BLOCKCHAIN IN ACCOUNTING EDUCATION

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RMIT University acknowledges the people of the Woi wurrung and Boon wurrung language groups of the eastern Kulin Nation on whose unceded lands we conduct the business of the University. RMIT University respectfully acknowledges their Ancestors and Elders, past and present. RMIT also acknowledges the Traditional Custodians and their Ancestors of the lands and waters across Australia where we conduct our business.
AGENDA:

1. Overview of blockchain technology
2. Embedding blockchain in tax education
3. Embedding blockchain in accounting & auditing
Blockchain = the technology behind cryptocurrency

Blockchain = annoying thing I don’t understand

Blockchain = administrative economic infrastructure

Blockchain = true beginning of the digital economy

Blockchain = A new architecture of trust

Blockchain = the evolution of the internet
Simple definition of a blockchain =

P2P Network

Connected computers...

Consensus Mechanism

...reach agreement over...

Blockchain

...shared data.
**Bitcoin** blockchain solved the **double spending problem** by combining five technologies

1. Append-only databases
2. Public key cryptography
3. P2P networking
4. Game theoretic incentives
5. Consensus algorithms
2020s = from industrial to digital economy

1. Data as the new economic resource
2. Web3 = new digital economic infrastructure
blockchain = true beginning of the digital economy

Industrial age → First digital age → Second digital age

Economic changes driven by cheap computation and near costless communication

Economic changes driven by digital economic infrastructure, structured around the ‘digital economy stack’

We are here
Industrial economy

Government economic infrastructure
(money, identity, law, regulation, democracy
...)

Primary industries
manufacturing
services
Public spending
The digital economy stack

- Service layer
- Governance layer
- Infrastructure and transport layer
- Security layer
- Consensus and protocol layer
What is blockchain?

The technology that makes possible cryptocurrencies, such as bitcoin.
What is a blockchain?

A wants to send money to B

The transaction is represented online as a “block”

The block is broadcast to every party in the network

Those in the network approve the transaction is valid

The block then can be added to the chain, which provides an indelible and transparent record of transactions

The money moves from A to B

Source: Financial Times
What is a cryptocurrency?

A private money – for metaverse, digital economy

A savings technology (digital gold)
Web3 = internet of value

• **Social consensus** about **truth** underpins the economy

• We need to agree about **facts** for economic activity to occur

• This is what **ledgers** do. They are an **institutional technology**

• Blockchain = better **Ledger** technology

• How better? Distributed. Using the internet. And math.
Web 1 – Early Internet
Military & scientific use for decentralized communication
nuclear strike proof coms, email, www, browsers

Web 2 – Commercial internet
Use companies for economic infrastructure
Search – Google
Social media – Facebook
Marketplaces – Amazon, Netflix, Airbnb, Uber
No internet native money, identity, contracts, law, … Government provides this

Web3 – Digital economic infrastructure

digital money  cryptocurrency
digital assets  tokens
digital identity and registries  DID, blockchain
digital credentials  tokens
digital contracts  smart contracts
digital intellectual property  NFTs
digital services  Dapps
decentralized markets  DEXs
digital organizations  DAOs
digital finance  DEFI
digital governance  tokens
The Problem of Trust

innovation in ledger technology has real world consequences:

• A ledger relies on trust.
• Trust is very, very expensive – about 30% of the economy

current institutions & business practices economise on trust to facilitate transactions
Government manufactures trust

Citizen Alice  Government manufactures trust  Citizen Bob

economic institutions & infrastructure

Government
Blockchain industrialises trust

Alice → Miner/Staker → Bob
Decentralised Finance
Non Fungible Token
NFTs are:
• NOT just bragging rights
• NOT just jpegs

NFTs ARE:
• Giving form to the full dynamics of the creative economy
• Clubs/access rights into subcultures/elite groups
• Crypto primitives for construction of the metaverse
• A new form of property rights

+ also:
• legal and tax confusion
• concerns about carbon footprint
Decentralised Autonomous Organisation
NFT investment DAOs

- Decentralised Autonomous Organisation (DAO) = A group of people coordinating via rules enforced through smart contracts.

