Final Report

Blockchain & Cryptocurrency in the Fundraising Sector.

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The Professional Body for Australian Fundraising

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Executive Summary

There is a lot of mystique, misinformation, curiosity, and excitement about the technologies of blockchain and cryptocurrencies, despite having been in existence and operation for over ten years (Gupta, 2017). While billionaire investor Warren Buffett dismisses it as “rat poison squared” (Stempel & Ablan, 2018), Australians are starting to enthusiastically embrace cryptocurrencies, with 16.8% owning some form and the majority of Millennials and Gen Z to own some within five years (Independent Reserve, 2019).

The Dūcere Industry Project Team research has uncovered many examples of the use of the technologies in play globally and indeed locally, with the Brisbane Airport being the first airport in the world to accept payment with cryptocurrency at over thirty retail and dining locations throughout both terminals (Sharma, 2018). Major charities/not-for-profit (NFPs) such as Unicef are accepting donations by cryptocurrency, and new charities, such as Tokens for Humanity, operate using blockchain technology (Tokens for Humanity, 2020).

The significant benefits relating to the use of blockchain described simply as a decentralised digital ledger, are its transparency and immutability of transactions, potential cost reduction due to the elimination of third-party financial institutions, and speed of transactions (Gupta, 2017). Cryptocurrencies are virtual currencies that utilise blockchain technology and operate independently of banks. As such, they are completed with lower processing fees than traditional transactions and more quickly (Gupta, 2017). Commonly known cryptocurrencies include Bitcoin and Ethereum that are discussed within this report along with a number of other key currencies.

Whilst most donations to charities/NFPs are made by online credit or debit card transactions (Nonprofit Tech for Good, 2020, p. 28), new ways of giving, through technological innovations using facial recognition on our smartphones, point and tap on smart televisions, or digital billboards on public transport, are appealing to Australian donors (Nonprofit Tech for Good, 2020, p. 14). Cryptocurrencies and blockchain are new technologies, in the very early stages of adoption by donors. Consideration of these technologies by the Fundraising Institute of Australia (FIA) and its membership is timely.

Nearly 80% of Australians donate to charities/NFPs each year (Barker, 2020), for a range of reasons and motivations (altruism, duty to name a few), in a variety of ways (cash, goods, time), and with a range of expectations in relation to outcomes of that donation. Distinct generational differences in motivations, methods, and expectations have been identified and more detail is included within this report, as the giving patterns of each generation offer up opportunities for charities/NFPs to leverage for greater support (Te, 2020). It is not surprising that younger donors such as Millennials and Gen Z’s, have a greater uptake of cryptocurrency, but some older, high-value individuals are also adding this option to their investment strategy.

Revenue from donations varies as a proportion of charities/NFPs annual revenue (ACNC, 2017). The Australian Charities and Not-for-profits Commission (ACNC, 2017, p. 24) reports data on annual

revenue by the size of charity/NFP indicates there may be an inverse relationship between the revenue received from government grants and reliance on donations from fundraising. Large charities/NFPs typically receive the most government grants, making up a significant portion of their annual revenue (over 40%), with fundraising comprising up to 12% (ACNC, 2017). Smaller-to-medium charities/NFPs reliance on donations is between 25 and 37%. While this breakdown does not uniformly apply (some large charities/NFPs annual revenue is nearly 70% donations), it does indicate that any uptake of new fundraising options, for those in the sector most heavily reliant on donations, will need to be non-resource intensive, if they are to be viable.

The industry research to date indicates that there is a spectrum of options for use of blockchain and cryptocurrencies which charities/NFPs of all sizes can consider. These options may:

- Improve existing transactions between charities/NFPs and donors, and charities/NFPs and third-party service providers,
- Increase donations (now and into the future) from early adopters of technology and with a view to futureproofing (i.e. getting on board now to attract younger tech-savvy donors).

Figure 01 below, outlines the uptake of new technologies to future-proof charities/NFPs:

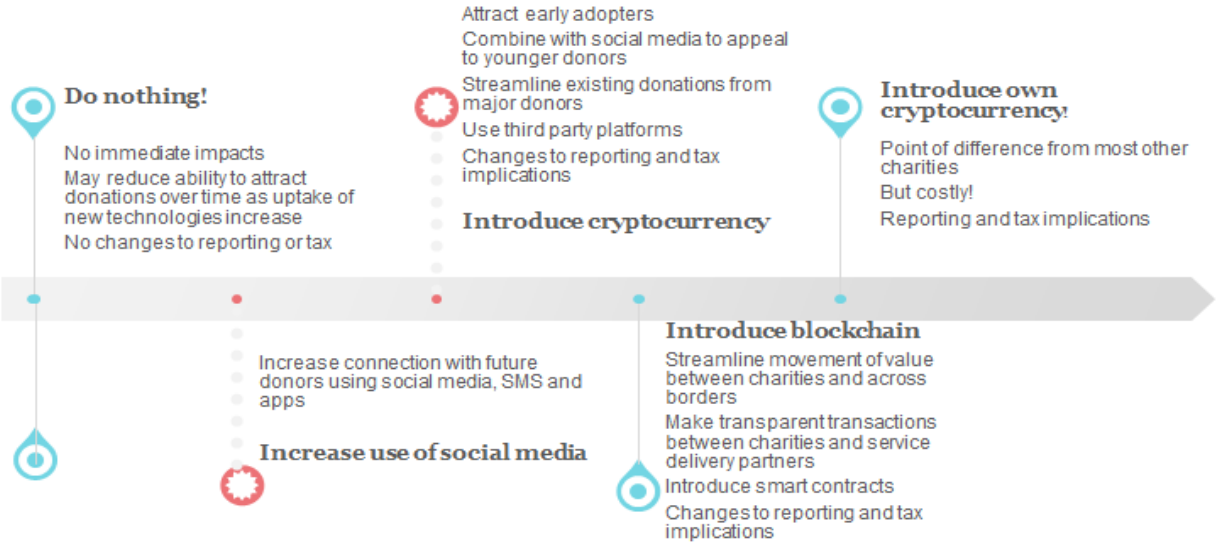


Figure 01 Uptake of new technologies - a spectrum of options to future-proof charities/NFPs

Charities/NFPs must consider these options primarily in the context of 'what problem am I trying to solve?'. The appeal of the technologies is clear; however, they must be applied as a 'fit-for-purpose' solution, requiring organisations to be explicit in their needs. Some practical guidance as to next steps is provided in the options section of the report.

Other factors for consideration are discussed within this report, including:

- Size and make up of annual revenue and dependency on fundraising as revenue,
- Current donor profile and engaging younger generations,
- Reliance on volunteers in a values-driven sector,
- The service delivery models, donors' expectations and reporting requirements,
- Brand profile and alignment with the charity's mission and values.

This report provides comprehensive information that aims to inform the sector about how they might consider the spectrum of options for their charity/NFP, with detail on blockchain and cryptocurrencies; an analysis of key factors of the charity/NFP sector in Australia; and examples of opportunities there are to adopt and adapt to using these new technologies.

It is important to note, however, that legislation around these new technologies lags behind as the industry develops so quickly. This poses risks in relation to compliance and privacy and anonymity, the key features of blockchain. Monitoring relevant legislative requirements in relation to blockchain and use of cryptocurrencies will have resource implications for charities/NFPs and this may influence the interest in, uptake of, and approach to, introduction of these new technologies in the fundraising toolkit.

The detailed information about legislation and compliance requirements, the evaluation tool and the cost benefit analysis, informed by the research undertaken by the Dūcere MBA group, are provided for charities/NFPs to utilise, before commencing their blockchain and cryptocurrency journeys.

There is anticipated to be a tremendous transfer of wealth over the next three decades, as the wealth is passed down from the Baby Boomers, to Millennials, and then to Gen X (the largest group of donors currently) (Vickovich, 2019). Setting up for future generational donation patterns now and understanding the role blockchain and cryptocurrencies play in maximising donations for the sector, is future-proofing charities/NFP revenue streams.

Introduction

Fundraising Institute Australia (FIA) is the nation's peak body for professional fundraising in Australia. FIA members include charities/NFPs from the smallest to the largest fundraising organisations in Australia and represent approximately 80% of total fundraising revenue in Australia. FIA has a strong history of advocacy, continuing professional development, education, and fostering ethical standards that are recognised by both government and business. This is achieved by:

- Consulting with both government and community to set best practice standards and advancing professional fundraising,
- Developing and maintaining a self-regulatory regime,
- Providing professional development that gives charities/NFPs organisations the tools, processes, training, and sector updates they need to fundraise ethically and within regulatory frameworks,
- Maintaining and making available comprehensive resources to support professional fundraisers in their job roles and career development. (Fundraising Institute Australia, 2020).

Project Request for Service

Suppliers to the charity/NFP sector have talked about blockchain and advocating for charities/NFPs to become early adopters of raising funds and donations through cryptocurrency.

FIA would like to form a clear, evidence-based position of what the risks may be to charities/NFPs who use this type of transaction, the costs (both tangible and intangible), the benefits and how cryptocurrency fits into the technological and financial regulatory environment that charities/NFPs operate in. The results of this research will inform a position paper that FIA can use to advise charities/NFPs on best practice fundraising approaches when considering innovation in the sector and adding blockchain to the fundraising mix.

It is not yet clear to the sector what the implications and risks are for charities/NFPs who go down this path and the impact and risks to charities/NFPs need to be further understood. Research into regulators from RBA, ATO, AUSTRAC, state fundraising laws as well as upcoming trends and innovations in blockchain. Case studies from the charity/NFP space, and evidence-based sources should be included, and sourced from charities/NFPs already utilising the technology.

Core Objectives

1. Identify options for the charity/NFP sector to manage cryptocurrency donations ethically and effectively for the benefit of the charity/NFP and the donor.
2. Provide insights and recommendations, including case studies, on the use of blockchain technology and platforms in the charity/NFP sectors.
3. Provide recommendations on how charities/NFPs can ethically and effectively implement blockchain and cryptocurrency technologies to expand reach, increase brand awareness, transparency, and connect the donor to the cause in real time.
4. Provide a comprehensive risk analysis, including compliance regulations, costs, stability of technology, volatility of the market, and privacy laws.
5. Provide an evaluation template for FIA members to utilise to make an informed decision regarding blockchain and cryptocurrency.

Project Scope

IN SCOPE:

- Blockchain & Cryptocurrency Research
  - Technology and platforms, stability, scalability
  - Tangible and intangible costs of implementation and ongoing
  - Compliance regulations, privacy laws, security
  - Benefits, transparency, connection of donor to cause
  - Case studies – best practice
- Charities/NFP Sector Impacts
  - Ethical implications
  - Key factors for consideration including options for management of donations, market risks, benefits and compliance
  - Opportunities for expansion of reach, brand awareness
  - Transparency, donor stewardship, donor connection
- Develop an evaluation template for FIA members on adoption of blockchain and cryptocurrency technologies
- Develop a comprehensive risk matrix and mitigation strategies

OUT OF SCOPE:

- Australian tax implications and reporting
- Global tax requirements and reporting
- Change readiness of individual charities/NFP organisations

- Recommendations on internal structures/requirements for charities/NFPs, including IT structures and systems
- Organisational factors of charities/NFP organisations relating to resource, skill and support requirements
- Laws and regulations put into effect post completion date of this project
- Contract negotiations with blockchain and cryptocurrency vendors
- Liability for any investments undertaken

Methodology

This project has taken onboard ethical considerations, and qualitative investigations were conducted through meetings, desktop research and include websites, case studies, company reports, other company documents, and other websites.

Charity/NFP Sector Analysis

Primary and secondary research was conducted to understand the communications between FIA and the 60,000 members, specifically:

- Generational overview of donors,
- How individuals/companies donate,
- Understanding the appetite to donate, and
- Potential opportunities with future technologies

Qualitative research in the form of interviews with members of FIA were conducted to gain insights into running an organisation, engaging with current technologies and donors. Meetings and interviews were conducted with:

- Helen Merrick and Karen Mutch, FIA
- Karl Uhrich, Red Cross Australia
- Ben Horsely, Red Cross Australia
- Alex Wilson, The Giving Block
- Shanelle Newton Clapham, Parachute Digital, and
- Tim Lea, Fractonium

Blockchain Analysis

Primary and secondary research was conducted to understand the technology of blockchain, specifically:

- What is blockchain,
- Suitability of blockchain for the charity/NFP sector,
- Eliminating the middleman, and
- Potential applications of blockchain.

Qualitative research in the form of case studies to understand best practice and case studies relevant to the charities/NFPs. Organisations included:

- Network for Good,
- Procivis AG,
- Tokens for Humanity,
- Save the Children UK,

- Red Cross societies,
- Cointelegraph,
- UNICEF.

Cryptocurrency Analysis

Primary and secondary research was conducted to understand the technology of cryptocurrency, specifically:

- What is cryptocurrency,
- Forms of cryptocurrency,
- Suitability of cryptocurrency for the charity/NFP sector, and
- Investing opportunities.

Qualitative research in the form of case studies to understand best practice and case studies relevant to the charities/NFPs. Organisations included:

- TravelbyBit and Brisbane Airport,
- The Pineapple Fund,
- HiveEX,
- Australian Bushfire donations.

Compliance Analysis

Primary and secondary research was conducted to understand compliance and governance, specifically:

- State laws,
- Federal laws,
- Regulatory bodies that charity/NFP sector report to, and
- Privacy law.

Qualitative research in the form of case studies to understand best practice and case studies relevant to the charities/NFPs. Organisations included:

- Red Cross Australia,
- NSW Government,
- Blockchain Australia,
- AUSTRAC,
- RBA,
- ASIC

Risk Analysis

Primary and secondary research was conducted to identify and analyse business risks, financial risks, and non-business risks associated with blockchain and cryptocurrency for charities/NFPs. Governance risk and compliance adapted framework was applied to ensure all necessary laws and regulations were included. A cost benefit analysis was undertaken to identify the desirability to engage with a new technology by charities/NFPs in Australia, and the financial feasibility in proceeding with this opportunity.

1. Charities and Not-For-Profit Sector

1.1 Charity/NFP Sector

In 2008 the Federal Government formally introduced the term 'third sector' to describe the array of organisations that sit alongside the government and private sectors but are neither (APH, 2008). Now a globally adopted term, third sector organisations generally have three key characteristics: non-governmental, value-driven, and principally reinvest any financial surpluses to further social, environmental, or cultural objectives. This report refers to charity/NFP, specifically not-for-profits as a subset of the third sector and charities are a subset of not-for-profits. However, the findings may also apply to other third sector organisations, mutual and social enterprises (Australian Parliament House, 2008).

There are over 600,000 organisations in the charity/NFP sector, ranging from large to very small, and employing over one million staff (Community Council for Australia, 2018, p. 4) and the diversity of the sector is reflected in the charities/NFPs that have registered with the ACNC. These include "religious organisations, P&C committees, universities, and research organisations, non-government schools, animal welfare organisations, international aid organisations, family violence support organisations, aged care centres, childcare groups, cultural institutions such as museums and galleries, environmental protection groups and legal aid centres" (Community Council for Australia, 2018, p.4).

Charities/NFPs can vary from very small groups of volunteers raising less than $50,000 annually, to very large international organisations that generate annual revenue in excess of $100 million. The majority have annual revenue of less than $250,000 annually.

Charities/NFPs undertake fundraising through designated activities to raise money for their charitable purposes (Turk, 2020). The ACNC regards fundraising as a core governance responsibility of the charity/NFP's responsible persons, that is, the board, committee, or governing body (ACNC, 2020a). Charities/NFPs may conduct their own fundraising activities or may contract the use of a third-party supplier. Fundraising activities are regulated by various state and territory laws, as outlined in the compliance section.

Professional fundraisers in FIA's member organisations must also abide by the FIA's code of practice which "raises the sector's profile and enhances credibility and reputation with donors, government and the community" (FIA, 2020b, para. 1).

Key elements of this code include (FIA, 2020b, para. 1): transparent and ethical behaviour, conduct towards and communication with donors, conduct towards and communication with beneficiaries, including people in vulnerable circumstances and professional engagement with suppliers.

1.2 Donors and Donations

"To give away money is an easy matter and in any person's power. But to decide to whom to give it and how large and when, and for what purpose and how, is neither in every person's power nor an easy matter" - Aristotle

Fundraising has been identified fundamentally as a social act (Sanders & Tamma, 2018). Behavioural science (Sanders & Tamma, 2018) identifies a range of factors that influence donors and can contribute to ongoing giving. Not only friends and family influence donors, but major contributing factors for Millennials to Gen Z are celebrity and prominent role model influences on charitable causes. Spending money on others makes people happier than spending money on themselves. Personal values and sense of morality and ethics, selfless giving to spiritual or religious systems, personal life-changing experiences, association with an organisation and its brand, social media influences, and peer association, and participating in campaigns are all motivations for donors' contributions to specific causes (Australian Communities, 2020). In this section we will identify donor behaviours and characteristics, and opportunities for expanding reach, with the introduction of new technologies such as blockchain and cryptocurrency.

1.2.1 About the Donor

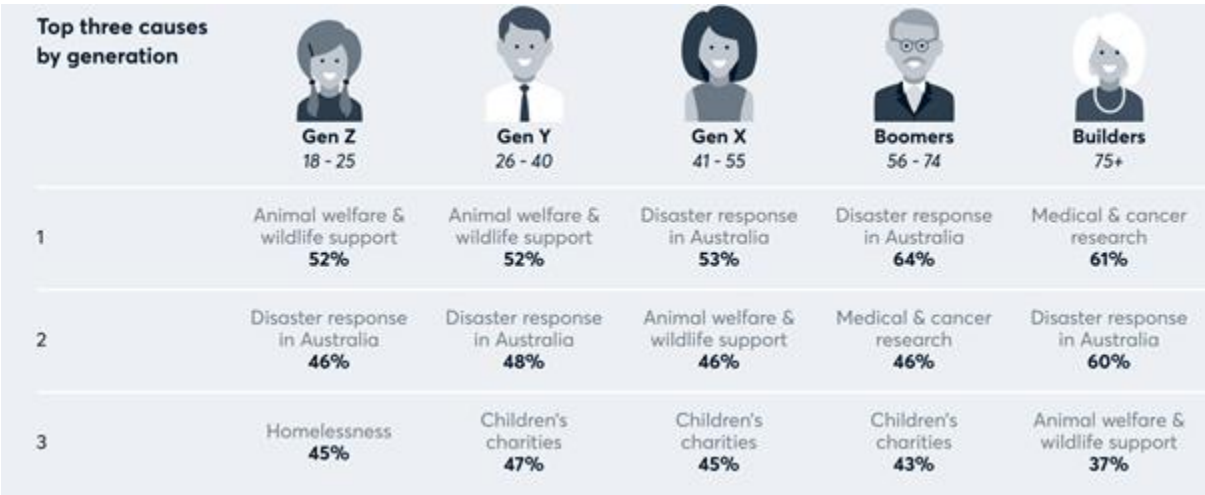
Australians give with heart, despite the industry focus on outcomes and impact. Every donor wants to know their donation made a difference.

Figure 02 Top Three Reasons Australians Give (Knowles, 2018, p. 3)

Figure 02 above outlines the top three reasons Australians give. There are many motivations for, and many forms of, giving, and traditional methods still hold a place. The new directions in the digital area, and new approaches to realising the possibilities in the sector, with the inclusion social enterprise, impact investing, collective giving, skilled fundraising, and crowdfunding open opportunities for new ways to give, and solve problems through blockchain platforms smart contracts (Knowles, 2018, p.17).

In the past few years the number of individual donors has dropped stemming from a loss of faith in the fundraising sector (Gilbert, 2019). Charities/NFPs need to ensure they keep appealing to donors through speaking in language that the donor relates to, and by diversifying to ensure that all options for fundraising channels to reach and appeal to donors are incorporated into their business models (Gilbert, 2019).

The top three causes in Australia are Disaster Response (54%), animal welfare and wildlife (47%), and children's charities (44%) (Australian Communities, 2020, p.16). There has been a 12% rise in donations to organisations supporting environmental causes in the last 12 months, and 67% of donors prefer to support organisations with local or national focusses (Australian Communities, 2020, p.16). 46% of respondents said they were most likely to donate when they heard about a need or a cause (Australian Communities, 2020, p.15). A snapshot of the top three causes in Australian giving is below in Figure 03.



Top three causes by generation	Gen Z 18 - 25	Gen Y 26 - 40	Gen X 41 - 55	Boomers 56 - 74	Builders 75+
1	Animal welfare & wildlife support 52%	Animal welfare & wildlife support 52%	Disaster response in Australia 53%	Disaster response in Australia 64%	Medical & cancer research 61%
2	Disaster response in Australia 46%	Disaster response in Australia 48%	Animal welfare & wildlife support 46%	Medical & cancer research 46%	Disaster response in Australia 60%
3	Homelessness 45%	Children's charities 47%	Children's charities 45%	Children's charities 43%	Animal welfare & wildlife support 37%

Figure 03 Top 3 causes by generation (Australian Communities, 2020, p.16)

Figure 04 Why people give, and why they don't (Sarancini, 2020)

1.2.2 Methods of Donating

Donations come in the form of both contribution and monetary contributions. Contribution includes volunteering, donating goods, raising awareness of causes, and community services. Figure 05 below outlines a summary of Australian giving through contribution.

WAYS OF GIVING	Gen Z 18 - 25	Gen Y 26 - 40	Gen X 41 - 55	Boomers 56 - 74	Builders 75+
Donating goods	61%	58%	63%	70%	71%
Volunteering	38%	33%	30%	36%	31%
Advocating and raising awareness of a specific issue or cause	33%	29%	18%	12%	12%
Fundraising/promoting for a specific charity	26%	33%	20%	14%	12%

Figure 05 Australian donors' ways of giving (Australian Communities, 2020, p.14)

Apart from the traditional ways of giving, benefits of some of the common trends are outlined in Table 01 below.

Table 01 - *Developing trends for methods of donating* (Shattuck, 2020)

Mobile optimisation	Tap to pay, all hours access - further details in section 6.
Cause related shopping	A certain amount is donated by the company based on consumer spend, or the consumer is offered the option to donate an amount or "round-up" an amount to go to a particular charity/NFP.
Donor Advised Funds	Whilst they have been around for a while these funds are becoming increasingly popular - donors create personal charity/NFP accounts with assets such as shares, cryptocurrency, cash but do not have to donate immediately. They receive tax benefits at the time of transfer to the fund.
Untied Funds	Charities/NFPs benefit greatly from grants or donations from donors that are untied, meaning they do not have to be used for a specific cause. This is of benefit to charities/NFPs as it allows for donated funds to be utilised for innovation and growth.
Corporate Giving	Corporations now have a larger sense of social responsibility and are creating fundraising programs with clear long-term outputs. Corporate philanthropy programs include volunteer grants, community days, matching gift programs and corporate sponsorship. (Shattuck, 2020)
Virtual Reality Gaming sites	Campaigns run by charities/NFPs through third party providers to utilise pop-ups in heavily utilised gaming sites to promote specific cause related donations from gamers
Cryptocurrency exchange giving programs	Cryptocurrency exchanges have set up charity/NFP specific funds to allow cryptocurrency owners to donate to the many causes offered through these programs

1.2.3 Why Donors Stay

Developing and nurturing long term connections with donors and supporters for charities/NFPs is not just a "nicety", it is now what is expected (Gilbert, 2019). With the risk of privacy breaches and increased public scrutiny over fundraising, the donors are taking more control when it comes to the relationships with the brand (Gilbert, 2019). Targeted communications to, and making the donor feel truly appreciated, can make the difference between the current and future success of charities/NFPs as outlined in Figure 06 below.

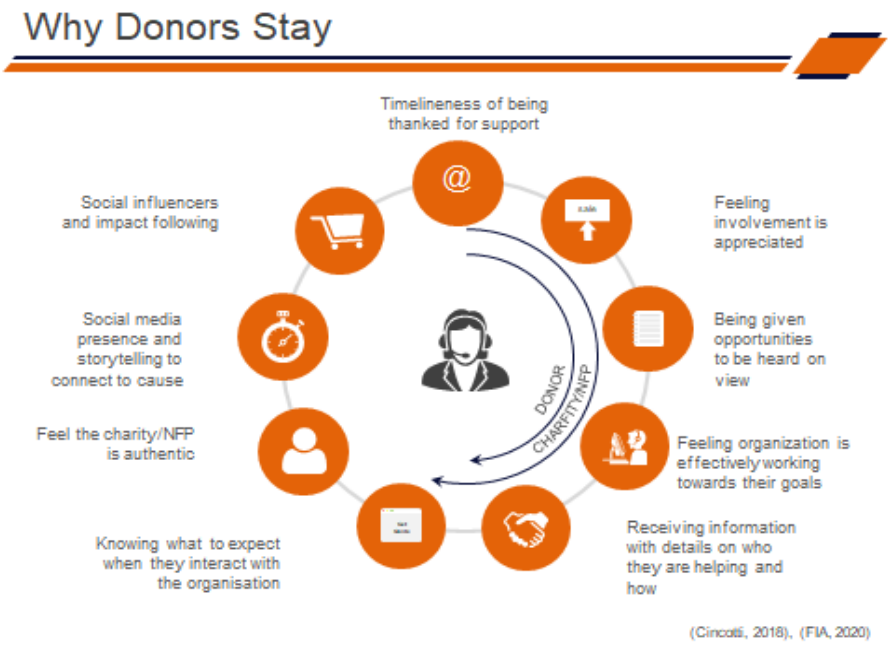


Figure 06 Why Donors Stay (Cincotti, 2018) (FIA, 2020)

Maintaining social licence continues to be a priority as organisations commit to effectively communicating the purpose of the organisation and the causes, which is key to maintaining the trust and donor engagement (Australian Communities, 2020. p.18). This has been strongly driven by younger donors with more than a third of Gen Z (35%), and three in ten Gen Ys (28%) increasing their support for charities/NFPs, compared with 16% of Gen X, 12% of Baby Boomers, and 7% of Builders (Australian Communities, 2020). Figure 07 below shows that trust has increased with the younger generations significantly over the past 5 years.

Many people think their donation is too small to make an impact, or they will be judged for donating a smaller amount by peers (Crowhurst, 2020).

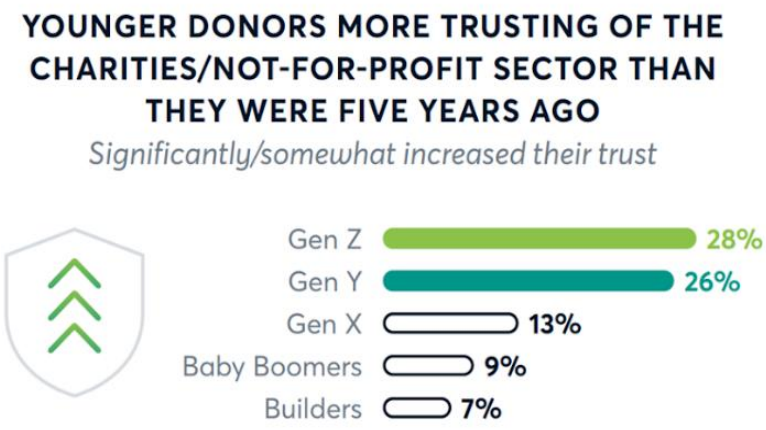


Figure 07 Younger donors more trusting

(Australian Communities, 2020, p.22)

"If you think you are too small to make a difference sleep with a mosquito" Dalai Lama
(Crowhurst, 2020)

While some of the key drivers for donors are to gain a tax deduction, give back to society, or build on and leave a legacy, there are many reasons that people hesitate to donate as outlined in Figure 08 below.

Figure 08 10 most common reasons people don't donate to charity (Crowhurst, 2020)

1.3 Generational Perspectives

It is imperative for charities/NFPs to understand donor giving trends, and the characteristics of the donor generations. As the charity/NFP environment continues to grow and become more competitive to source donors, generational profiling, and the ability to generate multiple streams of income, to increase revenue, and ensure long term longevity, must become part of future business strategy. Proactive and modern approaches to fundraising include social investment (social or environmental impact) or social impact bonds, community funding (crowdsourcing) and micro-financing, and campaigns through social media and digital tools (ACNC, 2020a). Generational motivations and key drivers for Matures, Baby Boomers, Gen X, Millennials, Gen Z, and Gen Alpha are described in detail in Figures 09, 10, and 11 below.

