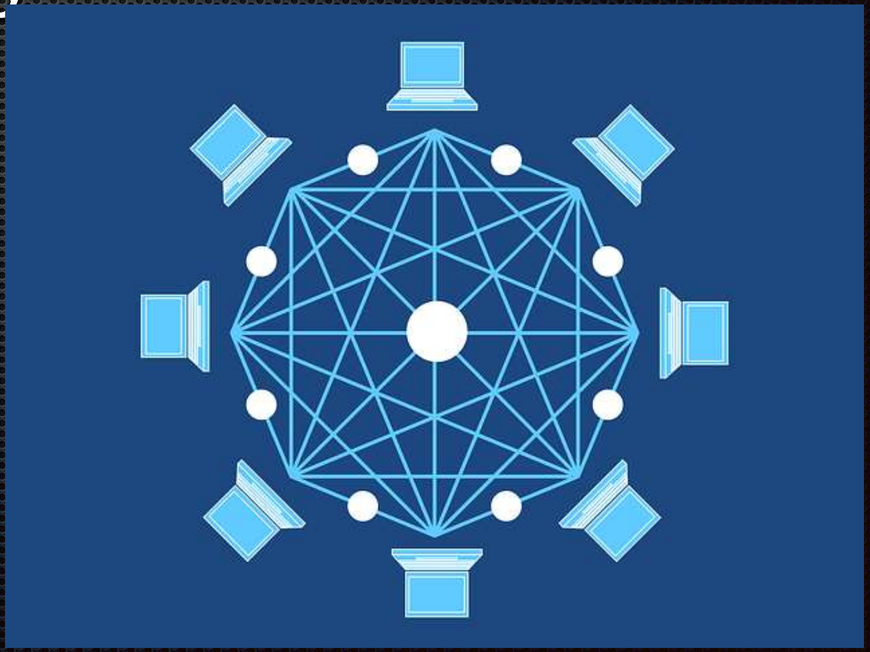
- verification
- data management structures
- payment for tuition and services



https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/blockchain-education

Transformation of Education?

1. Disrupting the Current Education Model
2. Storing Permanent Records
3. Identity Verification & Information Security
4. Student Ownership of Learning
5. Interactive Learning & Analytics
6. Automatic Transfer of Credits
7. The “Lifelong Learning Passport”
8. Copyright for Educational Content
9. Multi-Step Accreditation
10. Payment and Funding



https://www.opencolleges.edu.au/informed/edtech-integration/blockchain-technology-education/

oeb Insights incorporating learning technologies germany

The official newsplatform of the global, cross-sector conference on technology supported learning and training

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10 ways Blockchain could be used in education

September 12, 2016 Opinions

By Donald Clark

What is blockchain? Can it be used in education? In 2001, I designed and implemented a Napster-like system with no central storage or control that distributes learning content across a network for non-competing public-sector bodies. Everyone who created content could share it.

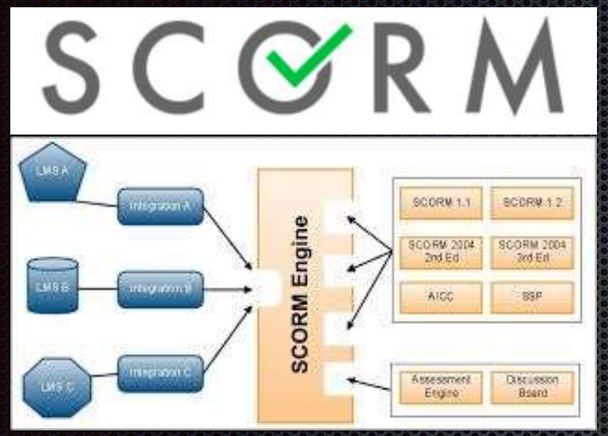
It didn't work because, despite being non-competitors, the public sector organisations just didn't like innovation and stuck to their institutional silos. They were fixed in their old ways – with massive duplication of content and no sharing, which is as true today as it was then. The same fate, I fear, could happen to Blockchain technology – but let's explore its potential.

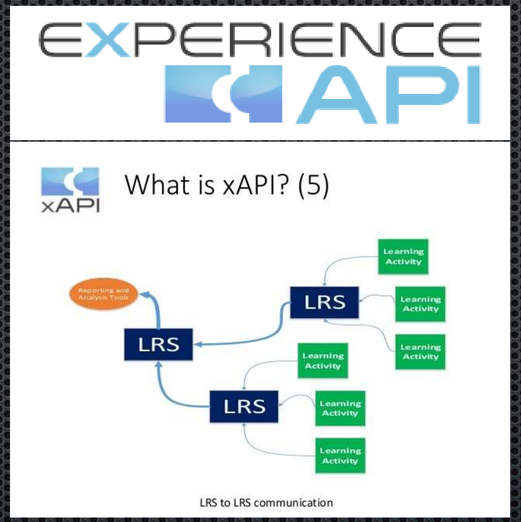
1. Single institution
2. Groups of institutions
3. National database
4. Global Assessment
5. Open Badges
6. MOOCs
7. Corporate Learning
8. Continuing Professional Development
9. Apprenticeships
10. Knowledge management

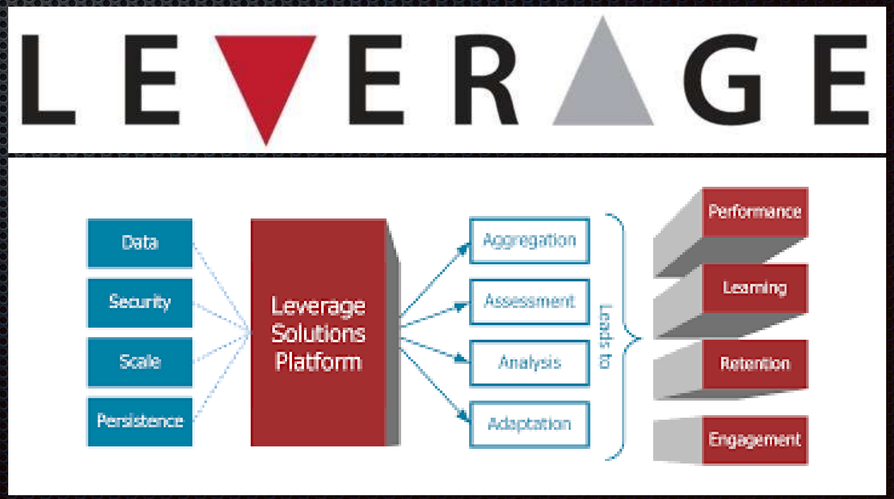
https://oeb.global/oeb-insights/10-ways-blockchain-could-be-used-in-education/

Learning Analytics

Gathering evidence from micro learning experiences







Potential impacts

EU proposes:

“creating and promoting a label for ‘open’ educational records, which enshrines the principles of recipient ownership, vendor independence and decentralised verification – and only supports or adopts technologies in compliance with such a label.”

Wicked Questions

- Is learning transactional?
- What constitutes trust in education?
- Can current education systems manage the complexity of blockchain strategies?
- What's the purpose of mining in an educational blockchain?
- What effects upon privacy (What is a real "permanent record")?
- Does any of this actually solve any educational problems?
- What problems might be introduced by blockchain strategies?

Drawn from the work of Audrey Watters

http://hackeducation.com/2016/04/07/blockchain-education-guide

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