Leighton 🎉@lay2000lbs · Mar 27
PleasDAO now has the high bid: foundation.app/pplpleasr/x-y-

Leighton 🎉@lay2000lbs · Mar 26
Anyone want to create a quick DAO to bid on this???
twitter.com/pplpleasr/sta...

DavidHoffman.eth 🛡️@TrustlessState · Mar 27
The @Uniswap V3 “x=y=k” animation from @pplpleasr1 was just purchased for 310 ETH ($525,000)

The buyer was 0x067b9b9b9bb42d2AB9b9Ab6b826463AF7F344A76, a DAO formed for the sole purpose of forming capital buying this NFT an NFT SPAC, if you will 😍/react
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Embedding Blockchain in Tax Education

ETHICS AS A FOUNDATION

AWARENESS ENABLING COMPETENCIES

OPPORTUNITIES FOR CRITICAL THINKING
Tax curriculum for business students

CPA/CAANZ Learning Outcomes

LO 1 Identify the **sources of taxation law** and the framework in which taxation is administered

LO 2 Identify various types of taxation including **income tax**, consumption taxes, **goods and services tax**, **taxes on capital** and **fringe benefit/benefits tax**

LO 3 Identify and apply the fundamentals of **calculating** the **taxable income** and **tax payable** for **individuals** and **business entities**

LO 4 Analyse the taxation issues associated with straightforward **international transactions**

(note also TPB accreditation requirements, FASEA for financial planning)
Taxation

Well established principles of tax law are now back in the spotlight.

Blockchain offers both fascinating opportunities to delve into interpretations of tax law whilst enabling robust, real-world practical scenarios to work through for taxpayer outcomes.

Understanding your client Client/practitioner relationship (TASA Code), recording keeping and substantiation

Buying and selling cryptocurrencies Ordinary income or statutory income (e.g. CGT regime)? = Property? Crypto → Crypto? Lost crypto?

Getting paid in crypto (and by DAOs?) wages and FBT

Hard forks / Chain Splits cost base of new and old

Airdrops and Staking Assessable income + CGT asset acquisition – ATO interpretation

Hobby or Business? Crypto artists, gamers and traders. Crypto = trading stock?

DeFi Beyond buying and selling, more complex arrangements (derivatives). Collateralised holdings in for example ‘Maker vaults’

Tax Reform Bragg Report on reforming CGT regime

Bridging and Experiencing the Uncertainty, greyness, complexity in Law → Practice → Client
Code Item 1/4
1. Act **honestly and with integrity**
4. Act **lawfully in your clients best interest**
   • They may not like what you have to say – just because it is not being converted into fiat currency, does not mean it is not a taxable event as the law stands
   • It is quite likely, if capital, the exemptions may not apply
   • Do you need to stop engaging with a client?

Code Item 7/8
7. Ensure tax agent services are provided **competently**
8. Maintain **knowledge and skills relevant to the services you provide**
   • Accountability as a tax agent
   • Do you adequately understand the blockchain related activities being undertaken by the client?
   • Consider the level of sophistication in activities
   • Should you accept / are you ready to accept engagements?
Code Item 9/10

9. Take **reasonable care to ascertain your client’s state of affairs**
10. Tax **reasonable care to ensure the tax laws are applied correctly**
   - Professional skill/judgement
   - CGT calculators may be a good start, but may be insufficient – depends on complexity, facts and circumstances.
   - ATO Guidance is limited, prefill report limited
   - There is significant uncertainty in tax law application
   - Ask questions!

Code Item 12

12. Advise your **clients of their rights and obligations**
   - Are they clear on their obligation to provide accurate and complete information: Wallets? Activities?
The ATO produced a number of Tax Determinations in 2014 and continues to update its website on the treatment of various crypto activities.