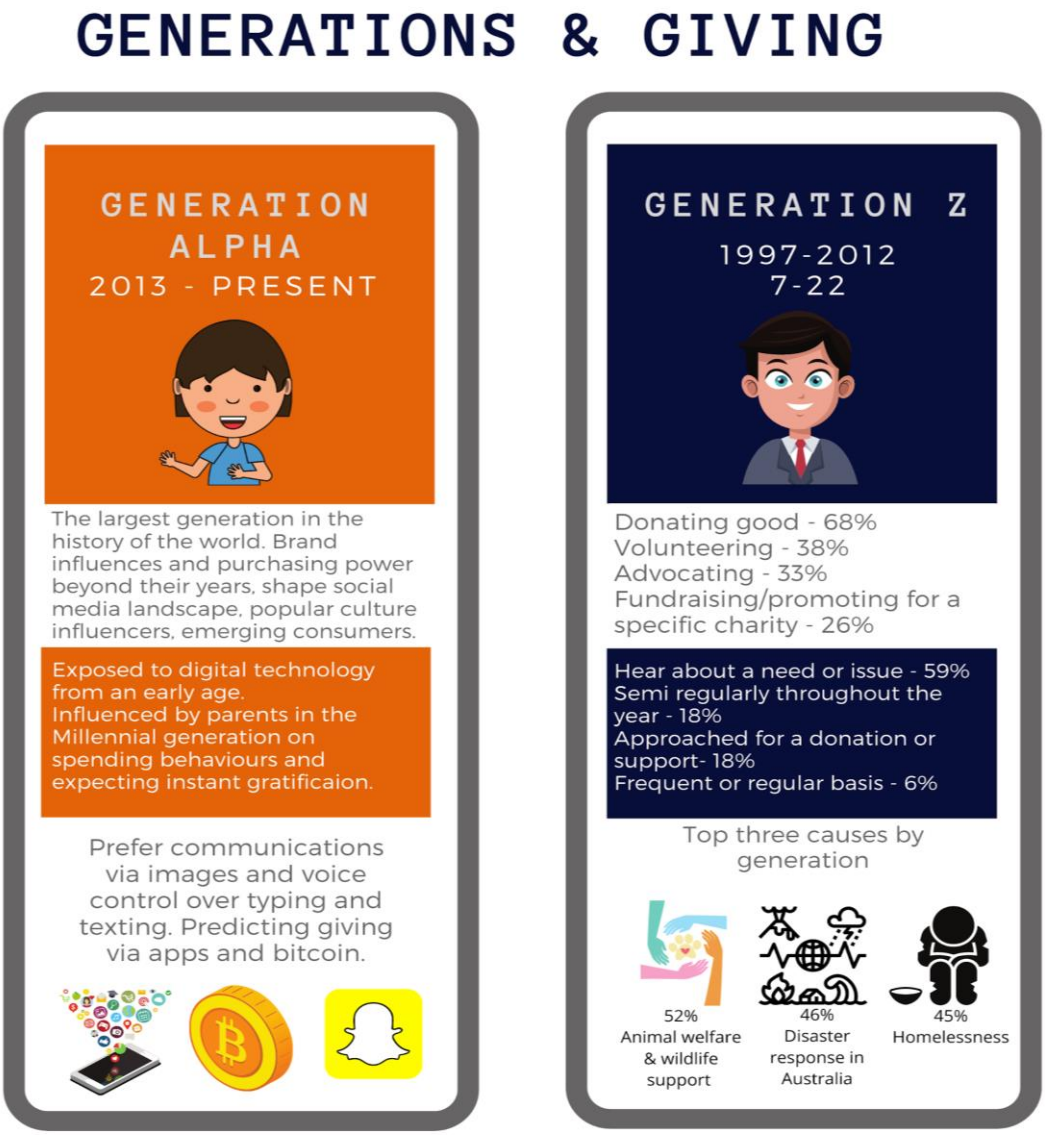


Figure 09 Generational Donor Profiles Gen Alpha and Gen Z (McCrindle, 2020)

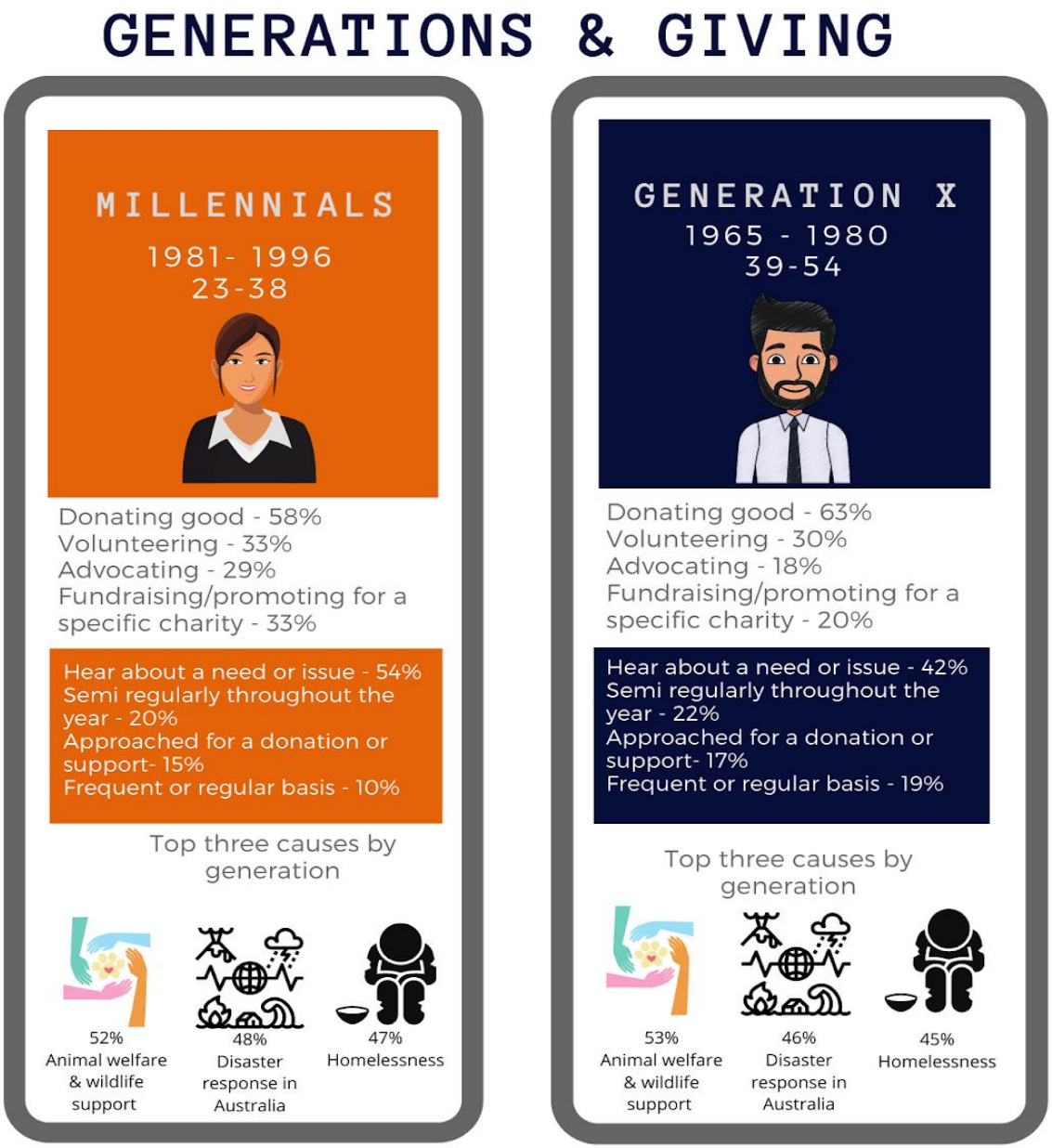


Figure 10 Generational Donor Profiles Millennials & Gen X (McCrindle, 2020)

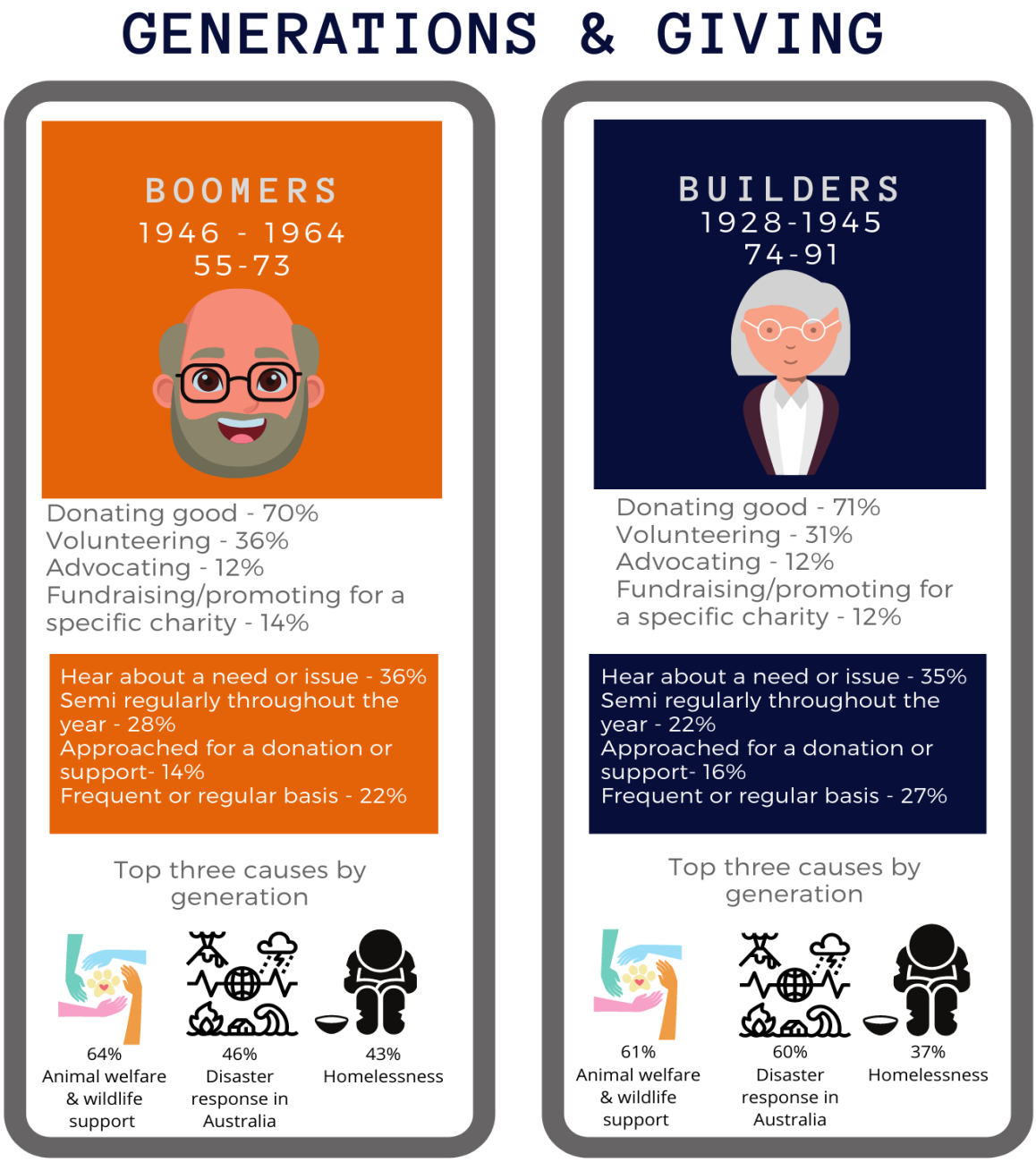


Figure 11 Generational Donor Profiles Baby Boomers & Builders (McCrindle, 2020)

Gen Alpha

2.5 million Gen Alpha's are born globally each week, and they will number almost 2 billion when all are born (2025), making them the largest generation in the history of the world (McCrindle, 2020). Gen Alpha will be the most formally educated generation in Australian history, and in four years will outnumber Baby Boomers, with many living to see the 22nd Century (McCrindle, 2020). With brand influences and purchasing power beyond their years, these emerging consumers prefer popular culture influencers, and they are shaping the social media landscape.

Gen Z

Currently, with approximately 2.6 billion people, Gen Z is more exposed to diverse issues, surrounded by technologies and social media (Berg, 2018). A force to be reckoned with, "philanthro-kids" as they are commonly referred to, have extensive involvement in fundraising, donating, and volunteering. Concerned about the cause, not an organisation, they are highly motivated by making an impact, want to be inspired by the cause, and social media is their main medium (Jarvis, 2020).

Gen X

According to Blackbau, Next Generation Report Gen X gives about 20% of all philanthropic dollars (Jarvis, 2020). They are most likely to give to areas that focus on research and public policy, international affairs, and community development. They see giving as part of personal identity (Everyday Hero, 2018). They are very intentional, influenced by reviews and ratings, much less likely to donate through charity/NFP websites, discontinue support if they feel their money was not used wisely, and showing them how their money is used is critical (Jarvis, 2020).

Millennials (Gen Y)

Millennials are the next big wave of donors after Baby Boomers. They are tech-savvy, research online, and prefer to donate digitally, like digital wallets (Google Pay, Apple Pay. They stop giving if they feel their gift didn't matter, or they couldn't afford to continue or were not asked again (Te, 2020). Those that donate want to be known for their philanthropy, are concerned with making an impact on the world, and research the charity/NFP before they decide to donate. They want to hear stories about how their donation has made a tangible difference through the charity/NFP (McCrindle, 2020).

Baby Boomers

This generation are highly pragmatic donors, and they want to know charities/NFPs are well-established and respected (Janus, 2018). They utilise a mixture of analogue and digital communications, and they are practical donors who want to know their gift are being used wisely to make an impact on their community. They check financials, media coverage, and testimonials from friends and family. The overall profile of this generation is one of generosity,

cause focussed, and geographically bound (Janus, 2018). Deep ties in local organisations, they like to keep cause close to home. Their focus is community-centric groups like religious groups, local social and human service organisations, animal rescue entities, and veterans' groups. For Baby Boomers leaving a legacy top of mind (Te, 2020).

As detailed above, trust is the major currency for Gen X, Millennials, Gen Z (Millennials and beyond), and these donors research organisations before donating (Te, 2020). They do not like being hassled on the street, cold calls, or feeling pushed or guilted into donating. They also have strong social consciences and can feel overwhelmed by so many global issues and deciding on a cause, and a lack of funds. Students, and just starting out careers, they not only judge why others don't give, they are prone to feel judged on their contribution. They need to see the impact of their donation and are willing to volunteer time in lieu of monetary donations. Donors trust is essential to long term sustainability for charity/NFP organisations with these generations.

1.3.1 How to Reach Millennials and Beyond

Based on the information garnered from the generations perspectives the focus is on reaching Millennials and beyond for the future success in the charity/NFP sector. Key points are outlined below:

- Social is best – social media and networks are crucial,
- Transparency is key – clear information on where their donation goes increases likelihood to donate,
- Ask for more than money - Millennials will share you cause with other donors, and value creation means opportunity for longer term relationships,
- Keep it simple - cause should be tweetable and repeatable. Don't overcomplicate the message,
- Storytelling – personalise the connection to the cause through storytelling,
- Build authenticity and trust – critical to gain next gen support – mission, values and actions consistent with brand message and donor communications,
- Communicate the urgency - the cause needs to draw the donor in now, so getting the urgency of the donation requirement across is essential,
- User experience – simplify online donation capabilities and options and on the cutting edge of non-credit options.

A combination of strong social media presence, and continuing to drive digital strategies, in addition to the addition of blockchain technologies, have the potential to alleviate the concerns of donors by creating the opportunity for connection to impact, and donation transaction transparency, leading to stronger relationships and trust with charities/NFPs (Koksal, 2019). With increasing competition in the fixed pool, blockchain allows charities/NFPs to expand their reach outside the pool. The demographic with many wealthy individuals who hold cryptocurrency is not as connected to traditional fundraising tools. Blockchain allows the ability

to access these new demographics (Williams, 2018). Focus should remain on the continuing expansion of digital strategies as detailed in Sections 1.3.2 and 6.2.

1.3.2 Digital Strategy

Generational trends are driving increasing digital expansion, indicating there is further opportunity for charities/NFPs, donors, and recipients, to introduce blockchain and cryptocurrency donations to stay relevant, expand, and be to be open to accepting new opportunities in the future. The socially and politically conscious Millennial generation are driving the campaign for a better world, and blockchain technology is set to make the global landscape more accessible and transparent, leading into an era of social equality, offering new opportunities for charities/NFPs (Campbell, 2018).

Investment in blockchain, and further embracing the opportunity of the Virtual Reality (VR) market, to offer the additional options of digital payments, and to assist in building trust and transparency in the sector is integral to expanding markets and revenue streams (Radix, 2019).

Digital giving options and technology will also drive the expansion on the social media aspect with API's allowing third-party platforms such as Twitch to add charity/NFP donation options on gaming sites, opening up another online marketplace for donors. APIs, the communication protocols between clients and servers, are what make these systems possible (Bown, 2019). Nick Fitz from Momentum says "APIs allow us to link donations to people's everyday lives and to let them track the impact of their giving" (Bown, 2019). Raphael Mazet of Alice says:

"Blockchain technologies allow you to measure and control the social and environmental impact of your donation by creating smart contracts that automate payments and make them conditional to the desired impact having been achieved and validated" (Bown, 2019). 87% of charity/NFP CEO's in the CAF Charity Landscape 2019 report see investing in technology as a key priority (Bown, 2019).

If the donor and the recipient have digital wallets the donations can be transferred transparently with almost zero cost. The computing energy that blockchain transactions consume is a factor, blockchain technologists are working on alternative energy sources to circumvent this impact. If the recipient doesn't own a digital wallet the charity/NFP that accepted the digital currency can provide the recipient with cash (Khotari, 2017).

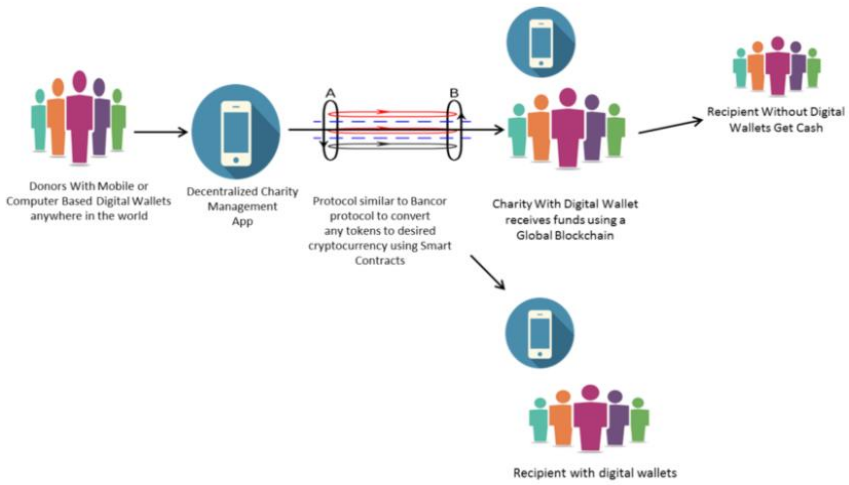


Figure 12 Digital wallet applications (Khotari, 2017)

There are also the options for the charity/NFP to use third party management for accepting cryptocurrency payments if they have not got options of a wallet, where they can accept the donations and the donations are converted back to fiat currency. Blockchain and cryptocurrency can also create the opportunities for more specific focus on donors, and direct impact causes in the charity/NFP sector and offer future opportunities for early adopters which are further outlined in Section 1.4.

1.4 The Future

A small percentage of charities/NFPs accept Bitcoin globally, and in Australia/Oceania it is just 1%, though wider adoption will happen in future years (Birk, 2019). Wilson & Duffy (2019) said that in the past few years' cryptocurrency donations have totalled hundreds of millions of dollars. As the market continues to mature, the research indicates that the majority of Gen Z's and Millennials will own some form of cryptocurrency in the next five years, solidifying its place as an investment category in the future (Independent Reserve, 2019.). Charities/NFPs also have the opportunity to accept cryptocurrency donations which will be increasingly held without immediately converting them to fiat currency (Stevens, 2020).

Wilson & Duffy (2019), co-founders of the Giving Block, concluded in their article 5 Reasons Why Nonprofits Love Cryptocurrency:

> Cryptocurrency donations are becoming increasingly common. Donors who own cryptocurrencies are quickly shifting their support to non-profits who offer the ability to donate their cryptocurrency directly. As we saw with credit card adoption, with each uptick in the size of the user base, more non-profits are entertaining the notion of fundraising cryptocurrencies. Like artificial intelligence and the Internet of Things, cryptocurrency has quickly become one of the top innovative technologies that give non-profits a competitive advantage. (para. 8)

McLaren (2019) outlines the top three trends, and the future of the charity/NFP brand, including threats to overcome and opportunities to seize are outlined below:

- Explosion of the experience economy: charities/NFPs need to facilitate the transparency between the donor with the beneficiary of the cause. The charity/NFP is the facilitator, but it is the donors who has the power to choose how they will be involved, how they create and share the stories and spread the word,
- Disruptions in donations: Millennials will soon have the highest disposable income, and they give but it is Gen Z who are the most altruistic. The 'shopping little and often' mindset that disrupted the supermarket business is now disrupting giving, with targeted giving suggestions integration with Millennial and Gen Z targeted apps,
- Partnerships with corporates: building relationships with corporates, which now have a stronger focus on social responsibility, opens the opportunity for charities/NFPs of all sizes to be involved in campaigns of all sizes, and affording small charities/NFPs the opportunity 'punch above their weight' larger campaigns with partners.

- In addition to the rise of technology, the experience of fundraising in a pandemic has identified some key aspects of fundraising for charities/NFPs of which they must be aware, as summarized in table 02 below.

Table 02 *Future focus for charities/NFPs with changing landscape including COVID 19 considerations* (Moody, 2020)

1. Improved use of data		This remains a top priority. The pandemic has changed supporters' priorities and habits, so you must analyse your data to detect emerging patterns of giving. Never rely on assumptions!
2. Compliance		Charities/NFPs may need to adhere to stringent data protection acts and guidelines
3. Going digital		This broad category has become even more critical than we envisaged. We forecast tap-to-donate would play a greater role in street fundraising. While that's off the cards for the foreseeable future, contactless payments are crucial to avoid Coronavirus transmission. Virtual events, online fundraising and other digital innovations are now absolute musts. Voice-activated digital assistants open up the online world to more people, including those with disabilities.
4. Campaigns		We forecast that the trend of viral campaigns such as the Ice Bucket Challenge would give way to huge campaigns led by the charities themselves. However, charities/NFPs have had to abandon their campaign plans or adjust them to our new normal. Some have done so with great innovation

5. Getting (even more) social

Social media has really proven its worth during the pandemic, helping us all stay connected while staying safe. Charities/NFPs have been using the medium for innovative campaigns, such as Save the Children's celebrity-studded initiative, 'Save with Stories'. And the pandemic has accelerated the move towards omni-channel helplines.

6. Cutting edge tech

We predicted that blockchain, enhanced voice search, improved mobile experiences, and virtual reality would all boom this year. Your tech investment plans probably got derailed by Covid-19, as you diverted your IT energies into remote working and online fundraising. But now you need to get ahead in a very competitive market. Tech can help you reach accessibility goals, too.

7. Email marketing

This remains important – but don't underestimate the extent to which lockdown has changed people's habits. Direct response TV and direct mail have both made a resurgence as people have been at home more. Keep a close eye on your response rates and be ready to adapt.

8. New trend: emergency appeals linked to Covid-19

Donors' giving priorities are likely to change. If you have a great story about how your charity/NFP is helping people overcome the challenges of Covid-19, use it!

9. New trend: increased collaborations

Times are tough for the charity/NFP sector: some 84% say donations have decreased. Networks, collaborations on certain initiatives, or even full-scale mergers are all options for organisations looking to pool resources or streamline services. Lean on strong corporate partnerships that you know won't be going anywhere during the pandemic or recession, like Crisis has done with Tesco Mobile to enable homeless people to access online support. Such teamwork can improve your agility and flexibility, as well as help you survive the economic downturn.

10. New trend: increase in helplines

Charity/NFP helplines have been busier than ever during lockdown, and that trend will continue. Helpline services will feature prominently as they offer a lifeline for those less able to leave their homes, those seeking advice from someone like them, and those who are looking for charity support for the first time due to the sudden and extraordinary circumstances caused by coronavirus but are unsure where to turn.

11. New trend: Mutual aid

Even before lockdown, neighbours were setting up informal mutual aid groups, often run through WhatsApp, for their locality or surrounding streets. People who are self-isolating or ill can request shopping or other assistance, and some groups keep morale high with virtual social events. Such hyperlocal groups speak to people's need to take direct action and see tangible impact. How can your charity tap into this community spirit?

12. Increased innovation

Charities/NFPs will have to adapt to survive. Many are already developing great new ways of training, delivering services, and marketing. Speak to your supporters, involve your staff, invest in talented new fundraising and marketing staff, and find new ways to raise money. If any of your funding is restricted, ask the donors to change its terms.

(Moody, 2020)

The recent Royal Commission into National Natural Disaster Arrangements - Report (Royal Commission, 2020, pp. 489-497) highlights the demanding need of transparency, assurance and accountability.

Emerging technologies includes the following summary points:

- A need for Australia-wide agreement on a prioritised research agenda, identifying and targeting critical knowledge gaps.
- Focused investment in research to improve knowledge and understanding, enabling development of expertise and technology to deal with natural disasters.
- All levels of Australian Government to facilitate utilisation of ideas and technologies with the private sector.
- Develop opportunities and utilise technologies in all phases of a natural disaster.
- Development of new technology, and better usage of existing technology.

McLaren (2019) supports the above-mentioned points as donor interactions need to involve technology and adhere to new rules of engagement:

1. Transparency increases trust, and rebuilding trust is tough,
2. Multi-sensory experiences drive memorability, and
3. Donor ownership of the conversation.

Engaging technology to focus on disruption in donations will engage generations with the highest disposable income, also known as "IGWIWWIWWIW" (I give what I want, where I want, when I want) generations, providing an opportunity to break the "I only give to causes that affect me" mentality, and a distinct edge to standing out (McLaren, 2019).

A successful example is SberBank, a Russian bank who is now using machine learning to match users to causes, increasing donations received (McLaren, 2019). SberBank commenced engagement with artificial intelligence (AI) in 2017 and in 2019 recognised the AI added $700 million to annual revenues (Artificial Intelligence in Sberbank, 2020).

2. Blockchain

2.1 What is Blockchain?

Blockchain is a record of commercial accounts spread out, validated, and maintained by computer networks worldwide (Zambrano et al., 2017). Blockchains are public ledgers that store committed transactions in a block. The chain is ever-growing as it continues to append new blocks. The key features of blockchains are decentralisation, anonymity, persistence, and auditability (Puthal et al., 2018). Blockchain is also commonly recognised as the technology affiliated with cryptocurrencies (Zambrano et al., 2017).

Blockchain is immutable; a transaction packed into the blockchain cannot be tampered (Zambrano et al., 2017). The transactions occur without any bank or the usual financial governing institutions, significantly saving overhead costs.

A traditional centralised system database is located on a single server, whereas a blockchain database is spread out across multiple servers and affirmed by peer-to-peer networking, which is outlined in figure 13 below.

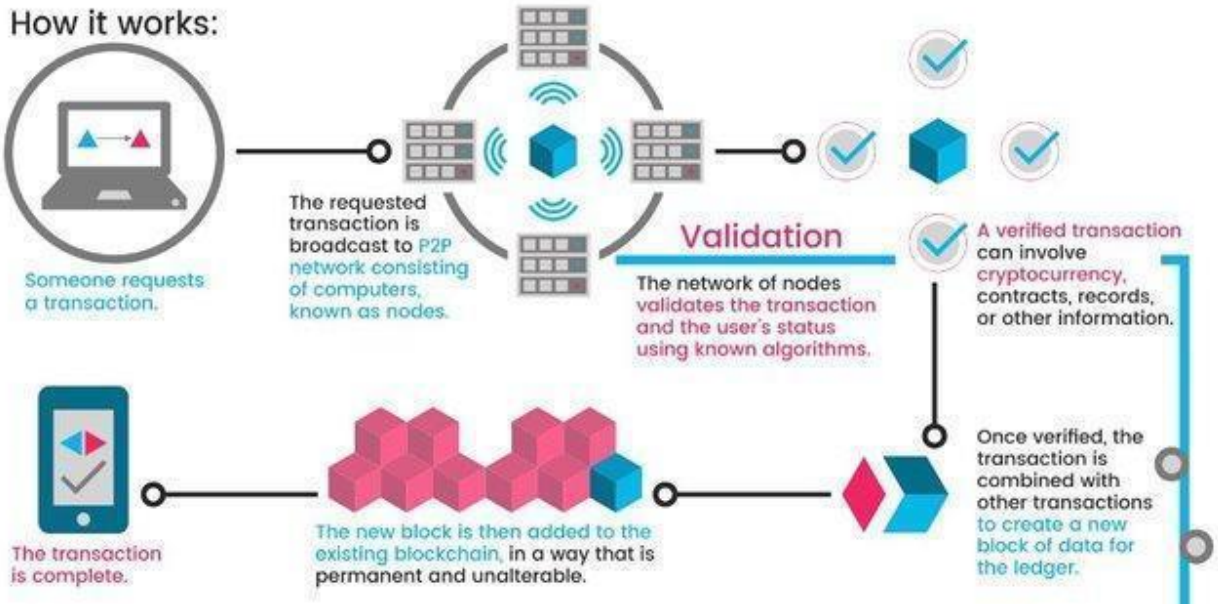


Figure 13 Blockchain Unchained (Henley, 2016)

It allows anybody to view and access all transactions. Therefore, it is extremely difficult for an entity to take control of the transaction network. Transaction cognisance is familiar with the existing system. Users in a blockchain realise the other party via asymmetrical encryption.

There is a public and private key for a transaction to be completed through a digital signature (Zambrano et al., 2017). When a transaction occurs, a computer algorithm verifies whether the deal is authentic. When confirmed, the transaction connects with previous transactions forming a ring of transactions known as blockchains.

Blockchain application is seen in financial services such as online payment, digital assets, and remittance (Peters et al., 2015). It also applies to smart contracts, the internet of things (IoT), public services, security services, and reputation systems (Sharples and Domingue, 2016).

Bitcoin is an example of blockchain technology by hosting a digital ledger, it is the first distributed cryptocurrency created in 2008 (Nakamoto, 2008). It provides a platform to trade, store, and mine bitcoins through sophisticated computer algorithms tied to a dispersed network. Bitcoin conception solves the double-spending challenge by using a proof of work verification algorithm that eliminates the need for fiscal intercessors.

Cryptocurrency tokens offer transaction convenience, which is applicable as an economic transfer of value and incentive as specified by Satoshi (Perlman, 2017).

Blockchain can also be used as a registry and stock list for all assets. According to Don and Alex Tapscott, “Blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions, but virtually everything of value” (Limelight People, 2016).

2.2 Blockchain Technology

2.2.1 Adoption and Scalability of New Technology

Small and medium organisations have the highest adoption of blockchains technologies in Australia, accounting for 93% of the uptake (Bratanova et al., 2020, p. 20). The increase in upcoming start-up businesses that identify the blockchain industry up from 3.4% to 8.1% in 2016 and 2018, respectively (Bratanova et al., 2020, p. 20). Further details are provided in Appendix 3.

Australia is number six in blockchain technology patent filings (Bratanova et al., 2019, p. 32). Patent filings are for protecting blockchain inventions from being replicated by other stakeholders/countries. Patents grant sole rights to blockchain data processing technology, application in administration, financial services, and payment systems (Bratanova, et al., 2019). The scalability challenge arises from confined block size and the consensus method. The method requires that every unit of data structure consecutively formalise the transaction before being put in the blockchain (Springrole.com, 2020).

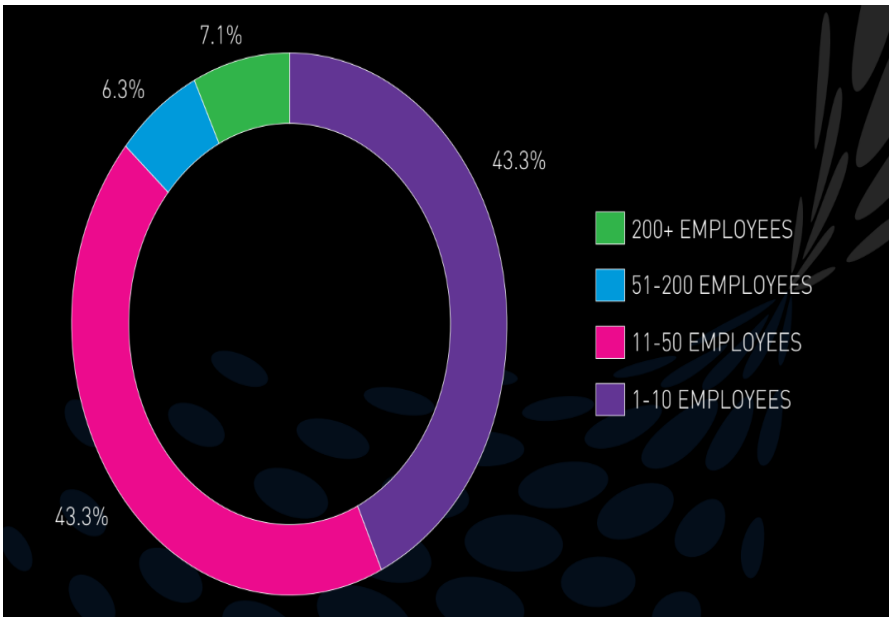


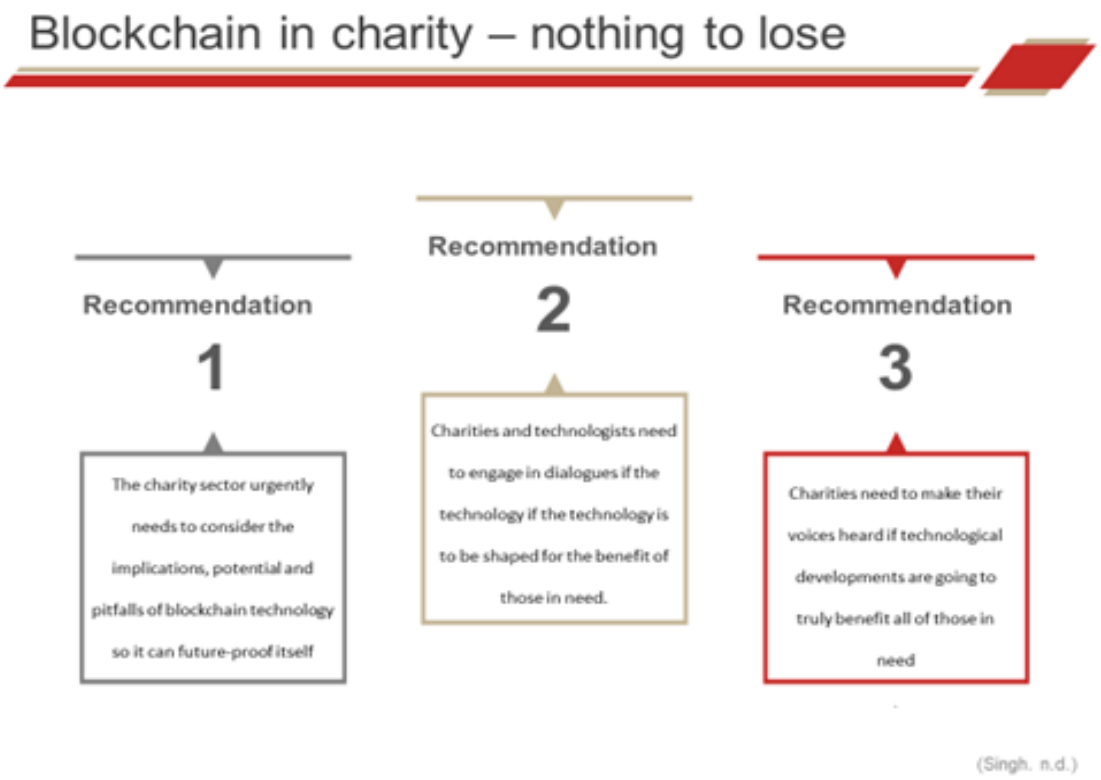
Figure 14 Share of Australian blockchain activities by company size (Bratanova, et al., 2019, p.20)

More detailed information is available in Appendix 3. Inter-Governmental Ledger (IGL), developed by The Australian Border Force, is capable of sharing documents between governments (Ranade & Shaikh, 2020). IGL seeks to replace paper documents with high integrity digital signatures. It is a blockchain solution that will reduce border compliance issues through its electronic ledger that verifies records that suits all trade partners.

2.3 Blockchain and Charities/NFPs

Blockchain technologies can assist charities/NFPs by reducing the transaction fees associated with accepting payments and transferring the money to those in need. Blockchain is not a replacement for charities/NFPs, rather the technology is an additional tool for charities/NFPs to utilise to increase transparency, reach, and cost efficiencies. “Charities play an important role in highlighting societal issues and campaigning for the public to take action”

The current untapped opportunity in Australia to translate blockchain and cryptocurrency technologies into valuable utilities could provide early adopters with an edge on competitors, connecting them further with their donors and the recipients.



(Blenkinsop, 2018).

Figure 15 Blockchain in charities/NFPs – nothing to lose – recommendations (Singh, n.d)

This will in effect have a direct impact on the increase of funds raised, particularly in the international fundraising space. Blockchain capabilities for an organisation are more than just the use of cryptocurrency. Blockchain can provide an opportunity to track donations received

and how the donations have been used during a natural disaster. A blockchain tamperproof timestamped provenance ledger (TTPL) as discussed in section 2.4 provides a solution addressing integrity verification, privacy, scalability, and can support automation, standardisation, or interoperability requirements (Jaquet-Chiffelle, Casey, & Bourquendoud, 2020, p. 1). Barker (2020) explains the effectiveness of blockchain in more detail below:

> *Blockchain technology offers the possibility of making where your donations ultimately more transparent, as long as the rules with which to distribute them are clear. Contingencies could be programmed into a blockchain donation platform ahead of time, so funds were automatically distributed to beneficiaries when rules were met. This level of 'autonomous' decision making can be enabled through 'smart contracts' – a unique feature of blockchain technology allowing rules to be programmed into transactions so that aid funds are disbursed only when specific parameters are met. (para. 8,9).*

The introduction of a blockchain system structure and smart contracts could include autonomous governance requirements, effective information sharing, and cost reductions

Further details on smart contracts are available in Appendix 3.

While large, innovative charities/NFPs may seem the natural choice of leaders for these projects given the scale and size, it is necessary that the whole sector be involved and represented, from old to new, small and large organisations (Singh, n.d.). Charities/NFPs should have an interest and key role in the evolution of blockchain and cryptocurrency technologies and help shape it so they are not left behind, and it represents their sector and maximises the benefits for the organisation, the donor, and the beneficiary. Disburse (2019) has created a good model that can be viewed in Appendix 3.

To enable access to smaller charities/NFPs, who may not have the financial or technical resources available to create platforms to generate awareness, blockchain organisations have developed Application Programming Interfaces (APIs). APIs are basically a set of rules describing how two applications interact, giving access to real-time market data, the ability to trade, and to manage accounts directly (Crypto, 2020). These can be customised and adopted by smaller charities/NFPs to help expand their brand awareness and reach, without the costs of developing technical infrastructure (Blenkinsop, 2018).

Singh (n.d.) in the report Nothing to Lose (but your chains) states "It is absolutely necessary for groups of technology-savvy charity/NFP leaders to come together to work with technologists" to continue to improve and refine the viability of the technology, and mature it, with the aim of ensuring blockchain technology benefits humanity with positive impacts. The main findings of the report are outlined in Figure 16 below:

Figure 16 Blockchain in charity – nothing to lose (Singh, n.d.)

2.3 Smart Contracts

As noted in Section 1.2.1, blockchain technology also allows the development of smart contracts, computer protocols that automate the execution of specified actions, if certain conditions are verified (Hems & Stephens, 2018; Norton Rose Fulbright, 2019). These requirements create certainty and trust within the next steps as they are only automatic if all conditions are met, which may be reassuring to the donor as well. Hems and Stephens (2018) describe the smart contract details below:

By making each donation or investment dependent on the achievement of specific project goals, and by allowing charities and NFP's to transparently demonstrate their 'proof of impact', smart contracts can help build confidence and foster a greater sense of trust and transparency between NFPs and donors and investors. (para. 6)

Further details on smart contracts are in Appendix 3.

2.4 Eliminating the Middleman

The ambiguity of the middleman can create challenges relating to transparency. As described in section 2.1, blockchain is a decentralised system and therefore has the potential to remove the middleman, increasing charity/NFP transparency, especially with the donor. In addition to blockchain security, there are other applications developed to double-check the security of transactions performed via the blockchain, thus increasing donors' trust (Farooq, Khan and Abid, 2020).

Figure 17 below shows the blockchain ecosystem and the main features, such as privacy and identity, distributed ledger, and wallets. The supporting components include smart contracts that help implement business logic and consensus protocols that provide a feedback mechanism and ensure transparency and speed, cost-effectiveness, security, and reliable infrastructure (Jayasinghe, Cobourne, Markantonakis, Akram & Mayes, 2018; Farooq, et al, 2020). The charity/NFP collection blockchain ecosystem's significant components are privacy and identity, monetary transactions, wallets, exchanges, decentralised applications (DApps), distributed storage, distributed ledger, miners, and the supporting infrastructure to build DApps on it (Farooq, et al., 2020).

The described ecosystem removes the need for a middleman, a potential decrease of administration processes long-term, and may reduce the current level of ambiguity experienced by charities/NFPs.

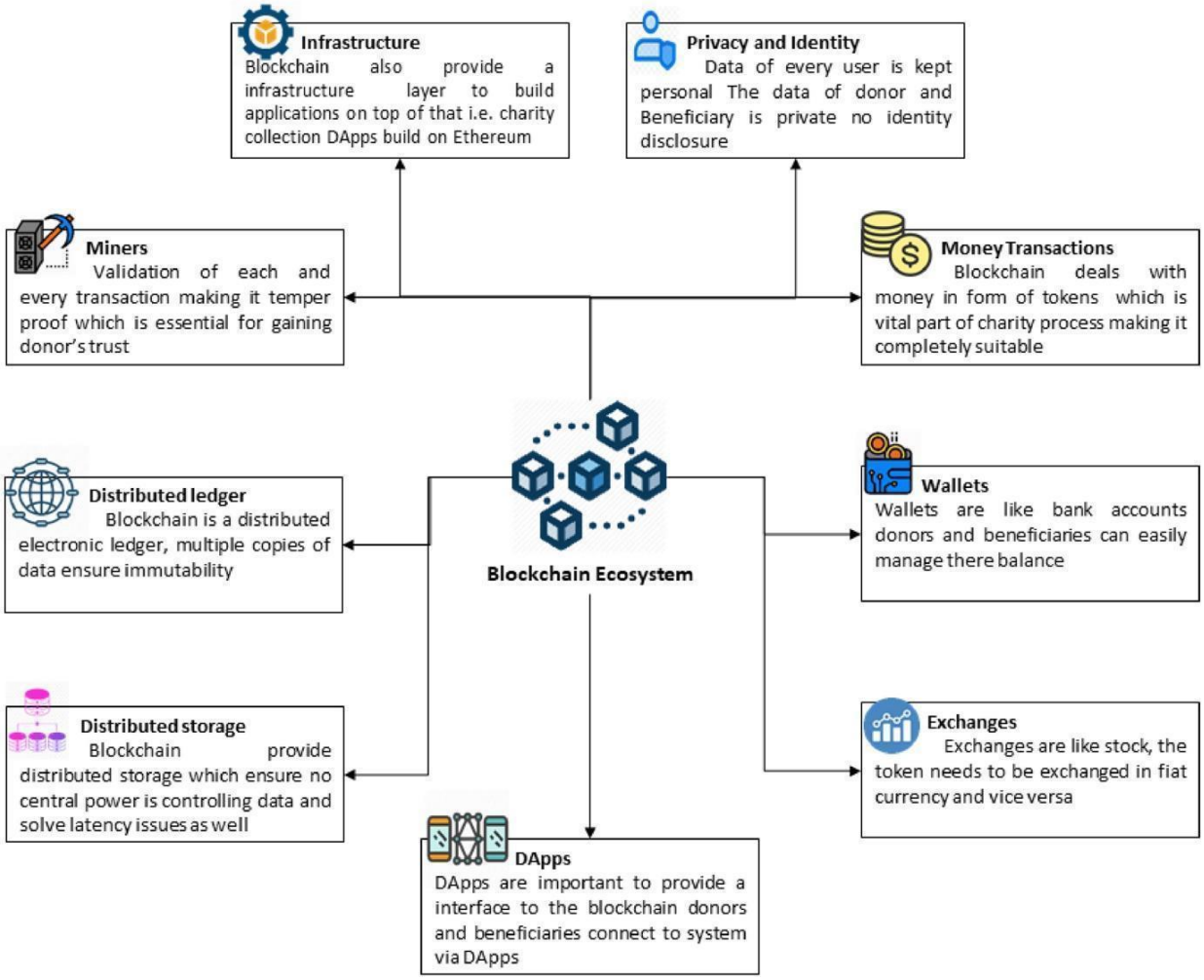


Figure 17 Blockchain Ecosystem (Farooq, et al., 2020)

We have established that blockchain is a revolutionary technology that has great potential to positively change the way charities/NFPs manage and distribute funds. As outlined in section 2.1 blockchain limits the external factors to illegally access or change data which is crucial to organisations gaining the trust of the donors (Farooq, et al., 2020). Rodriguez, (2020) details below Binance Charity's Crypto Against COVID fundraising campaign, which is a charitable campaign to achieve 100 percent donation-transparent, safeguarded delivery.

This aspect alone can provide cost reduction, and immediate return on investment, through the removal or reduction of transactional fees associated with banking, brokers, and currency exchanges (Bennington, 2017). Furthermore, due to the continuous cycle of blockchain creation, the market is always open. It is not bound by stock exchange or global market operating times, meaning a donation can be made and exchanged instantly anytime from

> *When making a charitable contribution, rarely is the donor offered clear insight into the journey of their funds. Binance Charity aims to revolutionize traditional giving, providing a transparent donation process made possible by its underlying blockchain technology. Behind the scenes, every donation is encrypted on an immutable public ledger that generates a transaction ID. Donors can use this ID to track every step of the donation route. (para. 2)*

anywhere in the world (Bennington, 2017).

2.5 General Ledger

Blockchain capabilities for an organisation are more than just the use of cryptocurrency. Blockchain can provide an opportunity to track donations received and how the donations have been used during a natural disaster. A blockchain tamperproof timestamped provenance ledger (TTPL) as discussed in section 2.3 provides a solution addressing integrity verification, privacy, scalability, and can support automation, standardisation, or interoperability requirements (Jaquet-Chiffelle, Casey, & Bourquendoud, 2020, p. 1). In the simplest terms, successful interoperability allows the user to trust that “I know what I see is what you see” (IKWISIWYS) (World Economic Forum, n.d). Further information on the General Ledger is detailed in Appendix 3.

2.6 Third Party

Organisations can opt to work with a third party who can assist with cryptocurrencies, and/or blockchain platforms. The below mentioned third parties are noted to be working with charities/NFPs and may be useful to consider if engaging with this technology. A number of case studies of blockchain technology projects are detailed in the case studies below.

Some more examples of successful charity/NFP blockchain initiatives are summarised below:

- Blockchain behemoth Ripple has previously donated US$50 million of its token XRP to education in the USA,
- Consensys, a blockchain software company that runs Blockchain for Social Impact Coalition, brings together blockchain and the third ledger and counts WWF and the Grameen Foundation as members,
- Binance has its own charity/NFP division called Binance Charity whose mission is to “improve the lives of the ‘bottom billion’ through blockchain technology (Birk, 2019), Binance Charity aims to revolutionise traditional giving, providing transparent donation processes made possible by its underlying blockchain technology. It’s Crypto Against COVID fundraising campaign is the first charitable campaign to achieve 100 percent donor transparently, safeguard delivery (Rodriguez, 2020),
- Multinational investment firm Fidelity reported US$69 million of cryptocurrency donations to their NFP branch, Fidelity Charitable in 2017. In 2016, its first year of accepting cryptocurrency donations it received US$7 million. Vice President Amy Pirozzolo says “It’s one of the fastest-growing assets we are seeing wanting to be donated to charity. Many people that own Bitcoin and other forms of cryptocurrency do want to be philanthropic” (Birk, 2019).
- The Giving Block’s Brave Ad Grants Program, where selected crypto-friendly charities/NFPs received $10,000+ free ads every month in the Brave browser. This would be along the lines of the equivalent of a Google Ads Grant, but for a more tech savvy audience (Wilson and Duffy, 2019).

2.7 Blockchain Case Studies

2.7.1 Network for Good Blockchain Project

East of the river, neighbourhoods display a poverty rate that is three times higher than the rest of Washington, DC (EnventU, 2020). EnventU addresses social issues, opens up alternative pathways of higher education, and advances national efforts to close the workforce skills gap through the untapped talent of young people (EnventU, 2020). EnventU mission is to create a pipeline to professions in the event industry for youths.

EnventU engaged third party Network For Good (NFG) to create a higher level of awareness and revenue. Communications and campaigns created with the NFG software, led to revenue increasing 155%. It is noted that EnventU expanded its programming, grew its donor base, and provided more real-world job experience than ever before (NFG, 2020).

NFG software is described as easy-to-use donor management system, complete with built-in segmentation filters, custom fundraising pages, and personalised acknowledgements (NFG, 2020).

The focus for NFG is enabling small charities/NFPs to have greater success at fundraising by providing fundraising software and tools that are simple to use, with a monthly charge based on the number of contacts. Pricing on this basis reflects the growth and development of the charity/NFP whilst engaging with NFG and reflects successful marketing and fundraising results.

2.7.2 Procivis AG Blockchain Project

In 2016, Procivis AG recognised through a study comparing Switzerland and Estonia's eGovernment intentions, that a trusted digital identity was needed for a digital society (GBB Council, 2020, p. 20).

Utilising blue ocean thinking strategies and blockchain technology, Procivis developed its secure platform through a decentralised public key infrastructure, composed of three core features, as shown below in Figure 18, which serve as a foundation for the host of eGovernment services (GBB Council, 2020, p. 20).

The pilot project in 2017 was successful throughout the six-month period and the eID+ digital identity platform was rolled out to the citizens of Schaffhausen with access to over 100 eGovernment services (GBB Council, 2020, p. 20) as outlined in Figure 18.

Figure 18 eID+ platform (GBB Council, 2020, p.20)

2.7.3 World Wide Fund for Nature (WWF)

WWF, an international organisation established in 1961. is dedicated to reducing human impact on the environment and wilderness preservation. WWF identified that technology could be the means to achieving their objectives, and since 2018 have launched blockchain solutions to provide solutions to different causes. See some of the WWF Blockchain Initiatives (WWF Australia, n.d.) below:

PANDA LABS:

Set up as an initiative to accelerate new and innovative solutions, with specific focus on technology, to achieve WWF objectives and collaborate with extended industries.
In 2017, WWF Panda Labs attended a brainstorming session facilitated by ConsenSys (Etherium infrastructure and ecosystem developer) with 10 WWF employees and 10 outside experts to identify potential blockchain use cases
Innovation program has now won awards for their work to accelerate emerging technologies impact on social and environmental causes (WWF Australia, n.d.-b).

IMPACTIO:

Collaboration between WWF- Australia and ConsenSys
A distributed blockchain funding platform set up to link sustainable development projects with donors / investors in order to address the $2.5 trillion-dollar gap in global funding.
Projects go through a curation process whereby the Impactio curators and project leaders collaborate to improve the project quality before presentation to potential investors. Subject matter experts can access projects for feedback and guidance (Impactio, n.d.).

OPENSC:

Collaboration between WWF-Australia and BCG Digital Ventures (BCGDV):
Online platform that uses blockchain to track food and helps consumers identify unethical or environmentally damaging products.
What issue does this address? 70% of global biodiversity loss can be linked to food production and even in modern times, human rights abuses are linked to the food production industry
Data is collected and stored on a blockchain digital ledger and tracks when, where and how a product is produced, how it was transported and by whom.
Process Explanation (Tuna Fish): Data is captured through a combination of radio-frequency identification (RFID) and QR codes through the supply chain process. A RFID tag is attached to the tuna fish once caught, which tracks the fish as it passes through various devices (on the boat, the dock and processing facility). At the point where the fish is divided into multiple products in the processing facility, a QR code can be attached that follows the product to the end retailer. Consumers and retailers can scan QR codes (from restaurant menus or supermarket aisles) to learn where their fish originated.
Blockchain technology outcome: Transparency and Traceability in the supply chain provides consumers and businesses confidence in the origin of their food. With consumer transparency of fish origin, whether it was legally caught from a sustainable fishery and outside of a protected marine area, consumer purchasing can change the industry to a more sustainable one.
One of the key learnings was that consideration had to be given not only to the blockchain technology design, but also to the practicalities of collecting data to enter the blockchain process as fishing boats operate in remote locations. Refer to video (WWF Australia, 2018).
Raised over US$4Mio in capital (WWF Australia, n.d.).

See Figure 19: How Open SC Works below

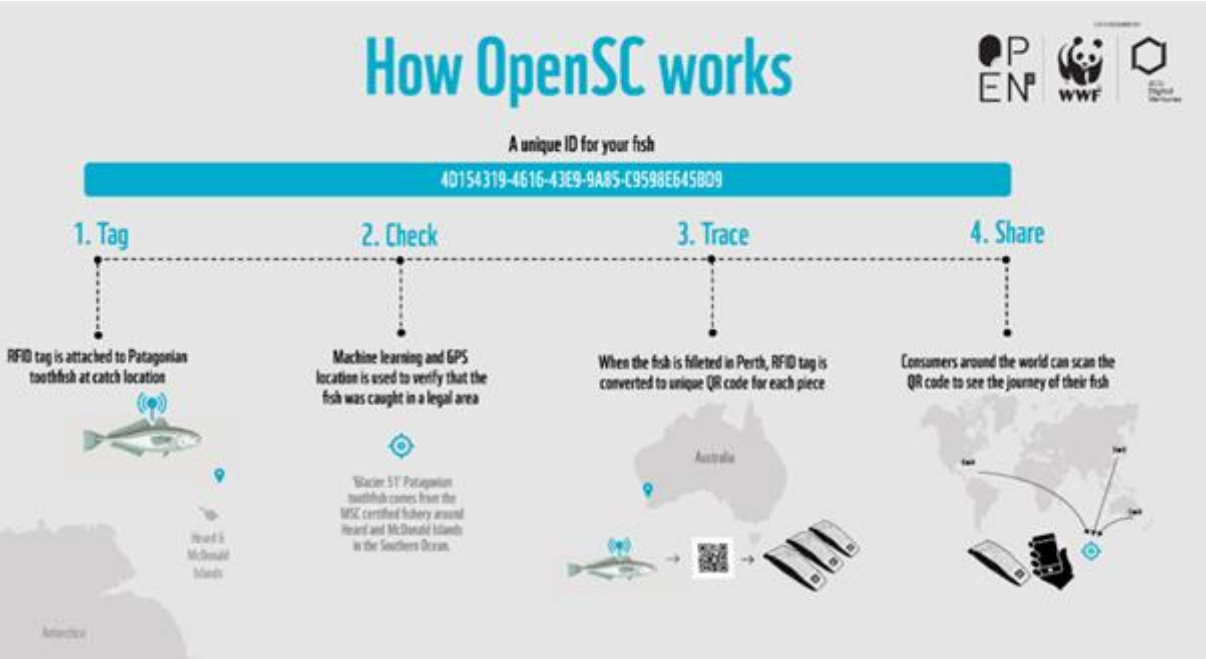


Figure 19 How OpenSC Works (WWF Australia, n.d.)

A common theme through research is that WWF has been very successful in identifying where best to allocate new blockchain technology and using collaboration with various industry and technology experts to fast track the results they expect to achieve. By opening the developed platforms and intel, they have been able to re-create the success on a much larger scale (WWF Australia, n.d.-b).

2.7.4 Tokens for Humanity

Tokens for Humanity Ltd is a small-scale ACNC registered charity/NFP established in 2018. The charitable organisation was started with the mission to reinvigorate public trust in the charity/NFP sector using innovative technology such as blockchain. Tokens for Humanity recently created a blockchain suite of products that allow their partners to harness the quantum leap that this technology provides (Tokens for Humanity, 2018).

During an interview one of the volunteers at Tokens for Humanity explained that while the organisation was successful at attracting some interest from the charitable sector and donors, Tokens for Humanity only achieved 25% of its anticipated charity/NFP partners (James, personal communication, September 17, 2020).

Tokens for Humanity mention that part of their core business is a focus on transparency and accountability and that "our core creation is blockchain software systems that support a non-profit organisation. These systems power Tokens for Humanity, allowing it to fundraise and be governed on-chain" (Tokens for Humanity, 2018).

Additionally, it is confirmed that "Donations made to Tokens for Humanity all go towards assisting charities/NFPs raise money with the development of new blockchain products and public awareness of charitable causes" (Tokens for Humanity, 2018).

According to Tokens for Humanity (2018), donor security is treated as its top priority and processes have been created to protect donations including but not limited to:

- providing cold storage (digital wallets),
- using PGP to encrypt all internal messages.
- storing sensitive information on FIPS 140-2 external storage and backup paper wallets in a bank security box.
- adhering to ISO31000:2009 Risk Management Framework,
- police-check for all employees, never off-shore any work,
- diversified sale process to ensure the best price for donated cryptocurrency and security through lower reliance on any one exchange,
- funds greater than AUD150 are not held on the exchange.

James also stated that compliance with Privacy Law was of paramount importance to Tokens for Humanity and a full disclosure of how the information is used, stored, shared and disclosed has been clearly included on its website for all donors and charities/NFPs (James, personal communication, September 17, 2020). James (2020) added:

> We don't ask for or share any personal information at any time, only with the exception to recipient charity if information is required to give to a certain charity. All records are then destroyed. Donors can register with Tokens for Humanity for updates. We keep our donors updated with the impact of their generosity (James, personal communication, September 17, 2020).

Tokens for Humanity is committed to fulfil all regulatory and compliance obligations. The organisation is audited by an external auditor annually and publishes all financials on its website. Tokens for Humanity believes in the vision of blockchain and did not involve an ICO in its development (James, personal communication, September 17, 2020).

2.7.5 Save the Children UK

How a charity/NFP started the evaluation process of how to utilise blockchain technology.

Save the Children in the US was one of the first global not-for-profit to accept cryptocurrency in 2013 (Save the Children, n.d.). Save the Children UK, started investigating the best use for blockchain technologies to improve their efficiency and effectiveness in deploying resources in 2016 (Save the Children, 2017). They identified a number of areas within their organisation where blockchain could be relevant, and have summarised where they saw best fit and challenges:

Table 03 *Best fit opportunities for Blockchain in the Save the Children organisation* (Save the Children, 2017)

General Area	Specific Area of use	Initial Consideration
Fundraising / Income	Cryptocurrency donations accepted	First adopter challenge. Income might be marginal vs effort
	Smart contracts for philanthropy	Charities rely on corporate partnerships, possibility to automatically trigger additional funding if key criteria are met as per contracts
	Revenue generation through Internet of Things	People getting paid for cryptocurrency mining, Save the Children access a portion of that
	Efficiencies in transaction cost	Currently transfer millions of pounds of cash each year, consideration into whether blockchain could optimise this process

Operations	Supply chain tracking / fulfilment	Currently distribute goods and services globally, blockchain could be adapted to reduce potential fraud when goods are sent overseas (given they send supplies to fragile states)
Governance	Transparency & accountability	Predict that there will be a greater demand of transparency going into the future, including industry / regulatory reporting
	Donor reporting	Saw benefit in 'seed funding' where donors will increase their donations if certain results / impact is met (payment by results)
Direct Giving	Disintermediation	To remove the reliance on the charity / foundation itself to distribute funds. i.e. direct giving via a Bitcoin visa card that can be sent to beneficiaries in an emergency.

A decision was made to proceed with their first initiative, a digital passport which links the identities and accreditation of aid workers being deployed overseas in response to emergency situations through blockchain technology.

Now in collaboration with Interpol and the Association of Chief Police Officers' Criminal Records Office (ACRO), Save the Children UK will coordinate additional NGOs to participate in this project. The objectives are, to significantly speed up the time to be able to deploy aid workers as well as address sexual abuse in the aid sector (Abrahams, 2018).

Interpol and Save the Children are hoping to start with a pilot of the new AID worker passport technology in 2020 (Department for International Development, 2020).

Save the Children®

2.7.6 Red Cross

Thomas Reuters Foundation reports the **Red Cross societies of Norway, Denmark and Kenya** launched a two-year plan to replace cash and vouchers provided in aid and development efforts with blockchain-backed “local currencies” (Hulliet, 2019). The project aims to improve the use of $1 billion a year in aid distributed as cash and vouchers by the Red Cross to meet needs before and after disasters (Goering, 2019). The new currencies use credits transferred by a mobile app which automatically records transactions via a blockchain ledger, enabling individuals to be paid for laborious work, and spend the credits earned on local goods and services (Goering, 2019; Hulliet, 2019).

Goering (2019) notes how Adam Bornstein, Danish Red Cross, said the system works like M-Pesa mobile money transfer system, minus the requirement to hold Kenyan shillings. Testing in parts of Kenya and Ethiopia showed improved economies in poor communities and this project may be rolled out to Malawi, Myanmar, Zimbabwe, Cameroon and Papua New Guinea - creating 320,000 users (Goering, 2019; Hulliet, 2019).

Will Ruddick, founder of Grassroots Economics, recognises the benefits include transparency and data privacy, relatively cheap to run, and potential to provide aid donors with near real time distribution, allowing then to adjust their provision to better serve communities (Goering, 2019; Hulliet, 2019).