The Tax Determinations can be summarised as follows:

**TD 2014/25** Income tax: is bitcoin a 'foreign currency' for the purposes of Division 775 of the Income Tax Assessment Act 1997?

**TD 2014/26** Income tax: is bitcoin a 'CGT asset' for the purposes of subsection 108-5(1) of the Income Tax Assessment Act 1997?

**TD 2014/27** Income tax: is bitcoin trading stock for the purposes of subsection 70-10(1) of the Income Tax Assessment Act 1997?

**TD 2014/28** Fringe benefits tax: is the provision of bitcoin by an employer to an employee in respect of their employment a property fringe benefit for the purposes of subsection 136(1) of the Fringe Benefits Tax Assessment Act 1986?

These do not capture the vast activities going on in this space nor is there necessarily agreement over the ATO’s interpretations.
Characterisation within the CGT Regime

- Categorisation as....?
  ... Each with ‘special rules’
- Understanding where CGT fits with respect to Taxable Income
- Competency of practitioner not only for navigating law but understanding technology
- Ability to communicate with and educating clients

Source: Morton and Curran
Crypto Tax Calculators

https://cryptotaxcalculator.io/au/

https://koinly.io/au/

Crypto Tax Calculator 3 Step process
Professional or Hobby artists – extension to NFT

- Exploring nuances / complexities of tax law for new kinds of activities
- Categorisation as business or hobby?
- Understanding what activities are being carried out (on chain and off chain) and what constitutes trading stock
- Cost and valuation
- Manufacture v. purchased

Source: Rarible.com
Airdrops

Deposited into a wallet address, generally for free, whether announced or unannounced.

• Often a marketing technique by the ‘droppers’ to:
  • Create awareness
  • Reward users
  • Balance ownership
  • Attract investment
  • Learn about the community

• Sometimes require holders to act:
  • Hold particular levels of tokens to be eligible
  • Undertake a particular task, e.g. post to social media.

What does the Commissioner say? Two things happen:

1. Derivation of ordinary income (MV)
2. Acquisition of a CGT asset (MV)

Source: Morton and Curran (2021)
FIFO LIFO or Parcel Basis?

Key points:

- Can the crypto be individually distinguished?
  - Matter of fact acquisition and cost base
  - However, is it practical?
- Otherwise?
  - Trading: FIFO (LIFO is not permitted)
  - Investing: FIFO/LIFO or parcel selection (any)
- It appears Commissioner accepts FIFO (investing, trading) or parcel selection if the assets can be identified (investing) of crypto (PBR 5010050043171, PBR 1051545007826)
- If Held as an Investment: TD 33 – although its focus is on shares, it is clear that it applies to other assets
- If Held for Trading: TR 96/4, IT 2350

Source: Morton and Curran
Chain splits, forks alternative versions of history

A. The creation of a new, parallel and independent blockchain: same history, different future.
   • Why?
     • Scaling issues: BTC → Bitcoin Cash (BCH)
     • Speed/supply/etc: Bitcoin Cash (BCH) → LiteCoin (LTC)
     • A joke: LiteCoin (LTC) → Dogecoin (DOGE)
     • Reversal of hack: Ethereum Classic (ETC) → Ethereum (ETH)

B. Accidental, temporary through consensus mechanism

C. Upgrade to rules, majority of nodes and miners agree to revision, generally planned

Source: Recreated from Malekan, 2018 by Morton and Curran
Chain splits – Commissioner’s interpretation

“Working out which cryptocurrency is the new asset received as a result of a chain split requires examination of the rights and relationships existing in each cryptocurrency you hold following the chain split.

If one of the cryptocurrencies you hold as a result of the chain split has the same rights and relationships as the original cryptocurrency you held, then it will be a continuation of the original asset. The other cryptocurrency you hold as a result of the chain split will be a new asset.