Red Cross Ireland has partnered with AID:Tech to create the mobile app “TraceDonate” to enable donors to know exactly how their donations to charitable causes are spent. Designed to be like your day-to-day e-commerce journeys, donations can be to individuals and appeals connected to the platform by international NGOs and humanitarian organisations ("FAQ — TraceDonate", 2019). TraceDonate ("FAQ — TraceDonate", 2019) has a global online payment processor, enabling payment with any credit/debit card (including AMEX) and does not involve any cryptocurrency. Via the shared ledger, AID:Tech partners and donors can monitor transactions in real time, increasing trust and engagement with real time updates via email and SMS whenever a donation is used ("FAQ — TraceDonate", 2019; Hulliet, 2018). Liam O’Dwyer, secretary general of the Irish Red Cross, told The Irish Times that the partnership with AID:Tech provides the organization with an opportunity to “further promote transparency in the [charity] sector,” and to serve as a “benchmark for the donation process” (Hulliet, 2018).

the power of humanity

AUSTRALIAN RED CROSS

2.6.7 Key strategies when considering utilising blockchain technology

According to Leong & Viskin (2019), there are some key takeaways when considering blockchain technologies:

- Ensure that blockchain will add the intended value (i.e. ensure traceability of commodities such as Tuna),
- Any blockchain system must be able to connect easily with all the key parts of the chain (e.g. farmers, processors, distributors, retailers etc) and will only be successful if the same systems are utilised,
- Data must be presented uniformly otherwise results will not be as valuable,
- As much as possible, address human error and automate the data collection where possible (e.g. radio ID tags that can be scanned as an alternative to manually entering date, time and location stamp),
- Be aware that there must be a balance between transparency, security and privacy. Detail is necessary for the results to be valuable, but complete transparency could open Privacy Law risk or give away competitor knowledge).

3. Cryptocurrency

3.1 What is Cryptocurrency?

Cryptocurrencies are a subgroup of digital currencies (Kuo Chuen, Guo, & Wang, 2018, p. 17), however, despite being a subset it has become a major type of digital currency. Unlike fiat currencies, like the United States Dollar that are made available in a geographical location or community, cryptocurrencies possess different qualities and are decentralised (Kuo Chuen et al. 2018, p. 17).

Cryptocurrencies can be bought, sold, and traded on exchanges, similar to the way one would buy, sell and trade stocks on a stock exchange or stock market. There are many different exchanges with a range of advantages and disadvantages which can be seen in section 3.2. In order to buy, sell and trade cryptocurrencies on an exchange, a wallet is required to store cryptocurrencies (Kuo Chuen, et al., 2018, p. 17). Much like exchanges, there are different types of wallets, each with advantages and disadvantages. A breakdown of the different types of cryptocurrency wallets are detailed in Appendix 5, and the advantages and disadvantages are available in section 3.2.

Cryptocurrencies are decentralised networks and utilise blockchain technology that is spread across a network of computers to ensure anonymity as covered in section 2.1 (Kuo Chuen, et al., 2018, p. 17). Cryptocurrencies are shielded from government interference and manipulation as they are decentralised, and they exist outside of the control of governments. Cryptocurrencies allow secure online payments through virtual tokens which are expressed as ledger entries.

Bitcoin and Ethereum, the two main cryptocurrencies (detailed in Appendix 2), rely on blockchain technology for functionality, which it uses to compile and maintain an online ledger of all transactions that have ever taken place, providing a secure data structure that is agreed upon by all parties. Each time a new block is generated it must be verified by every node in the network before it can be confirmed, making transaction histories very difficult to be forged (Glas, 2019). This verification process provides an added level of security over traditional transaction methods such as payment through a bank or Visa/Mastercard. This transaction history is a public ledger, meaning it is possible to see who sends money to who and when. This level of transparency should bring down the level, or at least the ease, the possibility of cryptocurrencies can be used for illegal and immoral purchases (Glas, 2019). Cryptocurrency transfers are secured via the use of public and private keys and systems such as proof of work, and proof of stake which use hashes (detailed in Appendix 3)

Figure 20 below shows a high-level example for cryptocurrency framework architecture engaging with donors, beneficiaries with wallets, and other organisations. Donation management platforms, earlier described as DApps, consist of initial coin offering (ICO), ICO exchange, third party payment gateway integrations, and multiple wallets integration, as there are different wallets for different digital currencies, which are discussed in detail in the economic

model Appendix 2 (Farooq, et al., 2020). The example framework enables two methods of payment:

1. Direct donation by the donor to the beneficiary. In the future, this may include government or religious organisations, which have an account or digital wallet.

2. Donors who select an organisation or charity/NFP that is trusted to deliver items needed in natural disaster locations or a situation deemed an Act of God. With this type of donation, the charity/NFP will send an image or communication, showing how the gift was used to aid the appropriate person or location. This engagement and transparency level will promote donor trust and create advocates for engaging with the organisation with cryptocurrency donations.

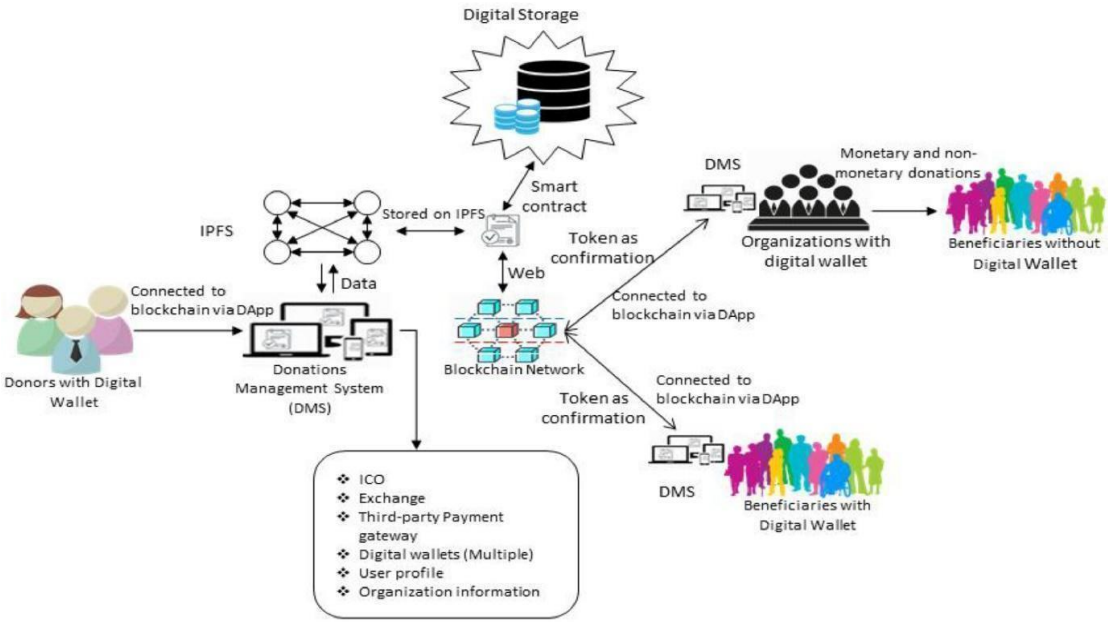


Figure 20 High-level framework architecture example (Farooq, et al., 2020).

Figure 21 shows the process of receiving and selling cryptocurrency, which is similar to public stock gifts, described by AICPA (2018) requiring compliance to be upheld throughout each step.

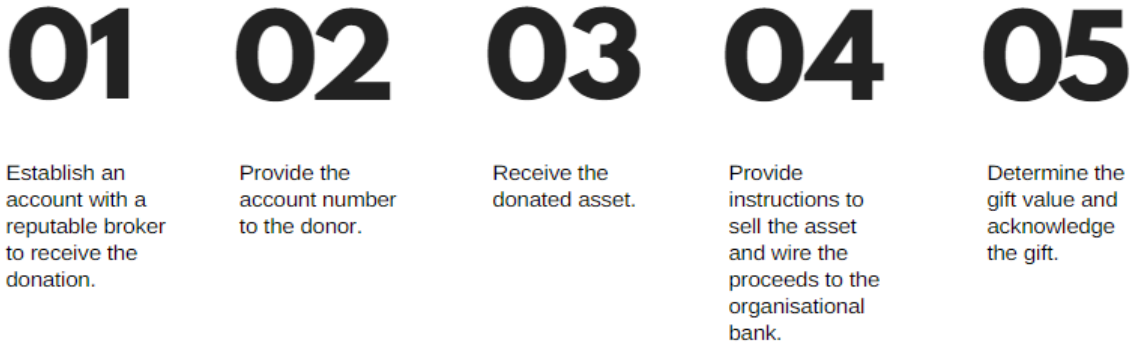


Figure 21 Process of receiving and selling cryptocurrency (AICPA, 2018).

Internal organisational controls are required during each step of the process to ensure compliance with all regulations (CPA Australia, 2011). These controls ensure compliance and due diligence are completed, enabling a higher transparency level, as the banking and financial services sectors continue to work on creating robust controls. Regulations may include taxation laws and legal obligations, which may not be in effect presently, and will be discussed further in section 4.

3.2 Advantages and Disadvantages

Digital currencies are quite unique which provides some advantages over traditional currencies and ways of conducting transactions (Presthus & O'Malley, 2017, p.89). The world of cryptocurrencies is relatively new, and is constantly evolving, so it is important to weigh up the advantages and disadvantages (Presthus & O'Malley, 2017, p.89). In Table 04 below there is a breakdown of some of the most definitive advantages of cryptocurrency transactions.

Table 04 *Advantages of cryptocurrency transactions*

Inflation protection	There will only ever be 21 million Bitcoins, which means that unlike fiat currencies such as the US dollar, more supply cannot be generated or printed.
Self-managed and governed	Transactions are stored on the blockchain and miners get paid a fee for their service. This maintains integrity and records.
Private and secure	The ledger is based on equations and formulas making them difficult to decode.
Decentralised	A major drawcard of cryptocurrency is that they are primarily decentralised. Decentralisation means that no particular organisation can control the value or flow of the currency. This is opposed to fiat currencies which governments have control over.
Low transaction costs	Sending cryptocurrency has a lot lower transaction fees than using a third party such as Paypal or Visa.
Faster Transfer	Cryptocurrency transfer is very fast compared to other forms of transaction because the verification process is much faster (Krasilnikov, 2018, p. 254).

Despite all the advantages of cryptocurrencies, this is still a new technology with an uncertain future, so it is important to weigh up the disadvantages of cryptocurrency (Krasilnikov, 2018 p.254). Table 05 below is a summary of some of the disadvantages of using cryptocurrencies.

Table 05 *Disadvantages of using cryptocurrencies*

Use for nefarious activity	High security for transactions means that it can be difficult to track down users by the wallet address. Cryptocurrency has been shown to be used in illegal weapons and drug deals on the dark web. Foley, Karlsen, and Putniņš (2019, p. 1803) found that more than thirty million users are using bitcoin to purchase illegal goods or services.
Losses in data can lead to loss of money	If an individual loses the private keys to their wallet, the currency is gone, there is no way of getting it back.
Currency manipulation	Currencies are controlled by the organisations that created them and often owners and founders will hold a large amount of their coin in reserve until the price rises and then sell them at a profit, leaving the currency price to go into free fall, sometimes going to zero. This is similar to a new technology company on the stock market if the founding members were to sell their shares and leave the business.
Effects on the environment	Mining of cryptocurrencies requires huge amounts of computers and electricity; the main offender is Bitcoin which uses up to 45.8 Terawatts annually through Bitcoin mining farms which are warehouses full of computers whose sole job is to mine bitcoin. The annual carbon emissions from Bitcoin is similar in scale to that of Sri Lanka or Jordan (Stoll, KlaaBen, & Gallersdörfer, 2019, p. 1652).
Decentralisation	If a dispute occurs or coins get sent to the wrong place, they cannot be retrieved (Krasilnikov, 2018, p. 254).
Price fluctuations	The price is constantly changing with quite a high volatility, so you can never be certain what the currency will be worth one day to the next. This can be of particular importance for charities/NFPs where donors pay in cryptocurrencies because there is a risk that the amount received, and available to use, will end up being less than the amount donated. This can be mitigated for the most part through the use of stablecoins which are covered in Appendix 2.

Not tethered to anything tangible	Most cryptocurrencies are not tethered so their price is purely dictated by supply and demand. This has led to the recent invention of liquidity pooling to try and ensure that if you buy a cryptocurrency and later want to sell it there is someone on the other end to facilitate the trade.
Simplicity and convenience	So far it is still an inconvenience to learn about how to enter the world of cryptocurrency because this means learning all the background information surrounding cryptocurrencies, then deciding which cryptocurrencies to use for transactions, which type of wallet, and which particular exchange to use. The barriers to entry are still quite high compared to the alternative of simply opening up your physical wallet and paying by credit card (Grossberg, 2018).

3.3 Volatility of Markets

Interest in cryptocurrency is growing, however, the current financial and economic literature is still lacking in evidence on the hedging, diversification, and the safe haven that properties have previously proven a track record against other assets, such as bonds and stocks (Liu & Serletis, 2019).

The cryptocurrency market is extremely volatile, the average daily amplitude (fluctuation from price low to price high) can be as high as ten times greater than the money market. This was highlighted during the 'cryptocurrency boom' in December 2017, when Bitcoin prices soared to around 700%, recording a new price high of $19,891, and earlier that year other cryptocurrencies had reached even higher growth yields than Bitcoin (Fry, 2018). More detailed information available in Appendix 2.

3.4 Who Owns Cryptocurrency

The inaugural Independent Research Cryptocurrency Index (IRCI) conducted a survey with 1,000 Australian participants from all walks of life, that was geographically and demographically proportionate to the Australian population. The outcome was that Australians' outlook for these markets is inevitable that cryptocurrency will become a part of everyday life (Independent Reserve, 2019). The survey found the following:

- As many Australians own cryptocurrency (17%) as those who own more than one investment property (17%),
- Nearly a third of regular investors spend $100 to $500 per month on cryptocurrency,
- The majority of Australians under 44 believe cryptocurrency will be widely accepted by people and businesses,
- In 5 years, the majority of millennials and Gen Z's will own cryptocurrency,
- A quarter of all respondents under 44 are considering using their superannuation to purchase cryptocurrency,
- Bitcoin is the most recognised and owned of all digital currencies in Australia,
- 16.8% of Australians own some form of cryptocurrency, with over a third of millennials and over a quarter of Gen Z owning 35% and 27% respectively (Independent Reserve, 2019).

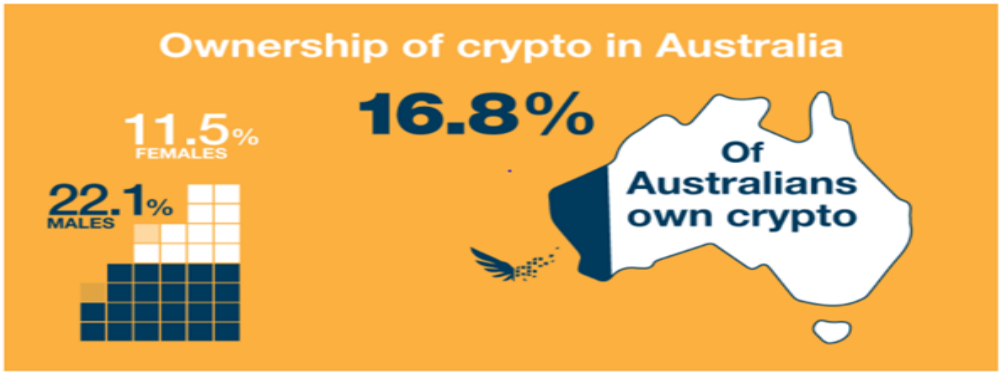


Figure 22 Snapshot of cryptocurrency ownership in Australia (Independent Reserve, 2019)

Profile: Average Australian Bitcoin Owner
Gender: Male
Age: Under 34
Living on: Eastern Seaboard

Background

- The majority of Australia's bitcoin (BTC) users (63%) said they specifically got into it as an investment strategy rather than to actually make transactions. And around Australia, the bigger and more expensive cities have an exceedingly disproportionate portion of bitcoin users.
- 29% are in New South Wales
- 3% are in the ACT27% are in Victoria
- 24% are in Queensland

Challenges

- Access to financial services seeking to utilise bitcoin as an investment vehicle.
- Lack of economic services to utilse cryptocurrency as a form of currency
- 70% owned less that 1 bitcoin
- 3% owned more than 25 bitcoin
- Less than 10% engaged in bitcoin transactions daily
- Cited transaction privacy, fluidity of transnational transaction and decentralisation in the principal appeal of Bitcoin
- Rising GST's associated with transaction not cited as a significant concern - dominant use as a means for resistance
- 50% cited risk of or theft as a major concern.
- Only 5 % cited issues pertaining to anonymously as a concern.

Identifiers

There's also a lot of diversity in users' choice of wallet.

- 49% use a mobile wallet for access on the go. This most popular option might be a good idea for such a volatile asset.
- 35% use a desktop wallet and prefer to access their coins from their home computer.
- 30% use a web wallet for versatile multi-platform access through a third party system.
- 15% use cold storage, such as putting their keys on a USB or external hard drive. If you don't want to touch it, then cold storage might be the place to put it.

Demographics

- 90% of Bitcoin users are male
- Of bitcoin users, most are 25 to 34 years old (46.32%), followed by those aged 35 to 44 (26.76%).
- The CoinDesk survey also found that 60% of Bitcoin owners are under 35 years old, and 65.8% identify as white, followed closely by those who identify as Asian.

Figure 23 Persona Australian Average Bitcoin owner (Hutchison, 2020), (Munro, 2018)

Cryptocurrency holders are an appealing demographic globally for charities/NFPs (Pretorian, n.d.). According to Leinz (2018), 71% of bitcoin owners in the US are males, and the majority are between the ages of 18 and 34. Interestingly, with over half of them identify as a minority. Most bought bitcoin because they saw it as an investment that would grow over time rather than a currency (Leinz, 2018). The cryptocurrency exchange platform, the Independent Reserve, reports that “the average cryptocurrency investor is transforming from early technology adopters to forward thinking investors...with the 45+ age group now almost 30 percent of users on our platform” (The Meeting Place, 2019).

The cryptocurrency community is highly interactive, and passionate globally, and has a strong presence in Australia, which has one of the largest and most active crypto communities in the world (Birk, 2019). Examples of early adopters of cryptocurrency payments, taking advantage of this growing payment method and the opportunities for expansion are detailed below.

Australia Post, one of the most established and well-known businesses in Australia, started accepting Bitcoin at all locations from June 2020, marking a major milestone for the advancement of digital currency in Australia, and around the world. Established businesses are learning about implementing these technologies (Redman, 2020). Holger Arians, CEO of Bitcoin.com.au said “Our mission is to make Bitcoin safe and easy for every Australian” (Redman, 2020).

Coca-Cola Amatil also has a collaboration with bitcoin.com.au (Mrak, 2018) with over 2,000 vending machines in Australia and New Zealand accepting payment by bitcoin (Redman, 2020). With two of Australia’s most reputable organisations at the forefront leading consumer confidence, charities/NFPs can take advantage of the growing donor trust in the technologies, thereby widening the donor pool. Charities/NFPs can have the option at fundraisers, at charity/NFP stores, and at community events to have the option of POS cryptocurrency payments. Charities/NFPs can have online options for acceptance cryptocurrency payments that could expand their global reach, and deter donors from choosing another option that may accept that form of payment.

During the COVID19 pandemic, the increase of new entrants into the Australian cryptocurrency market has increased noticeably due to people having extra time, and looking for additional revenue streams (Wen, 2020). Millennials and sophisticated investors have shown the most interest in the cryptocurrency market and the options for investment (Wen, 2020).

There has been considerable advancement in acceptance by banks, major institutions, and regulatory authorities in many countries, illustrated by the example of JP Morgan CEO Jamie Dimon in 2017 calling bitcoin “a fraud” publicly. Then in 2019 JP Morgan became the first US bank to not only successfully test, but get its own digital coin (Wen, 2020). Kraken Managing Director Australian, Jonathon Miller, says “I think what we will see is the use of blockchain to facilitate all types of financial activities, including fundraising” (Wen, 2020).

Paypal also announced on 21 October 2020 that they will be accepting cryptocurrency as a form of payment from late 2020, which makes PayPal a major digital wallet as well as a

cryptocurrency exchange (Statt, 2020). With 346 million active accounts, of which 26 million are merchants, the adoption of these payment methods has the potential to increase the adoption of cryptocurrencies for everyday users and online merchants (Statt, 2020). PayPal have also confirmed they will be providing account holders with educational information to help them understand the cryptocurrency ecosystem and how it all works (BBC, 2020). CEO Dan Schulman says PayPal will convert the cryptocurrency to the relevant national currency for the merchants and is focussed on working with central banks and regulators around the world to support the transactions on PayPal's platform (Statt, 2020). Merchants will not need to transfer the digital donations into dollars following the transaction (Statt, 2020). This is an opportunity for charities/NFPs who offer PayPal as a third party payment provider to take advantage of an additional form of donation with no risk to the organisation, and widens the donor pool with PayPal's extensive global market base.

There are further detailed case studies on cryptocurrencies in section 3.10.

3.5 Cryptocurrency Wallets

To invest, trade, and store cryptocurrencies, a cryptocurrency 'wallet' is needed. The choice of the wallet is up to the user, and it does not affect the transaction with the cryptocurrency exchange. The main things to consider when choosing a wallet are what is the level of risk you want to be exposed to, as a wallet you can take offline mitigates the risk of hacking, and what level of portability is required.

These wallets come in many different forms such as online wallets, paper, brain, desktop, and hardware wallets. Desktop wallets are also called 'full' nodes and contain a complete copy of the blockchain involved in the currency. This does create a huge amount of data and can take a long time to load. A simple payment verification (SPV) wallet is also a full node but it is hosted somewhere else. The benefit is the full node security without the necessary data storage capacity and syncing time. There is further detailed information on wallets and types in Appendix 2.

3.6 Cryptocurrency Exchanges

In order to facilitate the buying, selling, and trading of cryptocurrencies, exchange platforms must be used. Exchange platforms are similar to a stock exchange where stocks are bought, sold and traded on a daily basis (Xia et al., 2020, p.98). There are many different types of exchanges each with their own advantages and disadvantages which can be seen summarised in Appendix 2.

3.7 Insurance for Cryptocurrency Exchanges

In 2019 more than $283m million worth of cryptocurrency was stolen across eleven major cryptocurrency exchanges, and cybersecurity experts expect those numbers to increase in 2020, warning hackers will take advantage of the COVID19 crisis (James, 2020). Cryptocurrency owners with “hot wallets’, wallets with assets stored online on exchanges, versus “cold wallets”, where cryptocurrency owners store their assets offline, are the most vulnerable to theft and insurance is an important factor when considering storage and exchanges for holding cryptocurrencies. Whilst cold wallets are safer many cryptocurrency owners use hot wallets because it allows quick access to their cryptocurrency. There are only a small number of insurers who will provide a liability policy that could cover the losses in hot wallets due to hacks. The policies are held by cryptocurrency exchanges, and there is no insurance available for individual cryptocurrency owners at this stage. Providing protection for their customers has allowed exchanges to increase their customer base by offering the protection on their investments (Blake, 2020). The value of the insurance is in line with the value of the cryptocurrency at the time of the breach, not what it was purchased for, whether that be a higher or lower value (James, 2020). The insurance does not cover for a mistaken transfer of cryptocurrency to a third party, direct hardware loss or damage, loss of personal keys or logins, or for disruption or failure of the underpinning blockchain (James, 2020). David Janczewski from Coincover says insurances are removing one of the major barriers to mass market adoption of cryptocurrencies and has been verified by a large growth in enquiries since Covid19 lockdowns commenced (Blake, 2020).

3.8 Which Coin?

There are many different cryptocurrencies available for use, but there are three main categories of cryptocurrency. These are Bitcoin, alternative currencies (altcoins), which are cryptocurrencies other than Bitcoin (i.e. Ethereum discussed earlier), and last of all there are tokens. Tokens operate on top of a coin network as a platform. In 2017, the number of tokens took off from less than 50 to 400 by then January 2018 (Wu, Wheatley, & Sornette, 2018). Some of these cryptocurrencies, such as Bitcoin and Ethereum, utilise blockchain technology to take advantage of record keeping and decentralised functionalities. Ripple and IOTA are examples of cryptocurrencies that do not use blockchain technology, and instead a system called Gateway, which in the case of Ripple which acts as an intermediary for transactions and the Internet of things in the case of IOTA (Wu, Wheatley, & Sornette, 2018). These differing systems come about mainly because of differing philosophies by the developers of each individual cryptocurrency.

3.8.1 Altcoins

Altcoins are mainly built on the same framework as Bitcoin, each slightly different to the other, as they are all created for a unique application and purpose. Ranging from community open source projects, such as stellar through to coins such as Ripple, some are designed for large corporation transactions (Liu, 2019).

Some coins do not operate within an open-source format, such as Ethereum, Omni, Ripple, Waves, Nxt, and Counterparty, which are all altcoins that have made their own protocols and systems and support themselves.

3.8.2 Tokens

Tokens are made and distributed following Initial Coin Offering (ICO), which is the cryptocurrency equivalent of an Initial Public Offering (IPO). Tokens can be represented as value tokens (Bitcoins), utility tokens (designated for specific uses), or security tokens (used to protect your account). Tokens are used to distinguish functionality; they represent value but are not valuable in and of themselves. Tokens are forms of encryption; they cover a large range of functions. Table 09 details the most common forms of cryptocurrency and is located at Appendix 2.

3.9 Investing Opportunities

Buying and selling cryptocurrencies as investments is an extremely risky business, as demonstrated in section 2.3, as opposed to traditional investments such as stocks and bonds. Over 900 cryptocurrencies have gone to zero already (Reed, 2019). On top of this, the volatility of coins is extreme, and in a week alone the range of volatility amongst all cryptocurrencies can be anywhere between positive 29% to negative 75% (CoinMarketCap, 2020, para. 6). Details regarding Liquidity pool token and yield farming, and Liquidity Pool Token and Yield Farming Risks is located in Appendix 2.

3.10 Third-party Management Funds

Outside of the investing opportunities of liquidity pooling and yield farming in Appendix 2, there is the possibility of utilising third party cryptocurrency management funds. As stated in Appendix 2 pump and dump schemes and scams are rife in the cryptocurrency space so determining what is genuine and which is a scam or fraudulent is a difficult task and has thus far yielded very limited results. Further information is available in section 7.

One particular management fund called ‘yield nodes’ has shown outstanding stability and profitability although it has only been running since late 2019 (Prasad, Shankar, Gupta, & Roy, 2018, p. 436). Further details relating to yield nodes can be found in Appendix 2.

3.11 Case Studies

3.11.1 Case Study 1: TravelbyBit & Brisbane Airport

In 2018 Brisbane based Australian start-up TravelbyBit commenced transforming the Brisbane tourism sector into one of the most crypto-friendly cities in the world. TravebyBit developed a POS system that was taken up by over 200 businesses across Australia in 2018, with the majority of those in Brisbane.

Brisbane Airport became the first airport in the world to accept crypto, with over 30 retail and dining locations throughout both terminals accepting payment through digital currencies (Sharma, 2018).

Later that year Binance, one of the largest crypto exchanges in the world, invested $3.5 million in TravelbyBit to continue with globalisation of the option to travel the world using cryptocurrency (Australian FinTech, 2018). With over 10 million users Binance is one of the most established companies in the blockchain ecosystem and has also created the Blockchain Charity Foundation along with many other initiatives (Australian FinTech, 2018).

The benefits for the businesses and travelers are no merchant fees, and it removes money exchange issues and fees. Customers use their digital wallets on their smartphones for POS payments.

A further example of the benefit of this low barrier entry, with the only requirement being a smartphone to transact with digital currencies, is a café in the small tourist town of Agnes Waters in Queensland who has introduced the blockchain-backed technology and has regular weekly transactions (Sharma, 2018). While the technology is a long way from becoming as commonplace as credit cards, in 2017 digital currency trading in Australian was $5.9 billion (credit card expenditure was $748 billion) (Sharma, 2018), these figures confirm the validity of cryptocurrency markets in Australia, and the opportunity for expanding revenue streams, reducing fees and fraud risk, through offering as a payment method.

3.11.2 Case Study 2: The Giving Block

The Giving Block researched the outcomes of the results of the Pineapple Fund, the cryptocurrency driven anonymous philanthropic donor that changed the landscape of charitable giving between 2017 and 2018 and the process for the beneficiaries (The Giving Block, 2019).

All donations were made by bitcoin, and all charities/NFPs had to implement the necessary technologies and processes to accept cryptocurrency as a method of donation. The full article including recipients of the donations and case studies is attached in Appendix 3. A summation of the insights are detailed below:

- **Education is Vital:** The organizations that were already aware of cryptocurrency, processes, tools and techniques were able to effectively apply for the funding, process and cash out the payments while bitcoin was at its peak prices. All nonprofits should be educating themselves on cryptocurrency donations and at least have a basic understanding of the process for receiving them and converting to fiat currency.
- **Establish Policies:** Organizations need to know what they will do if and when they are approached to accept cryptocurrency donations, especially if they are large and/or anonymous. It's vitally important that organizations have a policy around whether they hold or sell, and consider some sort of auto sell functionality to isolate themselves from any risk of volatility of cryptocurrency pricing.
- **Setup the Infrastructure:** We have no idea if there will ever be another Pineapple Fund in the future. What we do know is that cryptocurrency donors exist. Organizations that are setup and ready to receive donations are far more likely to receive donations than those that need to be setup in order to receive the donations at a later date.
- **Make sure you accept multiple cryptocurrencies:** While bitcoin is still number one, the next major donation might be ethereum, stellar or something else. Donors don't get the tax incentive to donate if they need to change currency, so make sure you are ready to take the major cryptos in advance.
- **Make it easy to donate:** Ensure that your cryptocurrency donation page is easy to find and accessible. That means linking to it from menus, giving it a clear title and URL and allowing google to find it. Donors are not going to go looking for details on page 3 of your frequently asked questions to donate bitcoin, they'll just go elsewhere.
- **Scream from the rooftops that you accept crypto:** Noone is going to donate to you if they don't know that they can. The organizations that made themselves accessible to the media, hung out in reddit, answered emails and put out press releases got picked up in traditional and crypto media and were able to ride the wave and get more crypto donations.
- **Ask for help**: Many organizations do not have dedicated crypto fundraisers with the skills and experience and that's fine. Whether that means tapping your supporter network, or dealing with consultants, it's important to know when to ask for help to ensure you are following best practice sooner rather than later, to ensure you are compliant and making it easy to donate.

Figure 24 The Pineapple Fund – What charities/NFPs can do to be ready to accept cryptocurrency donations (The Giving Block, 2019).

3.11.3 Case Study 3: HiveEx

HiveEx was developed for crypto buyers who want to place trades of US$35,000 (approximately AUD$50,000) or more, the platform allows users to access a fixed price on bitcoin and four other major cryptocurrencies (Falk, 2019).

Crypto Bushfire Fundraiser was a joint venture between HiveEX and Finder, called Crypto Fire Alliance (Finder, 2020). Cryptocurrencies make it possible to raise funds globally to offer assistance during major disasters, while massively reducing transaction fees. The balance of wallets donated was converted on 31 October 2020 using CoinMarketCap and Google Finance data, and total raised AUD$27,481.06 (Finder, 2020).

Attempts to contact Finder and HiveEX for comments regarding their expectations of success when creating and the process undertaken have not been responded to at the time of this report being finalised.

3.11.4 Case Study 4: Australian Bushfire Donations, Tradition vs Cryptocurrency.

Derwin (2020) notes approximately $500 million was raised for the Australian bushfire relief, including more than $50 million by Celeste Barber however funds not being tied to one specific source resulted in funds released easily or quickly are tainting reputations of fundraisers and charities/NFPs for donors. The media has highlighted the transparency as poor, donor expectations not met, donor trust destroyed and the process questioned as it isn't easy for charities to receive donations. Monies take fifteen to ninety days to be granted to charity by PayPal Giving Fund (Maguire, 2020) which has a significant impact on charities/NFPs when there are families in desperate need for support. Eburn (2020) notes that donations for Celeste Barber fundraiser are paid to the beneficiary meaning she cannot determine distribution of funds - only the trustee can use the monies for the purpose of trust, creating more confusion and frustration by all parties involved.

To increase transparency, Australian Red Cross ("Australian bushfires: how we're using funds", 2020) has a news page providing updates on how the $239 million has been allocated and Figure 25 shows how much has been disbursed or spent, to date.

How much we have disbursed to date

As at 29 October 2020, we have spent or disbursed $178 million. This includes:

- $162m paid in grants to 5,586 people
- the cost of our emergency teams for FY19/20 ($5m)
- our recovery program so far ($2m)
- administrative support costs, currently at less than 4c in the dollar for each dollar donated.

Figure 25 Disbursed bushfire funds by Australian Red Cross ("Australian bushfires: how we're using the funds", 2020)

4. Compliance

4.1 Governance

To date, the Federal Government has been content to let the cryptocurrency landscape evolve at a faster rate than its regulatory response (Reeves, 2020). This hesitation is to facilitate innovation and growth in the sector. This lack of regulation means that governance systems regarding cryptocurrency and blockchain are immature and not fit for purpose (Reeves, 2020). Charities/NFPs that consider cryptocurrencies have the option of gaining donations from funding sources outside their usual avenues.

Charities/NFPs that consider implementing cryptocurrency and blockchain technologies should keep in mind the governance and transparency of these types of transactions, with consideration of the associated risks. On-Chain Governance was used to manage and implement change with blockchain and cryptocurrency (Frankenfield, 2018). Whilst this system was designed to provide governance as rules for instituting changes, which was encoded into the blockchain, the system itself had its own governance issues. Blockchain developers would suggest changes through code updates, and each change is accepted or rejected based on the node votes. The governance issues that On-Chain found were that voters with more coins could skew results, and they had many voters who did not contribute to the outcome.

Charity/NFPs need to consider reporting to stakeholders as part of their governance and transparency. The best practice for charities/NFPs would be to ensure the appropriate specialists are engaged to ensure compliance with accounting standards and other reporting bodies.

4.2. State Laws

Due to the dynamic nature of technologies such as blockchain and cryptocurrency, government frameworks and regulations are required to find a balance between supporting innovation, while protecting businesses and consumers (Bratanova et at., 2019, p. 16).

But where do state governments play a role? According to Not-for-profit Law (n.d.), charities/NFPs that are registered with the ACNC are required in some states to additionally hold a fundraising licence; specifically, New South Wales, Queensland, Tasmania, and Western Australia. Now that fundraising is moving quickly away from traditional means, to more online and social media mediums, charities/NFPs will often require compliance with regimes in multiple states and territories across Australia.

When contacting state governments to ascertain whether they had any additional requirements or guidelines, specifically relating to the use of blockchain technology, the responses were clear and consistent. It is recommended to approach Australian Securities and Investment Corporation (ASIC) and ACNC for information on how to be compliant.

While the state governments are not regulating these emerging technologies, this does not necessarily mean they are not aware or supportive of them. Further to Appendix 4, in Victoria,

the Parliamentary Library and Information Service released a research paper that observed Blockchain Technology “has the potential to disrupt information management and data security systems as we know them. The applications of the technology are many and varied” (Graham & Dosen, 2018, p. 6).

In 2018 the NSW Parliament released a paper to educate and encourage the adoption of blockchain technology (Angus, 2018). They concluded that “both the public and private sectors have a growing interest in the blockchain and its potential for greater efficiency, security, and transparency compared to existing ledger technology. Nevertheless, the adoption of blockchain technology may bring with it a range of issues, including the risk of privacy breaches, security concerns, and legal uncertainties in relation to applications such as smart contracts” (Angus, 2018, p.7).

NSW Treasury (2020, p. 5) released a report suggesting that Australian National bodies are not moving fast enough to change traditional regulatory models, and the recommendation is to move to a more “outcome-based” regulatory approach. Of particular note is a current call on federal, state, and territory governments to simplify the overall fundraising regulation landscape to a more nationally consistent fundraising regime for all charities/NFPs registered with the ACNC (Not-for-profit Law, 2020). Further information is provided in Appendix 4.

State governments have also been early adopters of blockchain technologies themselves. The NSW Government announced a partnership together with ChromaWay (a blockchain technology company) to move NSW Land titles onto blockchain platforms for the purpose of reducing potential fraud (Johnston, 2018).

It is clear that these technologies will evolve over time along with the regulatory bodies that monitor and enforce compliance. Evaluating the current landscape, and the national bodies currently position, is detailed in Appendix 4. ASIC, the ACNC, and the Australian Tax Office have the responsibility of monitoring and enforcing compliance of the new technologies, while the state governments have taken the role of education, the direction of policy reform, and the removal of red tape (NSW Treasury, 2020).

4.3 Federal Laws

4.3.1 Australian Tax Compliance

Tax Concessions

The Australian Tax Office (ATO) has set out criteria for charities/NFPs to meet in order to receive tax concessions (ATO, 2020a). Tax concessions are very beneficial for a charity/ as it means they are exempt from having to pay income tax on their earnings. The criteria are set out by the ATO and are available in Appendix 4. If the charity/NFP meets all the requirements for tax concessions, then they are exempt from having to pay income tax. The below considerations may not need to be considered in relation to tax compliance due to concessions. Charities/NFPs accountants and auditors should be able to provide further advice on compliant reporting.

Cryptocurrency

The ATO classifies cryptocurrency as an asset, not cash, for accounting purposes (ATO, 2020b). Whilst the ATO agrees that cryptocurrency meets the three rules of currency, a medium of exchange, a unit of accounts, and a store of value, cryptocurrency is clearly not an Australian currency and does not meet the definition of foreign currency (De Zilva, 2018). The asset classification means that the Capital Gains Tax (CGT) rules apply to transactions of cryptocurrency and any cryptocurrency holding by the charity/NFP would be recorded in the balance sheet as an asset. The increases and decreases of the value of the cryptocurrency asset, as they are traded or cashed, give rise to a CGT event. Capital gains are then reported on tax returns for individuals and capital losses can offset any gains made or carried over to offset future gains. The applicable CGT rules apply to trade cryptocurrency, including the 50% discount if you hold the investment for more than 12 months. Any charity/NFP that receives donations of cryptocurrency would need to consider the future use of the asset to ensure compliance with the ATO. As the cryptocurrency market is volatile, the contributed amount may not match what the donor expected to give.

The tax advantages are clear for individuals who want to donate cryptocurrency to a registered charity/NFP (Chandrasekera & Lodha, 2019). If the charity/NFP has deductible gift recipient (DGR) status, then any donation made does not raise a tax event for the individual. There are no CGT implications when a donation is made to a registered charity/NFP. Appreciation of cryptocurrency balances can be directly donated to a registered charity/NFP with positive tax implications for the donor. The amount donated can also be deducted as an expense in the tax return (Chandrasekera & Lodha, 2019).

If an organisation is using cryptocurrency as part of their normal business activities the transactions should be accounted for in the way it was intended. If a charity/NFP received cryptocurrency as part of their donations it should be accounted for in the same way as monetary donations. If the cryptocurrency is held and traded at a later date for gain then a CGT event will need to be recognised, and the gains accounted for (ATO, 2020b). Cryptocurrency transactions are not subject to GST as they are classified as input taxed financial supplies. If the

cryptocurrency value cannot be identified during the transaction the market rate at the time should be used to report the value.

Examples of case studies relating to ATO compliance of cryptocurrency can be found in Appendix 4.

The ATO has created a special task force to investigate and tackle cryptocurrency tax evasion (Legislation, n.d.). The ATO will be collecting information from service providers, or blockchain platforms, to match it to the ATO information on businesses or individuals who have bought and sold cryptocurrency over the last five years. The aim of the task force is to first ensure that all tax and superannuation responsibilities are met, and to gain intelligence on the behaviours and compliance profiles for future reference. The ATO (2020b) suggests that between 500,000 - 1M individual records will be matched to ensure compliance. Any non-compliant individuals will be receiving letters to assist with accurate reporting. There are also fines being issued for serial non-compliance.

The ATO released its guidance on cryptocurrencies back in 2014 (ATO, 2020b). Since this date, there has been a growing acceptance of cryptocurrencies in many jurisdictions. There are many more users of cryptocurrency now, and the ATO will need to continue to consider further regulation as the industry evolves and other countries legislate.

4.3.2 Worldwide Classifications

Cryptocurrency is characterised differently in other countries, with some of the biggest global users of cryptocurrency having different accounting expectations than Australia. Further details are provided in Appendix 4.

Financial Action Task Force

The Financial Action Task Force (FATF) is a global watchdog monitoring international money laundering and financial terrorism (FATF, 2020a). There are over 200 countries and jurisdictions, including Australia that are implementing FATF recommendations and standards to ensure a coordinated response to prevent financial crime and terrorism. FATF has focussed on virtual assets, including cryptocurrency, in a publication that explains how hackers are attracted to these types of assets as a way to avoid the authorities. Without proper regulation, virtual assets become a potential safe haven for criminals and terrorists.

FATF (2020b) noted that some countries have started to regulate cryptocurrencies, while other countries have moved to prohibit them altogether. Many countries have done nothing in relation to regulating these transactions. This gap in regulation has created loopholes for criminal activity. FATF 2012 developed the “International Standards on Combating Money Laundering and the Financing of Terrorism and Proliferation” (FATF, 2020b). FATF continues to review the standards that have been developed regarding virtual assets. The 12-month review in June

2019 saw no changes to the standards. In Figure 26 below the FAFT outlines an example of how transparency can be lost during criminal activity with cryptocurrencies.

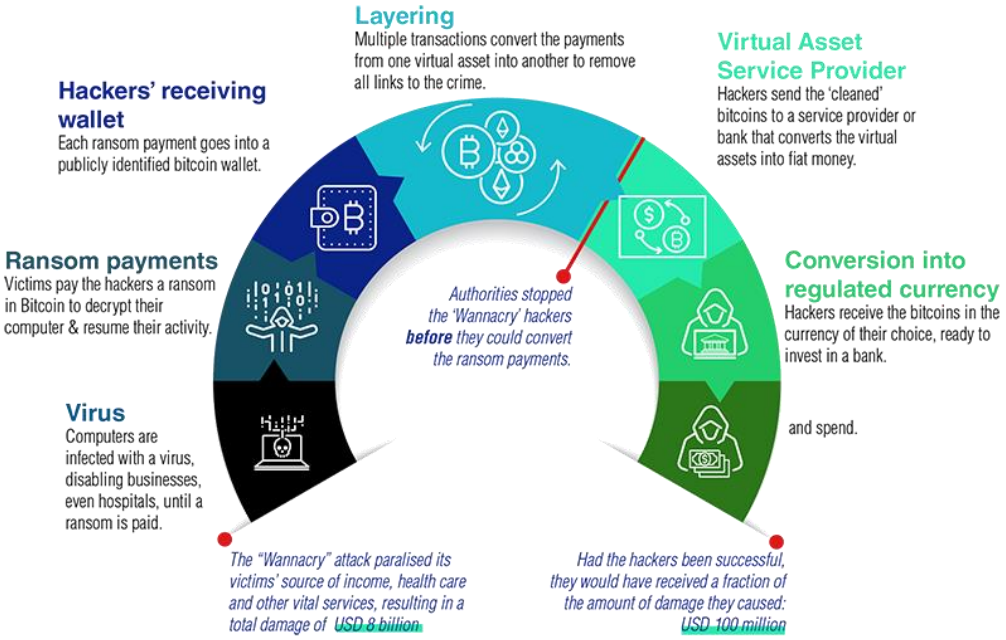


Figure 26 How bitcoin is used in criminal activity and cybercrime (FATF, 2020b)

"While crypto-assets do not pose a threat to global financial stability at this point, we remain vigilant to risks, including those related to consumer and investor protection, anti-money laundering and countering the financing of terrorism" (FATF, 2020b).

4.3.3 Australian Charities and Not-For-Profit Commission

The ACNC was established in December 2012 to achieve 3 main objectives (ACNC, 2020b):

- Maintain, protect and enhance public trust and confidence in the Australian not-for-profit sector,
- Support and sustain a robust, vibrant, independent, and innovative charity/NFP sector,
- Promote the reduction of unnecessary regulatory obligations on the sector.

The ACNC registers charities/NFPs and assists them in meeting their obligations through support and guidance. They also provide advice and information to the public to assist with knowledge of the sector. The ACNC maintains a free searchable register of all registered charities/NFPs so the public can look up their chosen charities/NFPs. Charities/NFPs are regulated through the ACNC and can be investigated if there are any concerns raised regarding the charity/NFP. The ACNC is the national body and charities/NFPs have to consider any state bodies that they may be accountable to.

Another aspect of the ACNC is the Charity Passport (ACNC, 2020f), a red tape reduction measure to support government and charities/NFPs with information sharing. The idea is that charities/NFPs only report to the ACNC and the documents can be used many times. Report once, use often. The Charity Passport will hold all the information available on the charity/NFP and is available to government agencies under the ACNC act and can be transferred via File Transfer Protocol (FTP). Figure 27 below is the flowchart of how the charity/NFP passport works.

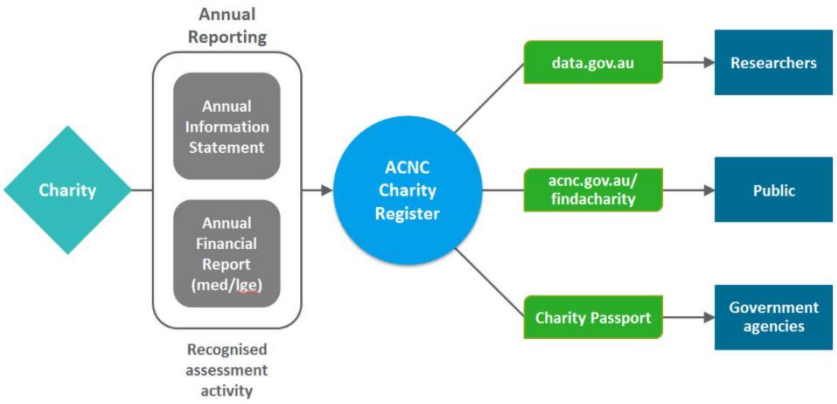


Figure 27 Flowchart: How the charity passport works. (ACNC 2020f)

To date, the ACNC and all state authorities who legislate fundraising in each state have no information or regulation on donations of cryptocurrency or the use of blockchain technology. Compliance to regulations through ATO, ASIC, AUSTRAC, and other governing bodies needs to be considered but the ACNC has no requirements to date.

4.3.4 Blockchain Australia - Code of Conduct

Blockchain Australia is an industry body that represents Australian businesses that use blockchain technology (Blockchain Australia, 2020). They encourage responsible adaptation and use of blockchain technology across government and industry and drive innovation across all sectors of the economy. Blockchain Australia provides education and networking as well as Best Practice through a code of conduct. Consumers who engage in Blockchain Australia Certified Digital Currency Exchange can have confidence due to best practice and audit compliance.

The code of conduct is a self-auditing scheme that includes the following points:

- Organisations must appoint an independent auditor,
- The independent auditor then collects evidence relating to the desired expectations,
- Auditor then provides explanation and certification,
- The Anti Money Laundering and Counter-Terrorism Financing (AML/CTF) committees then apply the certifications.

Consumers can expect:

- Legal compliance,

- AML/CTF protection and reporting,
- Transparent pricing,
- Dispute resolution,
- Data Security.

4.3.5 Australian Transaction Reports and Analysis Centre (AUSTRAC)

The Australian Financial Intelligence Regulator, AUSTRAC (2018), has the power to regulate all the cryptocurrency exchanges in Australia. It is the requirement that Digital Currency Exchange (DCE) providers in Australia are registered with AUSTRAC. As the regulator, AUSTRAC defines a DCE provider is an individual, business, or organisation that exchanges:

- Money (Australian or foreign currency) for digital currency,
- Digital currency for money (Australian or foreign currency).

AUSTRAC's primary focus, when regulating cryptocurrencies and blockchain is Anti-Money Laundering and Counter-Terrorism Financing (AML/CTF) (AUSTRAC, 2020). The financial intelligence regulator further regulates that such organisations must develop, adopt, and maintain a program that reflects the business' circumstances (AUSTRAC, 2018). The AML/CTF program needs to set out the ways DCE operators will comply with its AML/CTF obligations and identify, mitigate, and manage Money Laundering and Terrorism Financing (ML/TF) risks. The minimum standards for AUSTRAC to design and implement AML/CTF programs for DCE operators can be found in Appendix 4. Rose (2018) states the following:

> It's recognised that this reform will help protect their business operations from money laundering and terrorism financing, while regulation will also help strengthen public and consumer confidence in the sector. AUSTRAC now has increased opportunities to facilitate the sharing of financial intelligence and information relating to the use of digital currencies, such as bitcoin and other cryptocurrencies, with its industry and government partners. The information that these businesses will collect and report to AUSTRAC will have immediate benefits in the fight against serious crime and terrorism financing. (p. 2)

AML/CTF compliance is a global focus. New exchanges will be required to register before beginning their business operations (AUSTRAC, 2020). Registration must be renewed every three years. Penalties for non-compliance Under section 76A of the Act are summarised in brief as follows:

- A person can face up to two years' imprisonment,
- A fine of up to AUD105,000, or both, for providing unregistered DCE services, or
- If they breach a condition of their registration,
- The penalty doubles if the breach occurs after receiving compliance directions from the AUSTRAC CEO or there is a breach of a compliance undertaking,
- If a second breach occurs, the penalty increases to seven years' imprisonment, AUD420,000 or both" (Whittaker, Ng, & Lee, 2018, p. 2).

For all reporting entities, AUSTRAC further regulates customer identification procedures to all its customers. Part B of the AML/CTF program is solely focused on these 'Know Your Customer' (KYC) procedures (AUSTRAC, 2020). The registered DCE operator must document the customer identification procedures used for different types of customers. The procedures must be based on the level of money laundering/terrorism financing risk that different customers pose.

A customer's identity must be checked by collecting and verifying information before providing any designated services to them. Customers include both individual customers (people) and non-individual customers (such as companies, associations, or trusts). After checking a customer's identity, the operator must be satisfied that:

- An individual customer is who they claim to be,
- A customer who is not an individual is a real entity (a business or organisation that actually exists), and the identity details of its beneficial owners are accordingly collected.

As mentioned in Section 2 a key feature of blockchain is anonymity. The KYC procedures will benefit the charities/NFPs and its donors by providing full disclosure and transparency to minimise the risk of AML/CTF. It also mitigates the risk of Quasi Anonymity whereby transaction(s) can occur without the name of the individual completing the transaction(s), and criminals are able to move cryptocurrency from peer to peer without the ability for third parties to track the individual's name (NSW Police Force and AUSTRAC, 2019).

KYC plays an important part to identify and understand the typical financial transactions of an organisation, charity/NFP; and this makes the DCE operator aware of any unusual or suspicious activity. The KYC guidelines strengthen and reduces the risk of your business or organisation being exploited for money laundering or terrorism financing purposes and are outlined in Figure 28 below.

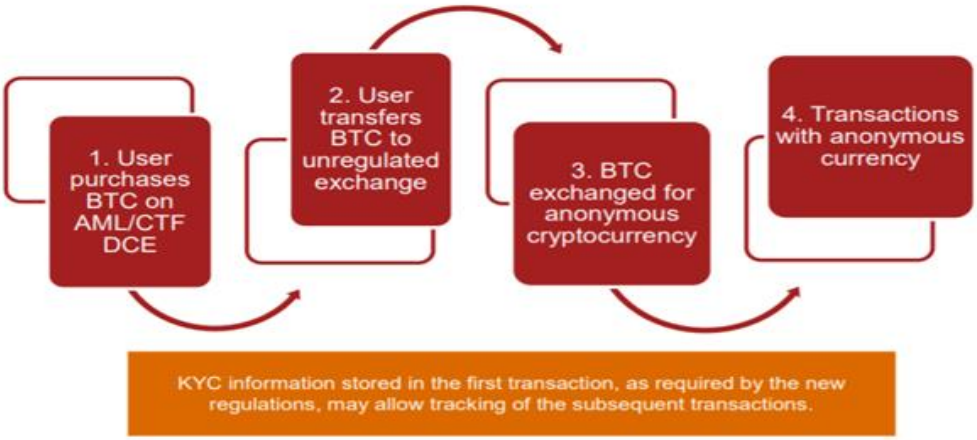


Figure 28 Is this the end of anonymous trading? (PwC, 2018)

Some examples of digital currency operators registered with AUSTRAC and compliance with AML/CTF Legislation are:

- Bitcoin - see case study 3.10.1.
- HiveEx - see case study 3.10.3.
- Tokens for humanity - see case study 2.6.4.

4.3.6 The Reserve Bank of Australia (RBA)

The RBA has not declared cryptocurrencies as money, as it does not meet all the stated descriptions of characteristics of money are outlined in Figure 29 below:

Means of payment	Store of value	Unit of Account
•can it be used to buy and sell things? •While bitcoin can be used to buy and sell things, it is not widely accepted as a means of payment, and surveys suggest that only a small fraction of bitcoin holders use them regularly for payments. •There are also issues around the ability of the Bitcoin system to cope with a large volume of transactions	• can its purchasing power (the ability to purchase a similar basket of goods and services) be maintained over time? •Large fluctuations in the price of bitcoin reduce its effectiveness as a store of value.	•is it a common way of measuring the value of goods and services? •In Australia, the prices of goods and services are measured in Australian dollars. • While some businesses may accept bitcoin, it is not a primary way used to measure and compare prices.

Figure 29 Characteristics of Money (RBA, n.d.)

Australians are choosing digital payments over cash enabled by advancements in financial technology. RBA statistics highlight the decline; in 2007 almost 75% of payments were made

with cash while in 2019, that figure was just 27%. Further RBA data shows the exponential growth of cashless payments since 2007 (RBA, n.d.). Further details in Appendix 4.

4.3.7 Australian Securities and Investments Commission (ASIC)

ASIC is Australia's primary consumer credit, corporate, markets, and financial service provider regulator. ASIC, under the guidance of RBA, does not consider digital currencies to fall within the legal definition of 'financial product' under the Corporations Act 2001 (Corporations Act), or the Australian Securities and Investments Commission Act 2001 (ASIC Act).[2] (Australian Government, *Federal Register of Legislation*, 2019)

This is critical to determine if the relevant Australian Market Licence (AML) or an Australian Financial Services Licence (AFSL) would apply on the trading platforms. Thus, the DCE is not obliged to satisfy the regulator's AFSL requirements, nor comply with associated obligations such as providing Product Disclosure Statements (ASIC, 2018).

The Australian Competition and Consumer Commission (ACCC) have delegated powers to ASIC to take action against misleading or deceptive conduct in marketing or issuing ICOs (Australian Blockchain, 2018). ASIC has indicated misleading or deceptive conduct in relation to ICOs may include:

- Using social media to create the appearance of greater levels of public interest,
- Creating the appearance of greater levels of buying and selling activity for an ICO or a crypto-asset by engaging in (or arranging for others to engage in) certain trading strategies,
- Failing to disclose appropriate information about the ICO,
- Suggesting that the ICO is a regulated product or endorsed by a regulator when it is not (Australia: Blockchain, 2018)

The circumvent the above issues, Gilbert & Toblin, (2018) have specified ASIC's regulations below:

> ASIC has stated that it will use this power to issue further inquiries into ICO issuers and their advisers to identify potentially unlicensed and misleading conduct. A range of consequences may apply for failing to comply with the ACL or the ASIC Act, including monetary penalties, injunctions, compensatory damages, and cost orders (para. 2).

4.3.8 Privacy Law

A key regulatory challenge for privacy and blockchain systems in Australia is the need to comply with the Privacy Act 1988 (OAIC, n.d.-a). Due to the decentralised nature of blockchain, there is often no responsible party to seek remedy from if privacy is breached, nor ways to remove personal information from the ledger once entered.

There is a total of 13 Privacy Principles legislated under the Privacy Act 1988 (OAIC, n.d.-b). To consider acceptance of any cryptocurrency FIA members would have specific obligations to adhere to the principles listed in Appendix 4.

Privacy is a key feature of the blockchain ecosystem. However, the application of the Privacy Principles is critical for both charities/NFPs and donors, and for FIA to be aware of as the national peak body representing professional fundraising in Australia. A blockchain Tamperproof Timestamped Provenance Ledger (TTPL) provides a solution addressing integrity verification, privacy, scalability, and can support automation, standardisation, or interoperability requirements (Jaquet-Chiffelle, Casey, & Bourquendoud, 2020, p.1).

4.4 Compliance SWOT Analysis

Figure 30 Regulatory Compliance SWOT Analysis (Dūcere Industry Project Group, 2020)

5. Why should a Charity/NFP care about this?

5.1 Donors

5.1.1 Transparency and trust

Charity/NFP leaders are focussed on the importance of transparency and accountability. A 2018 report by the ACNC reveals a decline in trust and confidence in charities/NFPs by the Australian public, with trust declining from 37% in 2013 to 30% in 2015 and down to 24% in 2017 (Hems and Stephens, 2018). This was further confirmed in research undertaken by Fooraq et al (2020) where they found that the individual population, which accounted for 70% of all giving in 2017, is decreasing, with research indicating the decline is mainly due to the trust factor in the lack of transparency in the charity/NFP collection process.

As described in Section 2.4, blockchain is a decentralised system and therefore has the potential to remove the middleman, increasing charity/NFP transparency, especially with the donor. In addition to blockchain security, there are other applications developed to double-check the security of transactions performed via the blockchain, thus increasing donors' trust (Farooq, et al., 2020).

Blockchain displays how technology supports building trust in a network adding value by terminating dependencies on intercessors, while reducing cost, as it transfers trust from an individual to another, and accordingly the technology gains the trust, rather than people and institutions (Werbach, n.d.). Donor decisions rely on disclosure and governance practices, which build trust. Trust facilitates donations, charity/NFPs transparency, and sincerity greatly determines its influence. Trust directly influences an individual's willingness to donate; therefore charities/NFPs should increase the degree of openness communicated to donors.

5.1.2 Donor expectations

Administration costs and the act of fundraising are the two major costs for charities/NFPs. There are no standard or clear definitions of which costs are classified as service and should be classified as administration. People want to know how much of the money they donate goes to the cause they support, and usually try to assess this by reviewing the charities/NFPs administration costs. The costs to charities/NFPs are outlined in Figure 31 below.

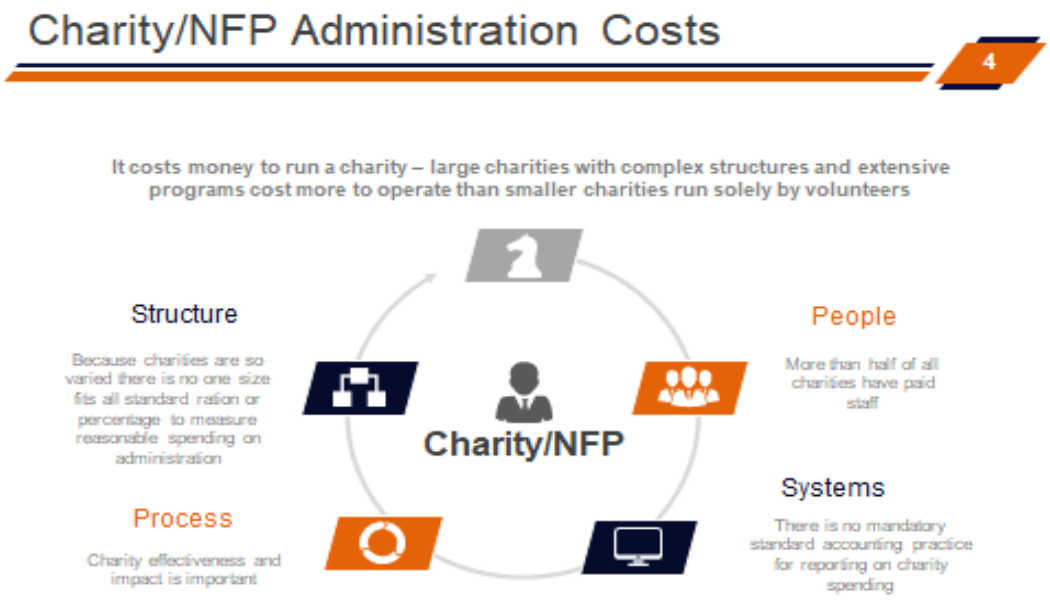


Figure 31 Charity administration costs (ACNC, 2020b)

Managing donors' expectations in relation to administration costs and transparency of use of funds is having an impact on the management and resources and making it challenging for many charities/NFPs (Australian Communities, 2020). This decline in trust may relate to the following areas:

- Some donors expect all donations to go directly to the recipient/cause, however, as the ACNC notes, without spending money on administration, charities/NFPs would not be able to operate or deliver on their charitable purpose (ACNC, 2020c).
- The current donation system involves a middle man (being a financial institution) between donor and charity/NFP which creates varying levels of ambiguity due to associated fees deducted (Blenkinsop, 2018).
- Some donors may expect to be able to see a direct relationship between their donation and a beneficiary. A small number of charities/NFPs promote this type of support,(ie The Smith Family), however most charities/NFPs provide a range of services and funds that are not directly attributed to individual beneficiaries.

The cost-saving feature of the blockchain system, in conjunction with auto governance, could be of benefit to the sector. It provides insight to internal and external stakeholders to develop control systems. A flawed ascendance system sabotages confidence, reduces activities, and donations (Hyndman & McDonnell, 2009).