Where none of the cryptocurrencies you hold following the chain split has the same rights and relationships as the original cryptocurrency you held, then the original asset may no longer exist. CGT event C2 will happen for the original asset. In that case, each of the cryptocurrencies you hold as a result of the chain split will be acquired at the time of the chain split with a cost base of zero.” - ATO

If Held as an Investment
• No derivation of income at time of chain split
• Capital gain at time of disposal
• “New cryptocurrency” cost base is zero

If Held in Business
• Treated as trading stock if held for sale or exchange
• Brought to account at the end of the income year
The final report of the ‘Australia as a Technology and Financial Centre’ committee details 12 recommendations covering a range of regulatory issues, such as taxation, decentralised autonomous organisations and debanking.

The committee recommends that the Capital Gains Tax (CGT) regime be amended so that digital asset transactions only create a CGT event when they genuinely result in a clearly definable capital gain or loss.

- Why do we (or do we not) need tax reform?
- What does a ‘good’ (or ‘bad’) tax system look like?
- Why is CGT ‘bad’ for crypto activity? Is it bad?
- What do we (not) know about the tax reform that may follow this recommendation?
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Embedding Blockchain in Accounting & Auditing Education

- Ethics as a Foundation
- Awareness Enabling Competencies
- Opportunities for Critical Thinking
**Introductory Accounting**

**Example Resources:**
- Bragg Report
- COALA and the COALA DAO Model Law
- Wyoming LLC
- FutureLearn/RMIT DeFi course
- Ellie Rennie on Climate Change and the legitimacy of Bitcoin
- FAT-F for AML/CTF

**Transacting in Blockchain**
Understanding blockchains
Blockchain ledgers v. double entry bookkeeping
Creating wallets, transacting on ‘Testnets’
Smart contracts and Oracles
Middleware

**Assets on Blockchain**
Cryptocurrencies (e.g. BTC), stable coins, central-bank digital currencies, non-fungible tokens (NFTs)
Examining standards: Cash equivalents? Inventory? Intangibles?

**Entity structures**
Companies, partnerships, trusts ... and Decentralised autonomous organisations (DAOs)?

**Social and environmental reporting, ethics**
Bitcoin and energy usage
Anonymity
Black economy, anti-money laundering and counter terror financing (AML/CTF)
Miner extractable value (MEV)
Code of Law → Law of code
Assets on blockchain
Stable coins as cash equivalents? (IAS7)
Valuation

Financial instruments and Liabilities
Decentralised Finance (DeFi), e.g. Maker, reinventing financing
Liquidity pools, yield farming, interest bearing securities, bonds, flash loans,
DeFi derivatives
Exploring through ‘TestNet’ (requires introductory first)

Accounting for employee benefits
DAOs as ‘employers’?
Paying wages through crypto

Events occurring after the end of the reporting period
Decentralised Finance (DeFi) risks
- Market, technology, cybersecurity, institutional

Segment reporting
DAOs as segments?
Changing skill sets for auditors

Near real-time audit, continuous audit potential

Immutable audit trails
Un-editable transactions ledgers, encrypted and secure storage of supporting documentation

Oracles as sources of ‘truth’
External data sources that can trigger smart contract executions

Blockchain ledgers and sufficient appropriate audit evidence

How to audit with blockchain?
Automating data extraction, preparation activities whilst auditor focuses on riskier / complex / nuanced transactions – those with judgement, estimations, valuations

What is being audited?
Auditing smart contracts (i.e. with automation, internal controls and integrity of code execution), digital twins

Who do you audit? Auditing DAOs?

Auditing

Example Resources:
- Blockchain’s potential impact on audit and assurance
- AICPA.ORG
- Audit trail and Xero
- Coin telegraph
- Schmitz and Leoni
DAOs as business structures
As cost centres
Allowing automated governance
Treasury management

Smart contracts and oracles as information sources
Automation of supplier / contracts / payments
Immutability of records
Authenticity and transparency of records across value chain

Asset management
Digital Twins
Supply chain provenance (authenticity, quality, tracking)
Registries

Embedding control processes

Management tools for planning, performance and incentives
Smart contracts
Oracles
Non-fungible tokens (NFTs) for badging / recognition
THANK YOU!

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