5.1.3 Attraction, retention, growth

Increasing demand on services, difficult economic conditions, and reduction in public trust have all led to increased focus on how to attract and retain donors and meet their needs, whilst ensuring mission and service are protected (Gilbert, 2019). Innovation, technology and partnerships are all integral in ensuring charities/NFPs can attract and retain donors.

Over the next 20 to 30 years, an estimated $3.5 trillion of wealth will be transferred in Australia from the Baby Boomer generation (Vickovich, 2019). Whilst Baby Boomers make up 43% of charitable giving currently, as they get older that will be passed off to the next generations of Millennial and beyond. It is important to learn how the younger generations give, why they give, and what they are looking for when they are looking at options for donating (Te, 2020). The challenge is how do charities/NFPs attract donors in the increasing fundraising landscape and keep them in the longer term.

Donor stewardship and cultivation for Millennials and beyond is thanking – it means endearing them to your brand and cause, making them feel connected, and that they have done something worthwhile. Communications and connections with the donor require organisations to go the extra mile. If a donor makes a second gift their retention rate nearly triples (Love, 2014).

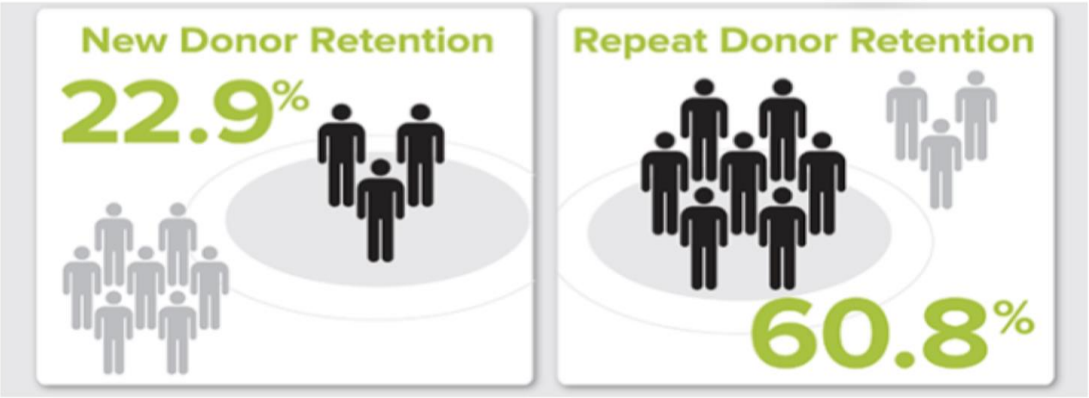


Figure 32 Donor Retention Statistics (Love, 2014)

More mature organisations may have a brand advantage with reputations which have "earned sufficient trust capital to induce donors to give" (Zappala & Lyons, 2006, p. 402).

Ideally, donors of the future will be searching for a friendly interface that enables the ability to locate preferred charities/NFPs that enable them to interact quickly and effectively in donating without too much effort or time. The ability to donate via the digital wallet on a mobile phone, or any other device including virtual reality (VR), and the utilisation of global blockchain technology to ensure the donation is distributed to the charities/NFPs they chose is imperative. Blockchain transparency reporting systems would be able to provide the donor with details on where the money was spent, and smart contracts could have the ability for charities/NFPs to choose options for donors for future giving.

In addition to the addition of cryptocurrency and blockchain technologies, a combination of strong social media presence and digital strategies have the potential to alleviate the concerns of donors by creating the opportunity for connection to impact, and donation transaction transparency, leading to stronger relationships and trust with charities/NFPs (Koksal, 2019).

The use of blockchain technology for charities/NFPs has two significant advantages:

- The opportunity to increase donations by improving operational efficiency and transparency of the donation platform,
- The ability of charities/NFPs to employ blockchain technology to streamline, automate, and reduce costs in their operations.

5.2 Sector/Organisation Matters

5.2.1 Fundraising dependency

In a sector which is highly competitive ("…there's one big pie and they've got to have a bigger, bigger share of the pie)'' (Ruperto & Kerr, 2009, p. 304), fundraising revenue is dependent upon a range of organisational factors such as size, geographical location, range of forms of revenue generation and use of professional fundraising staff, volunteers and number of fundraising practices used (Zappala and Lyons, 2006, p. 399).

The level of dependency on fundraising revenue may also vary. Professional fundraising staff are responsible for:

- Relationship management with existing donors with a view to retention and conversion into a higher category of donation and meeting financial targets,
- Implementing broad engagement strategies and campaigns using tools such as telemarketing, follow-up phone or email correspondence, digital approaches and profiling, marketing of the charity/NFPs purpose and work, and core campaigns such as bequests and Christmas appeals.

Further details on fundraising dependencies and giving structures are detailed in Appendix 1. Fundraisers in organisations are continuously looking at new and innovative ways to attract and retain donors and the opportunity of blockchain and cryptocurrency technologies provides future potential for expansion of reach.

5.2.2 Competing for funding

Foster and Bradach (2005) note how charities/NFPs increasingly feel compelled to both seek new revenue sources as well as to appear more disciplined and businesslike to stakeholders (Goodell, Goyal & Hasan, 2020). Cryptocurrencies provide an opportunity to potentially mitigate

financial vulnerability by diversifying charities/NFPs' revenue streams (Zappala & Lyons, 2006, p.401) in all three tiers of the fundraising pyramid.

The growth of donating through online and digital wallets now accounts for over 50% of donations methods (CAF Global Alliance, 2019, p.10), with cash and credit/debit card payments steady as the predominant forms of donation, as shown in Figure 33 below. In 2014, Raymaekers noted that while "digital currency activity across the world is increasing, with more schemes, service providers, merchants and individuals using it… [it is important] to keep things in perspective, many wallets may have little in them, as more than 70 per cent of Bitcoins are owned by just over 10,000 individuals".

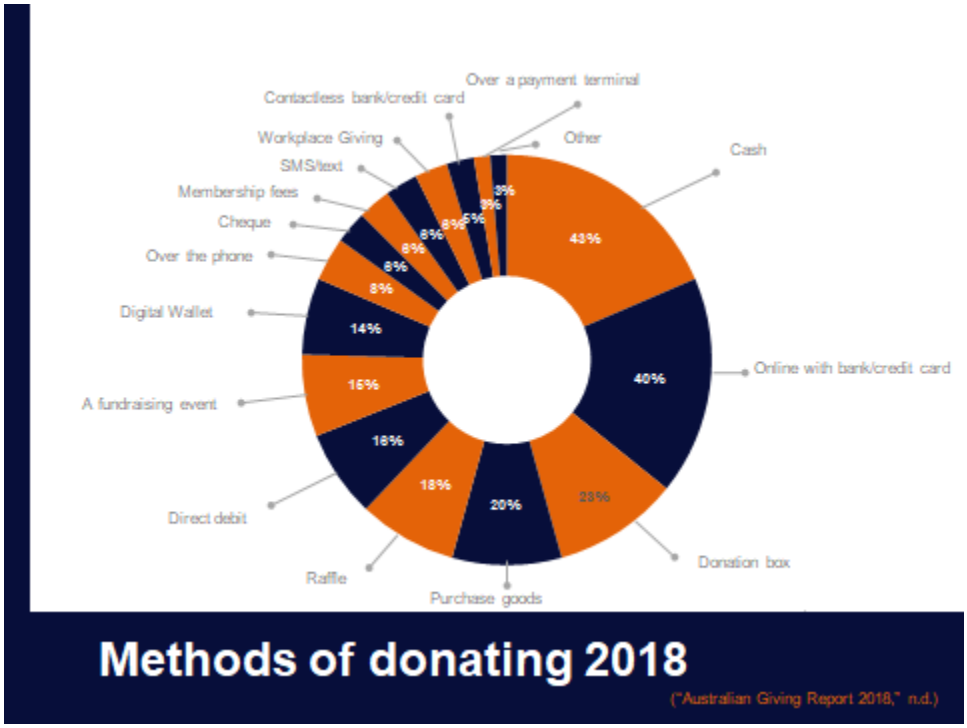


Figure 33 Methods of donation 2018 (CAF Global Alliance, 2019, p10)

In 2020, Smith argues that Bitcoin merchant adoption is integral in driving consumer adoption – the more ways people can use cryptocurrency the more likely they are to have it, making it operate like a currency rather than a speculative asset (Smith, 2020). There are over 16,000 locations, (as seen at coinmap.org), known globally to accept cryptocurrency, though through the implementation of Point of Sale (POS) technologies such as Bitpay, and there could be many more (Smith, 2020).

In addition to offering existing donors an additional way to donate, these technologies can also find a way to expand the pool of donor funds, if these wealthy, older individuals are not connected to traditional fundraising tools (Thomas, 2019).

5.2.3 Reporting and donor expectations

Currently, charities/NFPs communicate how they deliver on their purpose and support beneficiaries through reports to the ACNC, governments and other funding bodies, communication with individual donors, and providing information to the general public through newsletters, websites, social media, and profiling beneficiaries through case studies. Annual reports provide overviews of how the charities/NFPs have performed against their mission/purpose and objectives, through their delivery mechanisms (ACNC, 2019).

There are a range of purposes that guide charities/NFPs activities, with reporting implications for their donors, with examples identified below:

- Broad purpose – accommodation provisions, family support services, childcare,
- Targeted purpose – medical facility upgrades, training of health professionals, surgery,
- Individual purpose – identifying specific beneficiaries such as a disadvantages child and providing purpose-fit support.

How charities/NFPs report on their service delivery, use of funds, and outcomes for beneficiaries, will need to be considered if new technologies are offered, and expectations that cryptocurrency donations also come with transparency as to exactly how that donation is spent, and on whom.

Whilst the new technologies promote increased transparency, most charities/NFPs are not structured or resourced to track or report to this level of detail. In addition, administration costs continue to require resourcing from a range of revenue sources. Blockchain technologies may benefit charities/NFPs in providing reporting for donors. Education of donors as to how their donations are used will be critical in building and maintaining trust.

5.2.4 Resources - volunteers and values

The charity/NFP sector was “founded on civil society principles of collaboration and is staffed by volunteers” who are “motivated by a value system founded on the idea of devotion to the welfare of others” (Warburton & McDonald, 2009, p. 825).

Statistics indicate that the charity/NFP sector is heavily reliant on volunteers to continue their operations (ACNC, 2017). Volunteers have roles across all levels of charity/NFP organisations, including governance, fundraising, administration and reporting, and community engagement. Volunteers play an important role in many charities/NFPs, particularly providing labour and skills and in engaging the community, ‘‘…if you’ve got [the local] people doing the work, they’re the ones that will get people to come to the event, they’re the ones to be believed…’’ (Ruperto & Kerr, 2009, p.304). Volunteers are advocates for their charity (Ruperto & Kerr, 2009, p.306).

FIA member charities/NFPs may need to consider a change management and/or education processes to assure staff and volunteers that any exploration or introduction of these new technologies aligns with organisational core values, and that any ethical concerns, or perceptions relating to the technology, will be addressed and mitigated.

5.3 Ethical Implications

"Within the atmosphere of declining public trust in charities and calls for greater levels of transparency, blockchain technology has the potential to re-build confidence and reshape the charity/NFP sector for the better" (Hems and Stevens, 2018).

5.3.1 Major Holders of Cryptocurrency

In 2017 it was estimated that the largest 1,000 Bitcoin accounts held 40% of all Bitcoins in existence, with almost 20% owned by just 100 account holders (Vogel, Kurak and Huebner, 2019). In 2020 it is reported that the three largest bitcoin holdings comprise 2.71% of all bitcoin, with a market value of approximately $4.31 billion. These larger traders, known as "whales" in cryptocurrency circles, continue to have a certain monopoly over liquidity and the volatility of the market (Banton, 2020). The term whales was coined given the impact these large traders had in their ability to disrupt the waters (market), affecting smaller cryptocurrency holders known as "fish", with their movements increasing volatility, decreasing liquidity, or both (Banton, 2020). As the price increased massively during this period, legal authorities (aligning with FAFT guidelines) became aware that individuals could control the increase and decrease in prices of cryptocurrency through trading in mass amounts, growing sizable wealth by trading in this new market. Whilst this is not illegal, and remains a challenge for regulators to track, these potentially unethical actions lead to scepticism and trust issues with the cryptocurrency market as a whole (Banton, 2020).

To overcome these challenges, there are emerging platforms that have been established for the sole purpose of tracking cryptocurrency transactions. One such platform is the Whale Alert (https://whale-alert.io), whose databases contain thousands of known addresses of individuals, exchanges and companies. Their tracking software is able to instantly identify transactions made to, and from known and associated addresses, and by doing such removes anonymity and adds scepticism for a significant part of the cryptocurrency world, especially exchanges.

5.3.2 Climate Change, High Energy Consumption, and Collateral Damage

The high cost of the blockchain and cryptocurrency technology is the concept of storing every transaction across a multitude of computer systems, and monitoring funds that leaves an increased carbon footprint (Vogel, Kurak and Huebner, 2019). As mentioned in Section 2, blockchain technology uses a network of servers and computers to create each transaction on the blockchain. Each of these transactions requires processing power, and ultimately energy consumption, and this then raises the question of how much energy it uses and what the likely impacts are to the climate. There is limited research on this subject so far, however some early

papers have identified that the blockchain technology associated with the likes of Bitcoin uses a significant amount of energy, comparable to 1% of the world's energy per day (Narayanan, 2018).

The flip side to this, however, is that smart contracts, and other leverage points of removing the middle man as outlined in this report, can reduce impact in energy consumption overall by reducing the amount of technology used in traditional finance and commercial sectors (Naravan, 2018).

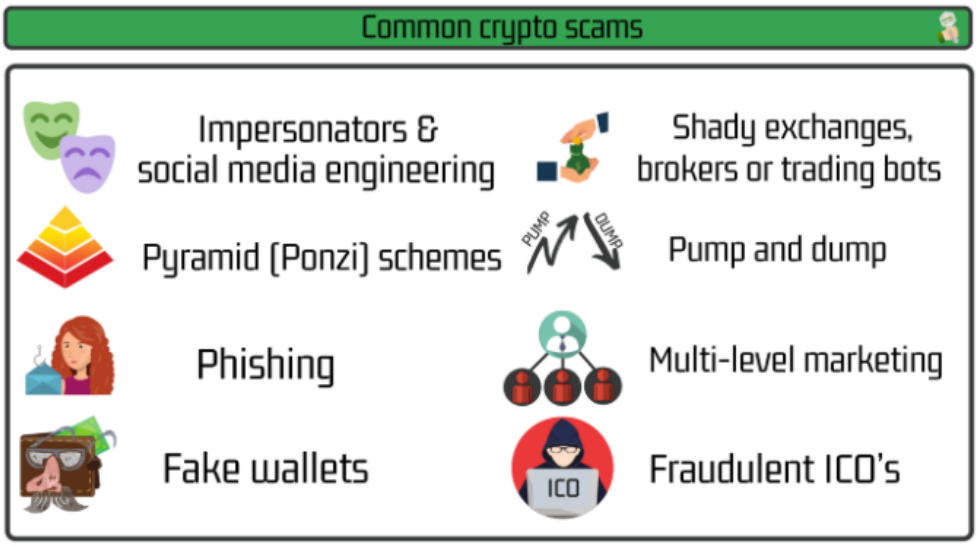
5.3.3 Criminal Activity

Another risk with cryptocurrency donation is the ability for the donor to be anonymous or use an alternate name (pseudonymity). Without an arbitrator in the middle of the transaction it is difficult to track the real-world identities of the donor, unless of course they choose to share it. This anonymity, or pseudonymity, can lead to ethical based questions as to the acceptance of cryptocurrency from the proceeds of crime. With the current technology landscape it is difficult to control this. A recent example of this issue has been identified through The Giving Block, who as mentioned in Section 1.4 of the report, recently facilitated (unknowingly initially) the donation of $10,000 (USD) of cryptocurrency that were proceeds from a supposed ransomware attack (Hern, 2020). Hackers later posted online the evidence of donation (by way of a tax receipt), which triggered action from both the charities/NFPs and The Giving Block to return the funds. Interestingly, The Giving Block also has methods to ensure that donor identification is controlled. Charities/NFPs can elect to force the donor to enter this data when donating. This aligns with the compliance requirements of Section 4 of this report, and more specifically the KYC procedures. The simplest way to manage this anonymity is to ensure that there is to identity verification processes at the point of capture. This needs to be considered when choosing the relevant technology to capture the donations.

5.3.4 Cybercrime

Another risk of cybercrime for innovative donors and charities/NFPs is the ambiguous regulatory environment, with no clear legal protection, which could lead to exposure of the identity of donors and recipients resulting in social consequences in their lives on judgment and scrutiny by peers, community, and sector (Vogel, Kurak and Huebner, 2019). Charities/NFPs and donors may have ethical viewpoints on being associated with these complex technologies that are not secure enough to preclude these risks. Figure 34 below outlines some common cryptocurrency scams that donors and charities/NFPs need to be aware of and take the required precautions to avoid.

Figure 34



Common Crypto Scams, (SSI Ambassador, 2019)

5.3.5 Protecting Against Crime

The primary action, when choosing the right technology for cryptocurrency and blockchain, should be to evaluate the regulation and governance frameworks to which the provider subscribes to. As highlighted in Section 4 on compliance, within Australia all financial institutions are regulated by the Australian Transaction Reports and Analysis Centre (AUSTRAC), and more specifically they must comply with the requirements to have an appropriate Anti-Money Laundering and Counter-Terrorism Financing programs in place (ref). These include:

- Choosing heavily regulated exchanges that comply with the requirements of Australian law. Charities/NFPs should do due diligence on any exchange used to determine what their level of compliance is.
- Choosing not to accept anonymous donations.
- Partnerships with outsourced service providers who are accountable for compliance and security protection.

6. Options for Consideration

6.1 Do nothing and Maintain the Status Quo

The first option for charities/NFPs to consider is to ***not*** consider expanding their social media presence, introducing cryptocurrencies into their fundraising toolkit, or exploring the implementation of blockchain opportunities. Not all charities/NFPs will have the resources, desire, or need to explore introducing these new technologies at this stage. Each charity/NFP must assess its own resourcing and fundraising profile to ascertain if these options are a good fit, or even a possibility in the near future.

However, the status quo in relation to use of social media and acceptance of cryptocurrencies may be a risk in relation to growing fundraising capacity. As previously noted, the charity/NFP sector continues to grow, and this only increases the level of competition for funding. Whilst unlikely to negatively impact charities/NFPs in the short-term, not introducing new technologies may reduce charities/NFPs abilities to attract new donors and donations over time as cash becomes less popular and digital transactions are the most common option for younger donors (Te, 2020).

The research identified that “organisations benefit substantially and significantly by developing their front end innovation activities” (Alam, 2006 in Bennett & Savani, 2011, p. 121) and that charities/NFPs need to “regularly devise novel fundraising approaches and methods both to replace lapsed donors and to induce existing supporters to continue to donate” (Bennett & Savani, 2011, p. 122). The literature also shows that ideas are the beginning of innovative fundraising campaigns, these being campaigns which “attract public attention [and] differentiate a charity/NFP from other fundraising organisations” (Bennett & Savani, 2011, p. 121).

Along with the expansion of social media presence, and the option to accept cryptocurrency donations, charities/NFPs should also consider blockchain technology platforms and opportunities. Blockchain technology offers many advantages, as previously noted, however a charity/NFP considering this option would need to clearly identify a problem to solve, and then look at blockchain technology as one possible solution (Lea, 2020, personal communication). Details on blockchain implementation options are in section 6.4. In the short-term, charities/NFPs may choose to maintain the status quo with current operational transactions or choose to add additional donation options that do not incur additional costs or resources.

6.2 Increase Use of Digital Technology and Social Media to Connect with Future Donors

Digital will be at the core of charity/NFP trends in the future so charities/NFPs do need to be prepared for the increase in tech-savvy donors from current generations including Millennials right through to Gen Alpha. There are numerous platforms where charities/NFPs can promote their organisations and generate donations. Twitter, Facebook and Instagram are all platforms where immediate interactions can take place, allowing charities/NFPs to develop personal connections with their audience in real time, and spread their message quickly. This increased exposure not only improve brand awareness but will provide the opportunity to turn one-time donors into long term donors (Gilbert, 2019). Digital fundraising strategies, along with contactless donation technologies, include the creation of new donation apps, which not only increase the charities/NFPs funding, but it keeps them across the spending habits of their donors. An example of an app created by the United Nations World Food Programme is “Share the Meal”, which allows users to tap their screen and donate 50 cents, to feed a child for one day.

Improving the use of data to understand the donor better, mobile strategies for targeting younger generations, and making the experience more streamlined, becoming more social, and voice technology (with the growth of tools like Alexa and Google Home), are currently on the radar as a focus area of growth in the charity/NFP sector. When donors can see the impact of their donation quickly, and are giving on their own terms, charities/NFPs can keep their current donors more engaged, and encourage new consumers, by making them feel more engaged, valued, and respected. This also prevents charities/NFPs utilising valuable resources on contacting people who are not interested in a specific cause (Gilbert, 2019). Crowdfunding and virtual events are increasing in popularity, as they are low cost and relatively low effort strategies compared to traditional fundraising ways (Isaac, 2019). Donors are more inclined to donate to a project rather than an organisation due to greater visibility and impacts being more easily quantifiable (Isaac, 2019).

Table 06 (Galabid, 2020) below outlines focusses for charities/NFPs in engaging donors through digital options, providing wider exposure and potential to increase both donor engagement and brand awareness.

Table 06 *Focuses for charities/NFPs in engaging donors through digital operations* (Galabid, 2020)

Mobile/Online Technology	• Digital donations are the preference across most demographics • 60% of Millennials, Gen X and Baby Boomers donate online or with Paypal
Generation Optimisation	• Social media is the driver for Millennials and Gen X to donate and participate • Email still best method for Baby Boomers
Sustainability	• Digital fundraising technology supports green ambitions • Streamlined platforms can deliver multiple features including direct donations, auction, and invoicing, all in a single app
Security	• Protection of personal information is paramount for ethical and legal reason so request information from digital platform suppliers about their data protection policies (in writing) • Be aware of laws for international donations
Global Reach	• Digital age means anyone from anywhere can take part in social media and online campaigns for donations • Finding the right message to capture the wider audience is the key
Sponsor Friendly	• Digital platforms have opened up a whole range of spaces to promote sponsors, from fundraising app banners, pop-ups, branded email communications and online prize catalogues, all offering high visibility engagement

Further details on mobile digital strategies, in particular the use of text messages or SMS, to encourage and simultaneously enable people to donate for charities/NFPs to utilise are below:

- Inbound SMS**,** where charities/NFPs provide the public with a keyword, which donors then text to the specified mobile number, to make a donation.
- Outbound SMS allows charities/NFPs to send an SMS to supporters with an invitation to donate with SMS, again promoting spontaneous giving. Customised messages can encourage donations for different circumstances, times of year, or particular fundraising campaigns.
- Communication with donors to inspire giving at particular times, providing a text message to supporters with a unique link. Over the last three years, Oxfam Australia has created a tradition to send out a last-minute SMS at around 7pm on 30th June, to inspire pre-end of financial year donations. This is proving successful for Oxfam due to “the urgency due to the timeline, the emotiveness of the messaging that Oxfam use and the fact that SMS has such a high open rate (98%)” (Give Easy, 2019).

- Monitoring donations in real time using a 'live event thermometer bar' which tracks donations made at live events.

6.3 Accept Cryptocurrency Donations

Charities/NFPs are integrating blockchain and cryptocurrency projects to their organisations, with early adopters perceiving 2020 as a turning point in donor engagement. These technologies are evolving the way donors transact by removing barriers and friction points for donations (especially for large-scale and transborder donations) and increasing efficiency by reducing the transaction fees and compliance complications associated with these types of donations (Birk, 2019). The ability to accept cryptocurrency donations will offer charities/NFPs the opportunity to expand their donor pool, and to engage with Millennials and beyond.

Charities/NFPs have the option of accepting cryptocurrency donations in the following ways:

- As Olawale (2020) claimed charities/NFPs can engage a third-party management payment processor, which accepts cryptocurrency payments on your behalf and then remits the funds into the organisations account in fiat currency (i.e. PayPal, Bitpay).
- Set up a merchant wallet account, which provides a digital address through which donations can be received. A cryptocurrency framework is outlined in section 3.1.
- Point of Sale (POS) options (which can be used with either of the above):
    - Peer to peer using the wallet's mobile app to scan and pay,
    - Point of sale using payments using EFTPOS machines or ATMs that accept cryptocurrency payments,
    - Online payment platforms to add to charity/NFP websites, online shopping carts and other social media options.

Internal organisational controls are required to integrate payments into current accounting systems (Haley, 2020) and during each step of the process to ensure compliance with all regulations (CPA Australia, 2011).

Let everyone know, "*'We accept Bitcoin'*…is guaranteed to get noticed by customers who are looking for the opportunities to pay with cryptocurrency, not fiat" (Olawale, 2020).

6.3.1 Cryptocurrency and Brand Awareness

Cryptocurrency donations are as much a marketing opportunity as they are a fundraising tool. "Cryptocurrency donations create viral content in ways traditional donations do not" report Wilson & Duffy (2019).

There are benefits of expanding brand awareness and reach through cryptocurrency including:

- Standing out from the crowd by being an early adopter,

- Adding a new payment method to maximise accessibility,
- Targeting new segments of donors,
- Boosting visibility through social media,
- Providing tax solutions for donors regarding capital gains tax (potentially in Australia), and
- Increasing the knowledge of donors and staff of these options (Crypto Giving Tuesday, 2019).

The brand needs to stay distinctive, relevant and it needs to creatively capture the imagination of Millennials and future generations (McLaren, 2019). It is one of *The 22 immutable laws of marketing* that “It is better to be first than it is to be better” (Ries & Trout, 1998).

6.4 Introduce your own Cryptocurrency

In 2018, the capitalisation of the cryptocurrency market was more than $125 billion (Kolyvayko, 2018). For the very tech-savvy charities/NFPs, creating your own cryptocurrency is a possibility, but there are multiple steps and costs involved. The program code which contains the technical characteristics and parameters of the network, is the basis for any cryptocurrency creation and requires a specialist whose forte is programming.

Kolyvayko (2018) notes the precise cost of a cryptocurrency development can be estimated only after drafting the technical task, which from scratch is 7,000 hours to 10,000 hours; or if based on an existing framework, 600 hours to 1,500 hours. The development costs can range from as low $1,000 to greater than $100,000, as shown in Figure 35 below. Then there are auditing requirements, white paper, promotion and coin placement costs. A significant investment is required, and you will require the support of a professional development team.

Stage	Time	Costs
Development	Varies from project to project (from 15 minutes to 5-6 months)	$1,000-$100,000+
External Audit (ICO Security Audit)	30 days	$3,000-$10,000
White Paper and Documentation	24-50 hours (1-2 weeks of full-time work)	$5,000 to $7,000 (~$500 per page)
Promotion	1 week - 30 days	$10,000 per week
Coin Placement	1-2 weeks	$5,000+

Figure 35 How to create a cryptocurrency: Everything you need to know (Anurina, 2020)

6.5 Introduce blockchain

Section 2 outlines the advantages and options for use of the technology that the charity/NFP sector may wish to explore, as blockchain capabilities for an organisation are more than just the use of cryptocurrency.
Blockchain technology, when used to record transactions can:

- Increase transparency to interested stakeholders and thereby reduce fraudulent activity, particularly in countries with less robust financial institutions (T.Lea, personal communication, November 3, 2020),
- Enable tracking through a supply chain to achieve particular outcomes,

- Track donations to increase appeal to donors.

As previously noted in Section 2, blockchain technologies can reduce transaction fees associated with accepting payments and transferring the money to those in need, which would have a direct impact on the increase of funds raised, particularly in the international fundraising space.

Blockchain also allows the introduction of smart contracts which can automate a range of “if x, then y” relationships. Charities/NFPs can set up automatic arrangements so additional funding may be triggered if key criteria are met as per a contract.

The first step for charities/NFPs in considering exploring blockchain is to ask “why” and try to define the problem they are trying to solve (T.Lea, personal communication, November 3, 2020). There may be other and more readily accessible solutions, so first steps may include:

- Consulting with blockchain experts, who can help define the problem and then advise if a blockchain solution is the right one and how to go about developing it.
- Undertaking further research through university courses offered which teach people how to define the problem and connect with experts.

Further information on blockchain technology is also available at Appendix 4.

7. Risks

7.1 Risk Matrix

7.1.1 Risk Framework Methodology

A risk assessment is a method of applying a framework to produce a risk estimate of an event and the associated consequences for the given organisation (Wangen, Hallstensen & Snekkenes, 2017, p. 681). Frameworks are designed to mitigate adverse risks, or at least lessen their impact, whilst capitalising on the opportunities of positive risks (NSW Government, 2019, p.3). Risk management is a part of good business practice and can assist in complying with compliance, statutory, organisational, and governance requirements. The company structure type determines the charity/NFP sector compliance and regulatory requirements, such as an incorporated or unincorporated association/cooperative, and whether the charity/NFP is registered with the ACNC, as well as the Corporations Act of 2001 (NSW Government, 2019, p.3).

According to Deloitte's Global Blockchain Survey, the financial services industry is the second largest adopter of new blockchain technologies (Deloitte Insights, 2019). Together with the charity/NFP sector, financial services are among one of the most highly regulated industries (Global Legal Insights, n.d.). The risk appetite in both industries is low, and potential risks must be identified. An effective risk management framework helps to identify and control potential risks for both the implementation itself, and to support ongoing monitoring of compliance.

While there are multiple styles of risk frameworks, the International Organisation for Standardisation (ISO), is a worldwide federation of national standards bodies (ISO 31000, 2018, Foreword). The ISO is responsible for the risk frameworks that identify, analyse, and evaluate risk within organisations. The ISO framework, alongside the Governance, Risk and Compliance Framework (GRC Framework), see figure 38 below, (South, 2018), have been chosen for this report, to aid in the analysis of the use of blockchain and cryptocurrency within the charity/NFP sector. By identifying risks, organisations are able to evaluate risks that can both aid and detract from objectives being achieved within a company (ISO 31000, 2018, section 6.4.2).

In the keynote address at the Public Sector Internal Audit Conference, lessons learned in the public sector were highlighted in cases where risk is underestimated (Hehir, 2018). One example is the Home Insulation Program managed by the Department of Climate Change and Energy Efficiency, where following the audit report it was found "a clear understanding and acceptance of the level of inherent risk, and potential consequences of realised risks, in the program by all key stakeholders, including government, can avoid reactive program changes following implementation" (Hehir, 2018).

Hehir (2018) continues to say that having a risk framework in place not only is a risk mitigation strategy but is also a driver of change:

> Positive risk culture is also an enabler of innovation. If staff are afraid to fail, they are unlikely to take calculated risks and be innovative. If an organisation is unclear about its risk tolerance, it cannot expect innovation. Good risk managers produce innovative outcomes because their entity's risk tolerance allows for failure, remediation, and learning where the decision making in the risk management process was sound. (para. 4)

Figure 36 below, the GRC Framework, in conjunction with the ISO 31000 framework, previously mentioned, have both been adapted to develop the risk analysis in this report (South, 2018).

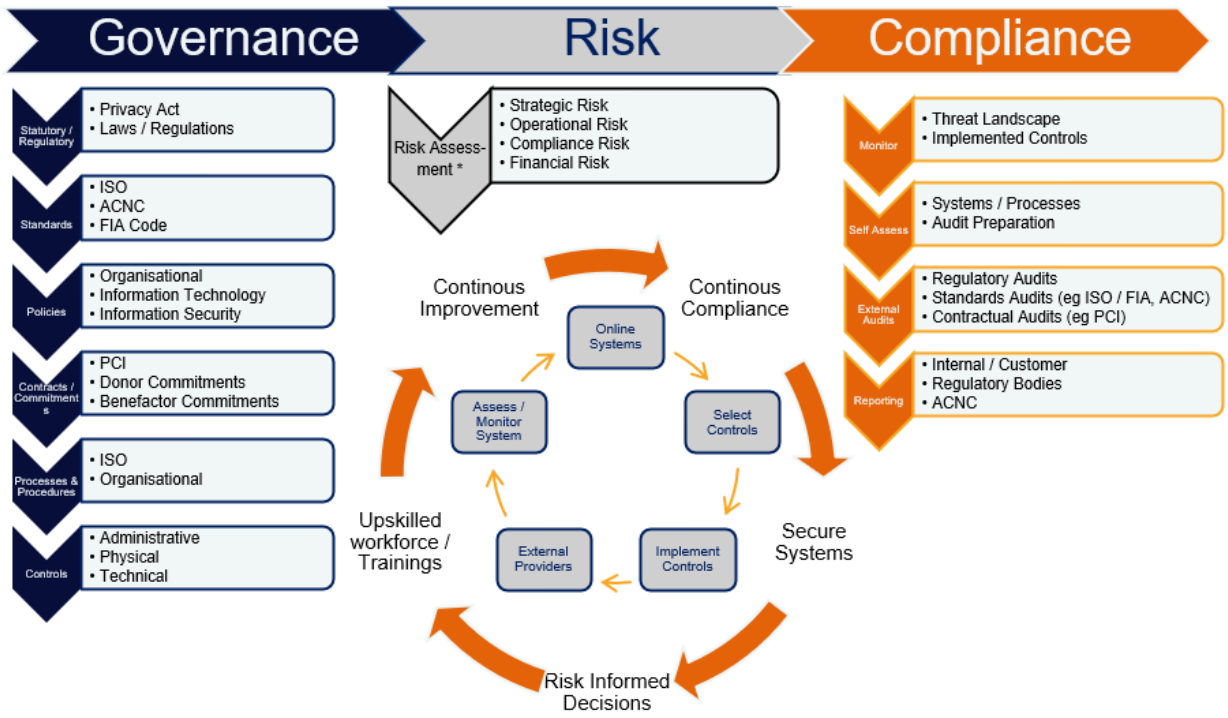


Figure 36 Governance Risk and Compliance Adapted Framework (South, 2018)

Compliance: The risk impacts of compliance are addressed within the risk portion of the framework; however, the process of compliance is sub categorised into the following:

- Monitoring: threat landscapes, implemented controls,
- Self-assessment: ensuring systems and processes are in place to be able to identify and record compliance,
- Auditing: following regulatory, standards and contractual auditing requirements,
- Reporting: for internal, customers, and regulatory bodies.

Governance: How management directs and controls an organisation, and ensures information is distributed among employees, and critical information is shared back to management to

enable effective decision making. Governance ensures that there is a structure that once the compliance process is followed, the internal requirements are managed, and communicated, to employees and across teams. The following subcategories are included:

- Statutory/Regulatory: remaining compliant with state/federal laws and acts,
- Standards: following industry standards and codes,
- Policies: ensuring organisation policies address identified risks clearly,
- Contracts/Commitments: identifying when risks may affect contracts or commitments,
- Processes/Procedures: these should be designed to follow risk mitigation strategies,
- Controls: automatic or manual controls to be put in place to manage compliance where possible.

Risk: The risk evaluation is broken into five key areas as summarised by Blackman (2014):

- Strategic Risk - where the strategy of a business is affected due to the factors associated with adopting Cryptocurrency and Blockchain technology. This could include major technology changes, impacts on brand awareness and reputation, damages and losses due to cyber-crime,
- Operational Risk - where something interrupts an organisation's core operations. This may be a loss of technology platform and unplanned outage, disruption to the ability to capture donation, information security, and data protection issues,
- Compliance Risk - where organisations must ensure that their business operation Follows all the necessary laws and regulations. Regulation requirements may change; by the regulating bodies updating their rules or simply by an organisation making changes to the way they currently operate (e.g. moving to digital campaigns),
- Financial Risk - where there is a chance of lost revenue or costs resulting in a detrimental financial impact on the business (e.g. loss of capital due to market volatility, failure of cryptocurrency coins.
- Reputational Risk - where the company brand or image is damaged through direct action of the company, or indirectly by an employee. Reputational risk can result in loss of customers, revenue, suppliers, and in some cases employees.

The framework below, developed by the Industry Project Team, as mentioned in section 5.1.1, is a mixture of both the ISO 31000 framework and the GRC framework. The team has incorporated the risk event, consequence, and treatment style of risk evaluation. When utilising this method, more than one consequence should be considered, with intangible consequences considered (ISO 31000, 2018, section 6.4.3).

7.2 Security and Data Protection

The risk landscape associated with blockchain is the loss of data. Under the surface of this landscape is the fact that digital technologies like blockchain are just like other information systems – data can be stolen or lost. Whilst blockchain may increase security in some instances

by way of its cryptographic architecture, there are a number of areas that require appropriate consideration before adopting the technology.

7.2.1 Maturity and Market Trends

Like most technology platforms, blockchain needs to reach a point where it is mature enough to gain mainstream market acceptance (PricewaterhouseCoopers, 2017). To get to this point it requires talented developers to drive the industry through the phases of innovation that support more structure around cyber security and information risk management. While there is little research on the vulnerabilities associated with the technology stacks, we know that it attracts criminals as per section 5, however what it is hard to identify is a common portfolio of weaknesses. It is likely that this gap in cyber security knowledge will be closed as wider adoption and advocacy via consumer, business and government buyers increases. It is not a matter of if, but when (PricewaterhouseCoopers, 2015).

7.3 Risk – General Threats

Through their dedicated analysis Al Mallan et al (2020) conducted a cyber security risk assessment on blockchain technologies. This analysis utilised a quantitative approach to assess the threats and vulnerabilities associated with blockchain technology in smart mobility (Smart Contracts), which may be of particular importance to Charities/NFPs given their use in social enterprises and the analysis within section 2.3. The key vulnerabilities of this paper include:

- Improper Key Protection. This includes the security of transactions on private blockchain as well as the wallet keys as per section 2. Locally stored wallets (stored on a person's computer can be hacked like any other file). Cloud based wallets also can be subject to hacking and theft.
- Privacy Threats to the User Identities. As outlined in this report, users can remain anonymous. This requires soft controls such as business processes to capture donor information at the point of donation.
- Insider threats and social engineering. Whereby personnel involved in transactions are either targeted or participate in criminal activities themselves.
- Denial of Services attacks. Where the blockchain is bombarded with heavy traffic to slow down the process of transaction. This could have implications on exchange of cryptocurrency to fiat currency, which given the volatility of some currencies may result in less favourable conversion rates.

The work of Al Mallah et al (2020) is extensive and includes a wide range of vulnerabilities associated with smart contracts that should evoke more detailed analysis by Charities/NFPs before adopting this type of technology that can be viewed in Appendix 3.

Further to this study, other assessments have been concluded on the vulnerabilities associated with Blockchain Technology. Overall Blockchain can be regarded as secure due to its cryptographic nature and the fact that the ledger is immutable. However, there are ways to

exploit traffic on the blockchain as Nitish et al (2017) pointed out in their research on the ability of attackers to isolate parts of the Bitcoin network and cause disruption on the ledger.

7.4 Blockchain Maturity Model and Risk Analysis

KPMG (2017) have also developed a Blockchain Maturity Model that includes risk analysis across 8 key areas. This model assists organisations to understand the weaknesses in your blockchain solutions.

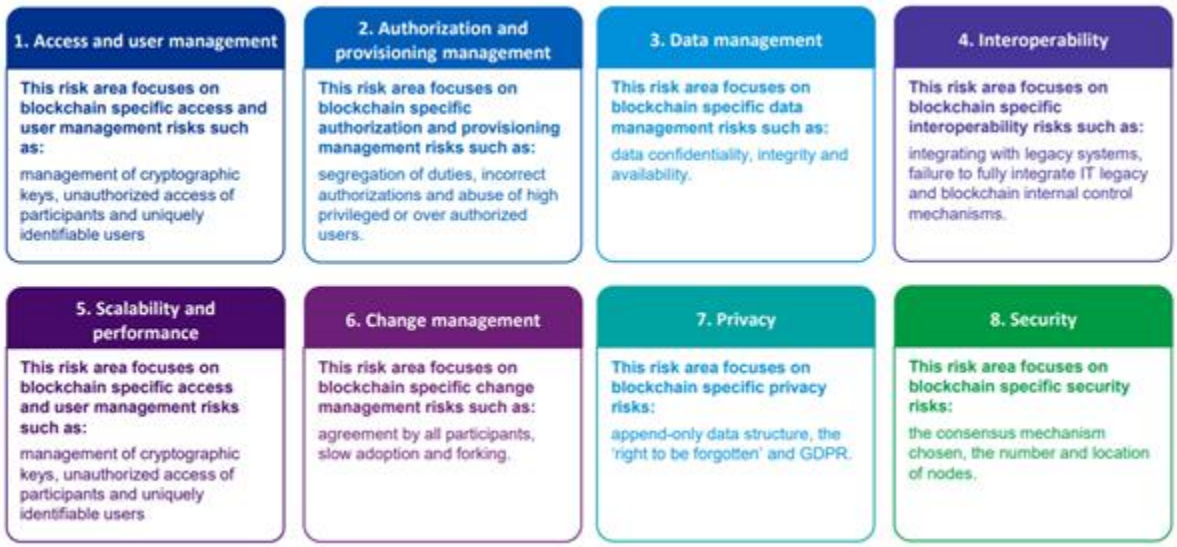


Figure 38 Blockchain Maturity Model (KPMG, 2017)

In general, there are a number of avenues that attackers could pursue to either disrupt the blockchain or to steal cryptocurrency depending on the circumstances. The predominant risk overall is that data can be stolen and hacked just like any other technology platform. Cryptocurrencies are digital assets stored in a computer system; improper protection of this information could lead to complete loss of funds. Appropriate measures must be taken to assess the suitability of any technology platform adopted, this includes a detailed information security assessment and evaluation of cyber security risks.

7.5 Risk Register

As the Industry Project Team conducted their research for the body of this report a risk register was built to capture relevant risk information for charities/NFPs. This was completed with a holistic view of the industry sector in general.

Risks were evaluated using the four criteria above with a qualitative risk matrix

Consequence						
Loss Type		1	2	3	4	5
		Insignificant	Minor	Moderate	Major	Catastrophic
Strategic		Low level internal impacts that do not affect the strategic direction of the charity and NFP entity. No media coverage or reptutational damage. Brand and Image remains intact	Media (Social Mainly) awareness and slight threat to reputation and brand. Issue calls for leaders to liaise with small set of stakeholders. Strategic direction of the company remains relatively unchanged	Attention from media (social and small stream outlets) and or heightened concern by key stakeholders Significant difficulties in gaining donor by in. Disruption to the strategy including business plan changes, resource increase and increases to operating/capital expenditure	Significant adverse national media or public attention. Threats to the operability of the charity and NFP. Business Structure severely threatened	Serious public or media outcry (international coverage). Charity and NFP forced to close
Operational		Slight disruption. Ability to capture donations and operate is confined to less than a 2 hour period	Outage and loss of ability to capture donations for up to 1 day.	Loss of platforms and ability to capture donations for up to one week. Business Continuity Planning has to be activated. Information can be recovered	Total loss of platform. Technology changes are required. Outside assistance needed to support business continuity. Information can be recovered	Total loss of platforms and loss of donor data. Information security breaches have occurred which requires reporting to stakeholders and authorities. Operations can not continue
Compliance		Internal breaches of process and procedure. No external notifications required	Minor breach of regulation resulting in guidance from the regulator	Formal regulatory warning due to compliance breach	Significant breach of compliance which results in penalties and regulator imposing changes to business structure	Charity and NFP entity is forced to stop operations due to compliance breach
Financial		Slight Loss <$999. No disruption to operation.	Loss of $1,000 to $5,000. Brief disruption to operation.	Loss of $5,000 to $25,000. Partial shutdown.	Loss of $25,000 to $50,000. Partial loss of operation.	>$50,000 Substantial or total loss of operation.
Likelihood	(use only as a guide)	Risk Rating				
A – Almost Certain	The event is expected to occur in most circumstances.	Medium	High	High	Very High	Very High
B – Likely	The event will probably occur in most circumstances.	Medium	Medium	High	High	Very High
C – Possible	The event should occur at some time.	Low	Medium	High	High	High
D – Unlikely	The event could occur at some time.	Low	Low	Medium	High	High
E – Rare	The event may occur only in exceptional circumstances.	Low	Low	Medium	Medium	High

Figure 39 Risk Matrix (Dūcere Industry Project Group, 2020)

On the following pages, the risk analysis in Figure 40 created by the Dūcere Industry Project Group (2020), can be found. Risks, consequences, severity are identified according to areas of the report and risk category, as well as suggested recommendations.

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Context					Identification			Treatment
No	port Sect	Risk Cate	Technol ogy	Technol ogy Sub-	Event	Consequence	Risk	Recommendation
1	1.2	Financial	Blockchain Technology	Ledger	The use of immutable ledger means that once a block is added to a chain it can not be undone. This may have implications on the reversal of transactions.	Donor or charity is unable to reverse an transaction on the blockchain resulting in potential loss of revenue	Low	As cryptocurrency and blockchain frameworks do not support reversal of transaction, the only way to return funds to transfer the cryptocurrency back to the donor through another transaction. Appropriate processes should be adopted to manage this. Donors should be made aware of this before donating funds.
2	1.2.1	Operational	Blockchain Technology	Scale and Maturity	Utilisation of immature technology with limited validation in the market. Platforms may tend to be minimal viable product and lack future proofed architecture	Product life-cycle on a lot of the cryptocurrency/blockchain tech is low meaning that potential vulnerabilities have not been identified. This may lead to loss of platform operation or worse - security breaches and loss of funds	Very High	Due diligence is needed on any blockchain platform through a technology consultant. The outlined member evaluation tool will assist in facilitating this checks. However, in general blockchain technology should as a minimum be: 1. Certified to appropriate standards where possible. i.e. Exchanges should be SOC Compliant and ISO 27001 Certified. They must also be registered with ASIC. 2. Have been proven in market over at least 2 years. Supported with Case Studies where applicable 3. Be financially backed and appropriately supported with strong organisational structures for governance. A lot of the tech platoforms out there are start-ups with little funding. Security will have its weaknesses.
3	1.3.2	Strategic	Blockchain Technology	Digital Strategy	Failure to establish a digital strategy that is reflective of future trends in blockchain technology adoptions amongst younger generations.	Research suggests that younger generations are more socially conscious and focussed on trust and transparency. Charities/NFPs that fail to move with the trends and uptake of blockchain technology may lose opportunities to engage with donors and increase brand awareness.	Medium	Generational trends are driving increasing digital expansion, also indicating there is further opportunity for charities/NFPs, donors, and recipients, to introduce blockchain and cryptocurrency donations to stay relevant. Digital Strategy needs to include the evaluation of emerging trends and the opportunities to capitalise on this. Given the speed at which Blockchain technology is advancing, digital strategy should be reviewed regularly (at least annually) to validate the positioning of Charities/NFPs as current with market trend.
4	2.2.	Operational	Blockchain Technology	Scale and Maturity	The blockchain technology behind the likes of bitcoin has limitations in terms of scalability due to its architecture. The bitcoin rationale is that mining nodes must verify each transaction occurring in the network and create its own log. This essentially requires more processing power, more network space and support.	The significant impact to this is that over time the network will begin to slow, cryptocurrency conversion will be slower and potentially get to the point where technology has to change.	Medium	Digital strategy should be focussed on keeping abreast of change within the blockchain tech stacks. This problem is well known to the blockchain and cryptocurrency community as research indicates. There are emerging currencies and tech stacks that are built on newer platforms that will not be subject to these issues. These are outlined in section 3.9.2 of the report.
5	2.4	Operational	Blockchain Technology	Digital Strategy	Smart contracts can be used to create a transparent end-to-end journey for the donor. However, the development of smart contract based mediums requires expert development and appropriate product management	Failure to utilise or engage competent developers could lead to bugs within the product code, which may result in fall-over of the platform at critical points in the donation life cycle.	High	Software architecture must be designed by appropriately qualified development teams. The general trend for smart contracts is to use Ethereum based technology stack, as they are regarded as the lead in terms of infrastructure that supports it. Any developer engaged should as be degree qualified in computer science with specific experience in solidity development. Furthermore, a detailed information security risk assessment should be performed by a suitably qualified consultant. This is required to understand the threats and vulnerabilities with the proposed architecture.
6	3.1	Strategic	Cryptocurrency	Data Protection	Cryptocurrencies are digital assets stored in a digital wallet, just like files on a computer. And just like files on a computer they can be stolen. Unsecure internal systems and processes used to store this data could lead to exposure	Hackers can steal files if necessary protocols are not followed to protect the cryptocurrencies. Potentially leading to a complete loss of cryptocurrency holdings	Very High	With any technology chosen, appropriate due diligence must be performed. If cryptocurrency acceptance is to be adopted in house, i.e. captured and stored on internal systems in respective wallets, then appropriate means need to be adopted to secure the data and protect the wallets from theft or hacking. Research suggests that this is more safer than some of the cloud based storage solutions on the market for cryptocurrency wallets. Either way, security advice must be considered from an appropriately qualified consultant on how to the protect the data - a detailed information security risk assessment should be performed on the potential solution. . Due to the limited regulatory environment, insurance options are limited. Once data is lost it would be difficult if not impossible to recover.
7	3.2	Financial	Cryptocurrency	Market	Cryptocurrencies price fluctuations can be significant. This is due to a number of reasons, which include: 1. There are cryptocurrency whales (formal term) that can control the price due to volume they sell, these people have significant amounts of the currency and are usually the early adopters of it. 2. There is no central regulator or 3rd party to control it. For example the RBA controls fiat currencies. Due to the freedom of crypto, prices can move significantly. 3. There is no asset to link it to. Fiat currencies can be linked to economies and economic growth. Cryptocurrencies cannot.	Currency price can go into free fall, sometimes going to zero. This is similar to a new technology company on the stock market if the founding members were to sell their shares and leave the business.	High	The primary options are: 1. Hold the cryptocurrency until market conditions improve and price is optimal. This requires a wallet and secure place to store the currency. 2. Accept the current market value and convert on an exchange if fiat currency is needed. 3. Utilise less fluctuating coins, noting that Bitcoin and Ethereum are the most widely used for donations, but stable coins have been invented for avoidance of such huge fluctuations. A form of cryptocurrency price control. Note that there are risks with pump and dump schemes that are considered in the next risk. See the Deep Dive in appendix 2 of the report for more information
8	3.1	Financial	Cryptocurrency	Market	The cryptocurrency world is Particularly susceptible to pump and dump schemes, where the price of essentially worthless assets, in this case new cryptocurrencies, mining schemes, yield farming or liquidity pooling, is inflated artificially.	Adopters could be fooled by scams and these pump and dump schemes. Adopting a spurious cryptocurrency solution could lead to financial losses	High	The digital strategy should be focussed on well tested cryptocurrency adoption case studies. Utilisation of the coins that they have used should be considered. Case studies have been outlined within the body of the report.
9	3.6	Financial	Cryptocurrency	Exchanges	Exchanges have been subject to hacking in the past and resulted in mass loss of funds. Choosing the wrong exchange either directly or indirectly (through a 3rd party) could expose the Charities/NFPs to increased security risk.	Potential loss off all funds stored on the exchange. This would potentially be completely lost.	Very High	Exchanges within Australia must be registered with ASIC and Austrac. Due diligence must be performed to validate this prior to adoption. This include analysis on 3rd party providers. Noting that whilst the registration with ASIC and Austrac will give you assurance of regulatory governance, it does not demonstrate that the exchange has an appropriate information security management system in place. Charities/NFPs should look to adopt an exchange that demonstrated a strong posture towards this, an example of this would be if the exchange has gained ISO27001 certification.
10	3.8	Strategic	Blockchain Technology	Digital Strategy	Introduction of new technologies causes fundraising practices to breach FIA code of conduct	Reputational damage to charity/NFP; loss of donors; loss of staff and volunteers; censure by FIA	Medium	New guidelines are developed specifically to accommodate new technologies in fundraising sphere and an education campaign for professional fundraising staff and volunteers is undertaken.

11	4.1	Compliance	Blockchain Technology	Digital Strategy	The predominant issue with regards to compliance and governance is that the regulatory framework remains fragmented in terms of structure and guidance across federal and state law. The AU Government is yet to establish a structured framework for cryptocurrency and blockchain use	Regulatory guidance is not fully clear in terms of how blockchain and cryptocurrencies are to be managed. Especially in terms of the privacy law, financial reporting and financial advisory services. With an unclear regulatory landscape, there may be potential for breaches of law.	High	The research teams recommendation is that Not-For-Profit Law is contacted for guidance or other alternate legal consultation. Given the lack of regulation generally, Charities/NFPs should be ensuring that appropriate resources are dedicated to assess the technology implementation strategy in terms of legal compliance. Key takeaways: 1. For reporting purposes the Australian Taxation Department recognises cryptocurrency as an asset rather than money. This means capital gains tax laws are relevant when dealing in cryptocurrency. 2. All digital currency exchanges in Australia have to be registered with AUSTRAC. AUSTRACs primary focus is Anti Money Laundering and Counter terrorism financing. 3. The Australian Securities and Investment Commission, under the guidance of the RBA, state that digital currencies are not financial products. The ACCC delegate powers to ASIC to ensure there is no misleading information during initial coin offerings of cryptocurrency.
12	4.2	Compliance	Blockchain Technology	Data Protection	Privacy ACT; 13 Privacy Principles legislated. Most notable risk is that blockchain in its design does not allow removal of personal information once entered.	Potential breach of regulation should a person's details require removal and this cannot be achieved.	High	As with the above recommendation. Charities/NFPs should be using legal consultancy services or allocating appropriate internal resources to support legal analysis.
13	4.6	Compliance	Blockchain Technology	Data Protection	Anonymous donations can have implications on Anti-Money Laundering laws and financial reporting	Accepting anonymous donations may lead to regulatory breaches	High	Charities/NFPs should be considering policies around the acceptance of anonymous donations. There are facilities to support this to ensure information is captured at the point of donation. The Giving Block is one such example that gives the charities the option to enforce donor information capture.
14	4.3.6	Financial	Cryptocurrency Exchanges	Exchanges	Reserve Bank of Australia (RBA) does not currently identify cryptocurrency as money. Therefore control of the currencies fluctuation is not managed through regulation and control of market	Funds must be converted from Cryptocurrency to AUD, the Australian Dollar Value is subject to coin volatility, therefore benefactor donation amount may be effected.	Medium	The option would be to hold the funds until the market conditions are more favourable and exchange at that point. Maintaining the data in secure wallet will be required.
15	4.3.8	Compliance	Blockchain Technology	Data Protection	Privacy ACT; 13 Privacy Principles legislated. Most notable risk is that blockchain in its design does not allow removal of personal information once entered.	Personal Information of donors is shared in breach of the privacy act. This could result in regulatory penalties.....Maximum Fines of up to $420,000 through the Office of the Australian Information Commissioner (https://www.oaic.gov.au/privacy/the-privacy-act/)	Very High	During implementation, in the case that any data fields that could be considered 'personal data' are to be transmitted via Blockchain, seek clarification from data protection officer.

Figure 40 Risk Analysis (Dūcere Industry Project Group, 2020)

8. Supporting Documents for FIA Members

8.1 Cost/Benefit Analysis

The cost-benefit analysis is one of the most comprehensive economic evaluation tools (Robinson, 1993, p.924). It provides a framework for determining whether promotions or programs are worthwhile economic investment opportunities for organisations (Ostwald, 1986, p.377). A cost-benefit analysis weighs up indirect costs (known expenses), intangible costs (costs that are difficult to measure and quantify), as well as opportunity costs (the lost benefits or opportunities that occur when another opportunity or decision is made). The cost-benefit also measures benefits, and these include direct benefits (increased revenue), indirect benefits (increased customer engagement and or interest), intangible (improved employee morale), and competitive (first mover within an industry or field), (Stobierski, 2019).

Below we will look at the costs associated with utilising blockchain and cryptocurrency technology in a charity/NFP and the associated benefits.

COSTS:

- Cryptocurrency exchange fees:
- 0.10-0.25% taker fee,
- 0.15% auction fee (ie CoinJar, 2020),
- 1% surcharge on transactions utilising (ie BitPay, 2020),
- Agency blockchain app development can cost between $150,000 - $500,00 to create (Jain, 2019),
- Insurance through cryptocurrency exchange;
    - Value of insurance is in line with value of the cryptocurrency at the time of the policy taken out (James, 2020).
- Use of third part management providers;
    - Task of finding a legitimate management fund, and the costs associated with the fund managing an organisations cryptocurrency.
- Administrative and resource costs to charities/NFPs to run this technology;
    - Greatest impact is on small-medium sized charities/NFPs,
    - Specialist knowledge required.

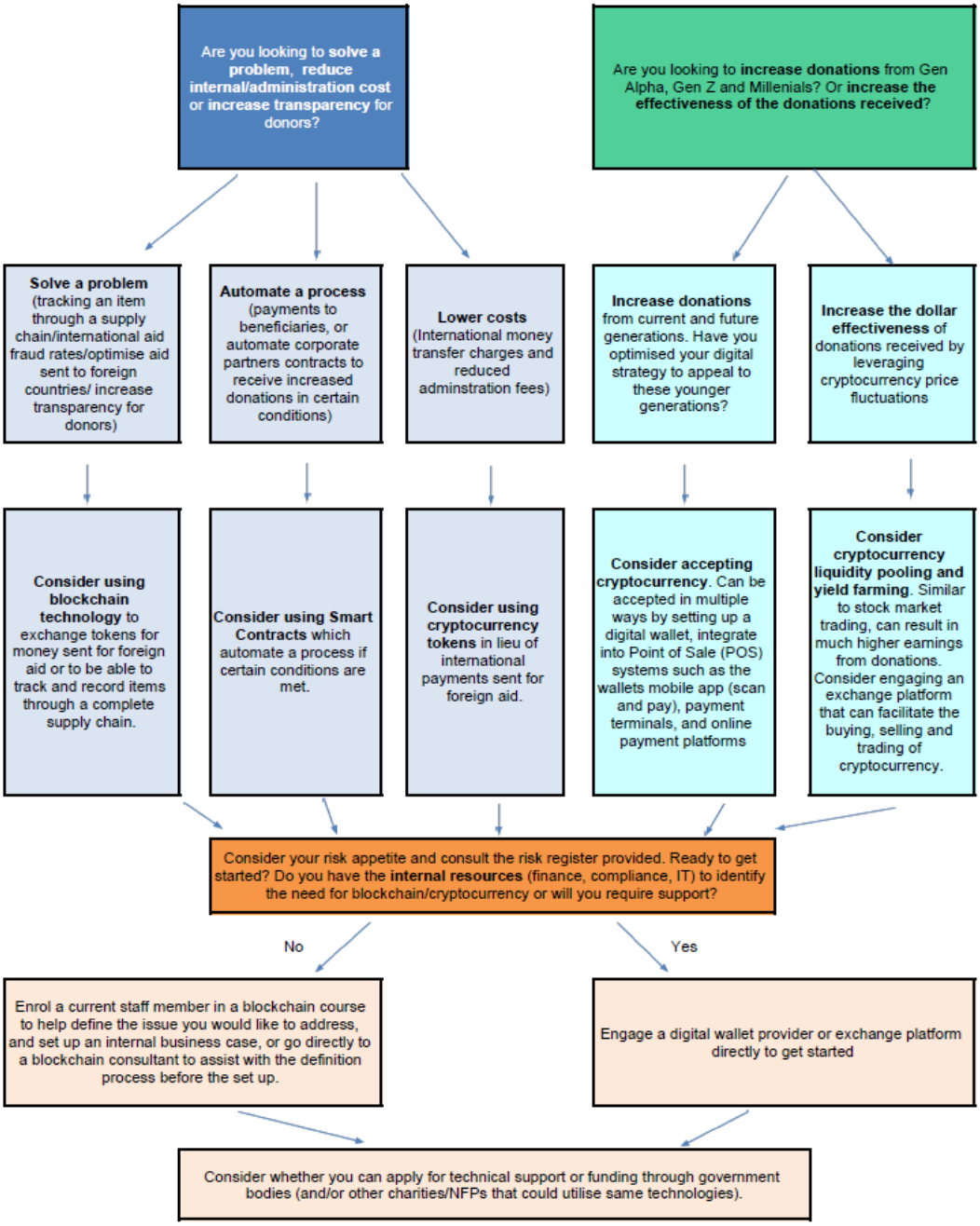
BENEFITS FOR CHARITIES/NFPs:

- Utilising an exchange gives more control over buy and sell orders.
- Able to specify the exact pricing and size of your trade.
- Specify terms of cancellation on a trade if required.
- Utilising exchanges is a secure digital wallet meaning that coins and funds are safe for charities/NFPs.
- BitPay (2020), is an example of the option to allow businesses to accept cryptocurrency via email, website or in person via a smartphone
- Some exchanges (ie BitPay) claim that funds go directly to transferred account funds with zero price volatility or risk.
- Charities/NFPs can tailor their blockchain app to individual organisation needs/requirements.
- Insurance provides extra security against hacking of digital wallets and the theft of cryptocurrency from digital wallets.
- Being an early adopter of the technology.
- These technologies appeal to the next generation of donor.

From the cost-benefit analysis above, we can see that there are some benefits that would assist charities/NFPs in adopting blockchain and cryptocurrency technology as a way of donation moving forward. As in the risk section 7.1 – 7.2 above, it is important to also apply a risk analysis to the cost-benefit analysis to gain a full snapshot of the benefits and risks associated with employing these technologies, and should be done as part of due diligence by each charity/NFP.

8.2 Member Evaluation Tool

FIA Member Evaluation Template



8.3 Fact Sheets

8.3.1 Blockchain Fact Sheet

01

BLOCKCHAIN FACT SHEET USER GUIDE

What is it	Blockchain is a record of transactions spread out across a network of computers, where they are validated as true. The blockchain uses 4 key concepts, cryptographic hash, immutable ledger, peer to peer network and consensus protocol.
What can I do with it?	Blockchain technology is being used in many areas, such as: Finance, Property, Smart Contracts, Digital Identification, Data Sharing, Record Keeping
Where is it currently being used?	Asset Management - Trade processing and settlement. Insurance - Claims processing Payments - Cross border payments. Smart Contracts - Healthcare, Music.
What could go wrong?	Public and Private key security. Third party vendors with poor security Untested at full scale. Lack of standards and regulation.
Why use Blockchain?	Full history of activity, not just a snapshot in time. No central point of attack for hackers. No central control providing potential for cost reduction.

Imagine a shared computer accessible to anyone, a single source of truth within which to store events, ownership and activities, and to execute workflow involving multiple parties without the use of separate systems and databases and with no reconciliation required.
It will change the way digital services are provided across all industries globally.
Blockchain changes the rules, prepare for disruption or prepare to disrupt (Deloitte, 2020).

FIA Factsheet | Issued by Ducere Industry Project Group November 2020

8.3.2 Cryptocurrency Fact Sheet

02 **CRYPTOCURRENCY FACT SHEET USER GUIDE**

	Description
What is cryptocurrency?	Cryptocurrencies are a subgroup of digital currencies, with decentralised networks and utilise blockchain technology that is spread across a network of computer to ensure anonymity (Kuo Chuen, Guo, & Wang, 2017, p. 17).
What can I do with it?	You can buy, sell and trade on exchanges with cryptocurrency - similar to buying, selling or trading stocks on stock exchange or stock market.
How to accept cryptocurrency	User friendly and low cost options include third party management payment processor, merchant wallet account, and point of sale options that are increasing with popularity.
How safe is cryptocurrency?	Each time a new block is generated, it must be verified by every node in the network before it can be confimred, making transaction histories very difficult to be forged (Glas, 2019). The transaction history is transparent as a public ledger.
What are tokens?	Tokens are made and distributed following an Initial Coin Offering, which is equivalent of an Initial Public Offering. Tokens can be represented as value tokens (Bitcoin), utility tokens (designated for specific use) or security tokens (protect your account).
What are smart contracts?	Computer program that directly controls the transfer of currency and assets between parties under set conditions. Transactions are executed when agreement requirements are met.

As the major generation of donors (Baby Boomers) continue to decrease, charities/NFPs who do not engage younger generations through tech savvy communications and donation options will experience significant risk of rapidly reduced donations.

FIA Factsheet | Issued by Ducere Industry Project Group November 2020

8.3.3 Compliance Fact Sheet

03 **CRYPTOCURRENCY AND BLOCKCHAIN COMPLIANCE FACT SHEET**

Governance	Cryptocurrency landscape is evolving faster than the legislative response. Australian Government has been content to see what innovation could be achieved without the constraints of regulation. Governance, transparency and risk need to be considered when investigating implementation of cryptocurrency or blockchain.
ATO	For reporting purposes the Australian Taxation Office recognises cryptocurrency as an asset rather than money. This means capital gains tax laws are relevant when dealing in cryptocurrency.
AUSTRAC	All digital currency exchanges in Australia have to be registered with AUSTRAC. AUSTRAC's primary focus is Anti Money Laundering and Counter Terrorism Financing.
ACNC/FIA	For Best Practice guidance and support.
Blockchain Australia	Blockchain Australia is a peak body supporting the blockchain industry. They have a code of conduct that blockchain organisations adhere to ensuring best practice and audit compliance.
ASIC	The Australian Securities and Investment Commission, under the guidance of the RBA, state that digital currencies are not financial products. The ACCC delegated powers to ASIC to ensure there is no misleading information during Initial Coin Offerings of cryptocurrency.
Privacy Law	Privacy Act of 1988 has 13 legislated principles that all charities/NFPs have an obligation to adhere to. Due to the decentralised nature of blockchain there is no responsible party that breaches can seek remedy.

Charities/NFP's that consider cryptocurrency donations need to ensure that appropriate records are being kept of all transactions to ensure compliant reporting to governing bodies. Consideration also needs to be given to the changing regulatory landscape as governing bodies start to legislate cryptocurrency and blockchain as it further evolves.

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Disclaimers

Disclaimer

Although general in nature, the information and advice presented within this report are intended for the sole non-commercial use of Fundraising Institute of Australia who accepts full responsibility for its use.

The MBA Project team, Dūcere and Torrens University have in its investigations, conducted due diligence to provide recommendations within this report that cannot be warranted for completeness, accuracy or reliability. Therefore, should the Fundraising Institute of Australia choose to take upon any information contained herein, it does so at its own risk.

The students associated with the development of this report assume no responsibility or liability for any errors or omissions. They are not to be held liable for any losses or damages associated or in connection with its use.

Appendices

APPENDIX 1 - CHARITY SECTOR/DONORS

Fundraising

Analysis of revenue of charities registered with the ACNC suggests that there is a direct inverse relationship between the proportion of revenue derived from government grants received and the proportion of revenue derived from fundraising:

- Large charities (over $1M annual revenue) receive nearly half their revenue in government grants and less than 13% of revenue from donations and bequests,
- Small charities ($250k and less annual revenue) receive less than 13% of revenue in government grants and over 36% of revenue from donations and bequests,
- Medium charities (annual revenue between $250k and $1M) receive less than 30% of revenue from government grants and a quarter of their income from donations and bequests.

Worth 1993 (in Chandler & Thompson, 2007, p.22) described contributions to professional fundraising campaigns as a pyramid, which could be pictured as below, with the top two tiers representing 80 – 90% of a fundraising campaign:

- Apex: large important gifts coming from a few donors
- Middle level: lesser major gifts from an additional small number of donors
- Base: many small gifts given annually by many donors.

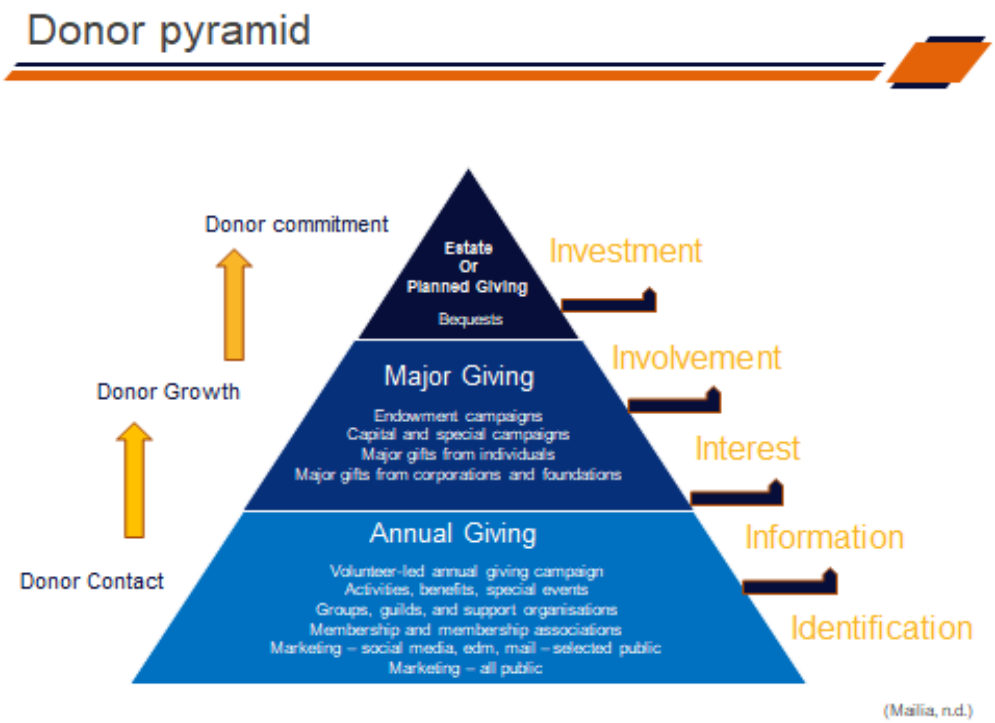

Figure 41 Donor Pyramid (Venkatesh, 2020)

Reporting and donor expectations

Many charities/NFPs have a broad purpose which guides their many activities, such as Mission Australia, which assists people in need regardless of their beliefs, through activities such as accommodation provision, family support services, child care, aged care, and youth and employment services (Mission Australia, 2019, p. 6).

Many charities/NFPs have a more targeted purpose, such as the Fred Hollows Foundation which aims to “end avoidable blindness” by providing screening, surgery, and medicines. The Foundation also trains health professionals, upgrades medical facilities, provides equipment and infrastructure, and community education (Fred Hollows Foundation, 2019, p.4).

Some charities/NFPs can identify individual beneficiaries, such as the Smith Family which exists to support disadvantaged children access education and reach their potential. Their mission is to “create opportunities for young Australians in need by providing long-term support for their participation in education” (The Smith Family, 2020). Donors can choose to sponsor individual children for an identified amount of money per month. These children then receive the range of supports, resources, and programs delivered by The Smith Family. Donors receive information about the child they are supporting, for the life of the sponsorship.

Volunteers and values

In the 2017 reporting period, charities/NFPs employed 1.26 million staff, with 37.7% employed full-time, 36.2% employed part-time and 26.2% employed casually (ACNC, 2017, p. 15). Nearly

half of all charities/NFPs, 49%, operate without any paid staff, and of the medium-sized charities, 22% operate this way. Volunteer numbers were reported to 3.3 million people, with large charities/NFPs reporting 1.2 million, extra small charities/NFPs reporting 624,000, and medium charities/NFPs reporting 450,000 approximately (ACNC, 2017, p16). The FIA is itself made up of a network of over 200 volunteers across Australia (FIA, 2020, para. 5).

Global Giving Trends Comparison Chart

	Global	Australia	Canada and USA	Europe
Donation preference				
Credit/debit card				
Paypal	55%	64%	63%	43%
Bank transfer	8%	15%	16%	11%
Post	12%	10%	10%	20%
Cash	10	5%	5%	10%
Digital Wallet	5%	4%	4%	9%
Text to give	2%	2%	1%	1%
	1%		1%	9%
Communication preference				
Email	26%	33%	33%	34%
Repeat donors through email	45%	48%		44% up 16% form 2018
Social media	25%	30%		
Website	17%	15%		
Traditional advertising (TV, radio, phone, print)	31%			
Social media			18% down from 25% in 2018	34%
General				
Facebook	32%	48% up from 7% in 2018	40%	44%
Instagram	10%		12%	
Recurring giving plans	51%	51%	57%	43%
Monthly	87%	80%	94%	72%
Crowdfunding campaigns	45%	52%	34%	57%
Peer to peer created fundraising online	13%	21%	10%	17%
Donated in response the	60%	44%	62%	60%

ftCOVID-19 pandemic				
Donated internationally	30%	31%	33%	30%
Enrolled in workplace giving	9%	11%	9%	7%
Donors belief that charities/NFPs must invest financial resources into digital communications and technology	92%	97%	92%	94%
Response to donors from charities/NFPs Effectively keep donor updated Expressed gratitude to donors for their donations	89% 90%	87% 88%	93% 94%	87% 86%
10 top causes 1 2 3 4 5 6 7 8 9 10	Hunger & homelessness Children & youth Health & wellness Animals & wildlife Faith & spirituality Human & social services Environment & conservation Arts & culture International development & relief Education	Children & youth Animals & wildlife Health & wellness Environment & conservation Human & Social services International development & relief Hunger and homelessness Women & girls Arts & culture Education	Hunger & homelessness Health & wellness Faith & spirituality Animals and wildlife Children & youth Environment & conservation Human & social services International development Arts & culture Women & girls	Children & youth Health & wellness Hunger & homelessness International development & relief Human & civil rights Human & social services Animals & wildlife Environment & conservation Education Arts & culture

Generational giving				
Gen Z	2%	1%,	1%,	2%
Millennial	26%	25%	12%	39%
Gen X	25%	38%	19%	35%
Baby Boomers	37%	34%	51%	22%
Matures	10%	2%	17%	2%
Donor Gender				
Female	67%	74%	62%	66%,
Male	32%	25%	32 %	33%
Binary	1%	1%		1%

Figure 42 Global Giving Trends (Nonprofit Tech for Good, 2020)

APPENDIX 2 - CRYPTOCURRENCY

Cryptocurrency Framework

Figure 43 below shows a high-level example for cryptocurrency framework architecture engaging with donors, beneficiaries with wallets, and other organisations. Donation management platform, formally known as DApps, consists of initial coin offering (ICO), ICO exchange, third party payment gateway integrations, and multiple wallets integration because there are different wallets for different digital currencies, which are discussed in detail in the economic model section 3.1 (Farooq, et al., 2020).

The example framework enables two methods of payment:

1. Direct donation by the donor to the beneficiary. In the future, this may include government or religious organisations which have an account or digital wallet.

2. Donors who select an organisation or charity/NFP that is trusted to deliver items needed in natural disaster locations or a situation deemed an Act of God. With this type of donation, the charity/NFP will send an image or communication, showing how the gift was used to aid the appropriate person or location. This engagement and transparency level will promote donor trust and create advocates for engaging with the organisation with cryptocurrency donations.

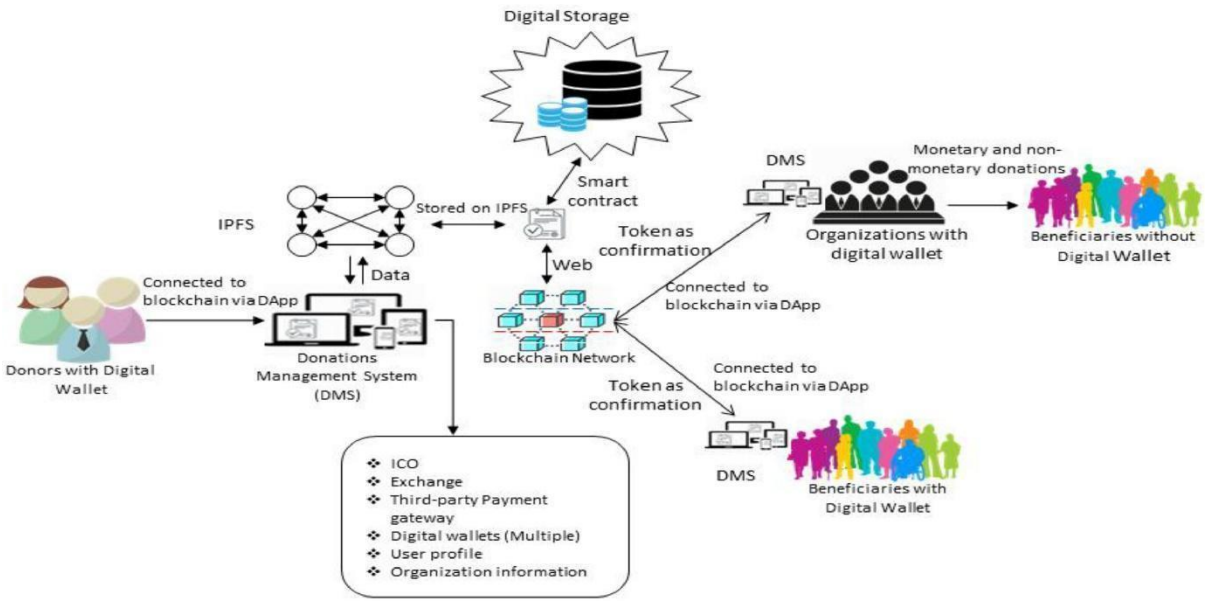

Figure 43 High-level framework architecture example (Farooq, et al., 2020)

Accepting cryptocurrency

To maintain the above example of transparency with bitcoin platform and/or cryptocurrency; AICPA (2018) propose for organisations to ensure Gift Acceptance Policy wording includes, “the organisation may accept gifts of cryptocurrency and other forms of digital assets after due diligence is performed to determine that the asset can be transferred and liquidated” (para. 2).

The project team recommends wording of a similar nature for the reversal, should an organisation not wish to receive such donations. Dang and Owens (2020) note their support of Singh (2015) in how overspending on governance activities and back-offices could be counter-productive by failing to motivate the organisations to adhere to accountability (Dang and Owens, 2020, p. 315)

Cryptocurrency Exchanges

Table 07 *Cryptocurrency Exchanges*

Name	Pros	Cons
Coinjar (https://www.coinjar.com/au)	• Mobile apps allowing trading on the go • Fast and free bank transfers • Low fees, 0.1% - 1% dependent on volume of trades	• Unleveraged trading only • ID verification required to start trading
XCoins (https://xcoins.io/)	• 24/7 support in real-time • Simple and secure verification and registration process • Fast transactions and processing	• Only offers several cryptocurrencies (Bitcoin, Ethereum, Litecorn, Ripple, Bitcoin cash)

Coinbase (https://www.coinbase.com/)	• Positive reputation, good security, high trading volume, ease of usability, easy to use for beginners, the currency being stored is covered by Coinbase insurance. • Allows fiat currency trading as well	• Limited customer support • Limited methods of payment • Not available globally
Kraken (https://www.kraken.com/)	• Good reputation • high volume • low transaction and deposit fees • Good user support • Secure and supported globally	• Limited methods of payments (doesn't accept cash, credit card, PayPal, or debit card) • Not suitable for beginners who are just starting
Cex.io (https://cex.io/)	• Good reputation • Good iOS and Android platforms • Beginner-friendly	• Strict verification rules • Variable fees with differing methods of payment
Swapzone (https://swapzone.io/)	• Wide range of coins/cryptocurrencies available • Ability to sort by rate, • service rating and time	• Aimed at advanced users

Shapeshift (https://shapeshift.com/)	• User friendly • Wide variety of cryptocurrencies available for exchange,	• Does not include fiat currencies • Limited payment options, tools, and methods
Poloniex (https://poloniex.com/)	• Lots of features • User friendly • Low fees	• Slow customer service • No support for fiat support
Bitstamp (https://www.bitstamp.net/)	• Highly secure • High volume • Low transaction fees	• Not good for beginners (not an intuitive platform) • Limited methods of payments • High deposit fees
CoinMama (https://www.coinmama.com/)	• Good for beginners, easy to use • Range of options for payment • Fast transactions	• Expensive exchange rates • No bitcoin selling feature • Poor customer service
Bitsquare (https://bisq.network/)	• Private and secure • Don't need to sign up to trade • Open-source	• Limited options for payment • Not user friendly for beginners

LocalBitcoin (https://localbitcoins.com/)	• No verification required • Friendly for beginners • Free • Available worldwide	• High exchange rates • Low liquidity
Linkcoin (https://linkcoin.pro/)	• Low fees • Free to buy, cheap to sell • Variety of payment options • No identification required	• No altcoins • Low volume • Not a user-friendly interface
Binance	• Cheap to make transactions • Available globally	• No fiat currency trading, • Few payment options
Gemini	• Good compliance and security • Use friendly interface • High liquidity	• Very few currencies available • No margin trading
Huobi	• Great customer support • High liquidity • User-friendly interface	• Only available in select areas (China and some US states)

Volatility of the market

In January 2018, Bitcoin's price fell over 60% in a single month, and almost all other cryptocurrencies followed in the sharp decline after that (Guo & Li, 2017, p. 325), this can be seen in figure below. In the first quarter of 2018, the total market capitalization of cryptocurrencies decreased by US$342 billion, and more than 900 cryptocurrencies have died due to scams, hacking, and fraud (Guo & Li, 2017, p. 325).

When looking at the cryptocurrency index, which is a weighted average collection of the 30 biggest cryptocurrencies by market capitalisation, the volatility of cryptocurrency is more than five times higher than that of traditional stock indexes such as the US30 which is a weighted average collection of the 30 largest companies in America by market capitalisation (Liu & Serletis, 2019).

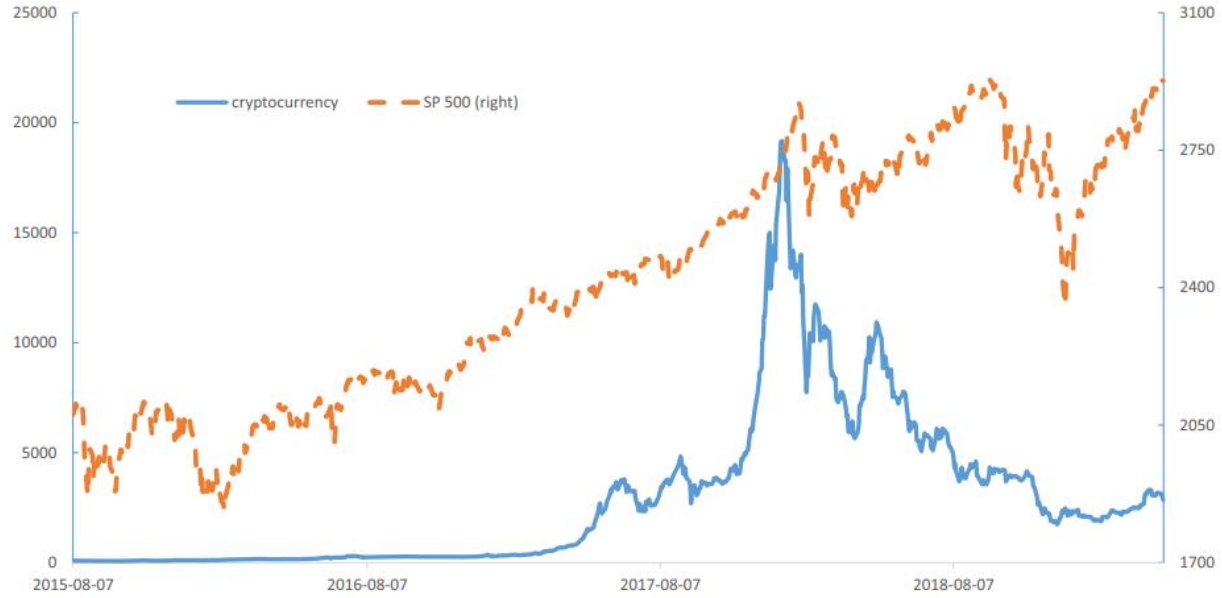

Figure 44 Cryptocurrency Index 30 and interest rate as referred to above (Liu & Serletis, 2019)

Cryptocurrency Wallets

In cryptocurrency, a wallet is a digital software program that holds public and private keys and utilises blockchain technology to empower users to receive and send digital currencies and watch the balance at any given moment in time. Private keys are generated by the wallet and are known only to the user and are kept secret to be used for authentication and encryption. Public keys are publicly known and essential for identification. (Bhojwani, 2018)

If you want to make transactions using digital currencies, you need to have a cryptocurrency wallet. Cryptocurrency wallets are different from physical wallets that you use in everyday life in that they do not actually store a currency because the currencies do not exist in physical form.

The only thing that is stored in the digital wallets is the transaction records recorded via the blockchain (Rosic, 2020).

Cryptocurrency wallets are digital programs that use private and public keys to interact with blockchain technology so that users can perform functions such as to send and receive money and check their balance. When an individual sends a cryptocurrency, such as Bitcoin, they are transferring ownership of the currency to the receiver's wallet address. The private key in the receiver's wallet must match the public key that the currency is attributed otherwise the transaction will not be completed. If both the keys are matched, the transaction will be completed, the sender's account will decrease, and the receiver's account will increase. It is important to note that there is no physical exchange of physical coins, the transactions are simply recorded on the blockchain and the relevant changes occur to participants' accounts.

Different Types of Wallets

There are a variety of different types of cryptocurrency wallets available and each provides a different way of accessing digital currencies The categories of wallets can be divided into different categories which are outlined below in Table 08.

Table 08 *Types of Cryptocurrency Wallets*, (Rosic, 2020)

Type	Pros	Cons
Desktop	• Downloaded and installed to a computer • Only accessible through the computer, it is installed on • Very secure	• If the computer gets a virus, is hacked or destroyed then all the funds inside the wallet could be lost
Online	• Run-on a cloud so very accessible • Convenient	• Private keys are stored on the cloud as well so susceptible to theft and hackers
Mobile	• Application-based • Can be used anywhere • Simple and small	• Private keys stored in the application, susceptible to hackers

Hardware	• A wallet stored on a physical device such as a USB drive • Once removed from the computer the wallet is unhackable	• If the hardware is damaged or destroyed then the entire account is unrecoverable
Paper	• Easy to use • High level of security • Can be physical or software that generates keys	• Easy to misplace physical copies of information

Cryptocurrency coin options

Table 09 *Common forms of Cryptocurrency* (Liu, 2019)

Cryptocurrency	Description
Bitcoin	The original and most popular cryptocurrency, highest market cap. Currently, there are over 18 million Bitcoin Tokens circulating (the limit is 21 million).
Bitcoin Cash	Started in 2017. The main point of difference to Bitcoin is the 'block size'. Basically the larger the block size the more transactions can be cleared by it. The Bitcoin Cash block size is 8MB whereas Bitcoin's block size is 1MB.
Litecoin	Created in 2011, created by a former Google employee, similar to Bitcoin but with a focus on shorter transaction times, higher miner concentration, and lower fees.
Ethereum	Focuses on decentralised applications, it is more like an application store than a normal cryptocurrency. The token used is called Ether which the app users and developers use as a currency.
Ripple	Not blockchain-based, meant for corporations and companies to move large amounts of money across the world (the coin is called XRP)
Stellar	Focus on fast and efficient money transfer. Designed in 2014 by the

	co-founder of Ripple, Jed McCaleb, and currently by an NFP called stellar.org. Stellar aims to help developing economies that lack the investment and traditional banking opportunities of more developed nations. The Stellar network does not charge a fee and the costs are covered by accepting tax-deductible donations.
Neo	Originally called Antshares, created in China, focuses on smart contracts. In direct competition with Ethereum but claiming to have developer-friendly smart contracts, easier integration, and superior architecture.
Cardano (ADA)	Founded by a co-founder of Ethereum, based on scientific philosophy. Created to receive and send digital currencies.
IOTA	Created in 2016, stands for Internet of Things Application. Does not utilise blockchain technology instead works on the Internet of Things (IoT).

Cryptocurrencies can also be further broken down into subcategories, including:

- Privacy coins - cryptocurrencies focusing on private transacting, these include, Zcash, Dash and Monero.
- Stablecoins - these cryptocurrencies are pegged to stable assets, such as a fiat currency. This is done to decrease price volatility. Examples include Tether, USD Coin, Paxos and Dai.
- Exchange Tokens - cryptocurrencies that are made by exchanges to be exchanged mainly on their own trading platform and for their own services. Examples include Huobi Token, KuCoin and Binance Coin.
- Central Bank Digital Currencies (CBDCs) – cryptocurrencies backed or created by a central bank. The People's Bank of China (PBoC) has been working on creating its own digital currency (Equity Trust, 2020).

Liquidity Pool Token and Yield Farming

Liquidity pooling and yield farming investing is different to simply buying and selling cryptocurrency with the aim of selling for more than what was paid for them. Liquidity pooling came about because many new cryptocurrencies do not have many users at all at their conception so the early buying and selling can be difficult because if a customer wants to buy a coin there can actually be no one available to sell it to them, because sufficient coins have not been generated (mined) yet. In liquidity pooling, users who deposit tokens in a 'liquidity pool' are given a liquidity pool token by the exchange, equal to the value of the liquidity that they made available (CoinMarketCap, 2020, para. 6). When the user pulls their tokens from the liquidity pools, the tokens are essentially cashed in and the rewards are given to the owner.

Yield farming on the other hand is a way of investors using decentralised finance to maximise their return on investment, utilising an assortment of products within the decentralised finance community (Lekashvili & Mamaladze, 2019, p. 87). A simple way of thinking of this is as if your initial deposit gets put into a term deposit like a bank would offer, however multiple term deposits can be entered at the same time which leads to increased yields. There are numerous ways to increase returns utilising yield farming, the most common approach is to take advantage of the liquidity tokens, provided by the decentralised finance platforms. Decentralised finance platforms allocate liquidity pool tokens to users for taking part in decentralised finance opportunities such as depositing in liquidity pools, borrowing, or lending. (Sree, 2020).

Liquidity Pool Token and Yield Farming Risks

The cryptocurrency world is Particularly susceptible to pump and dump schemes, where the price of essentially worthless assets, in this case new cryptocurrencies, mining schemes, yield farming or liquidity pooling, is inflated artificially through the use of well-planned marketing, misleading and false statements and posts on social media are utilised to convince investors to get on board, after the initial pump up, the price plummets and investors are often caught. The reason this is especially common in cryptocurrencies is that they aren't backed by anything, in comparison to traditional assets such as stocks which are tangible brick and mortar companies back by tried and tested fundamental analysis (Bouri, Lucey, & Roubaud, 2020, p.33). The biggest risk to liquidity pooling and yield farming is a drop in the underlying cryptocurrency (Sree, 2020). Liquidity pooling and yield farming are primarily used for new coins and volatility is extremely high.

Third-party Management Fund - Yield Nodes

One particular management fund called 'yield nodes' has shown outstanding stability and profitability although it has only been running since late 2019 (Prasad, Shankar, Gupta, & Roy, 2018, p. 436). So far the average monthly yield is 104% with a 227.5% yield if profits had been compounded (yield nodes do offer an automatic compounding feature) (Prasad, Shankar, Gupta, & Roy, 2018, p. 436). The longevity of this project is unknown however the stability and returns generated show real promise. Yieldnodes promises monthly returns of 5-15% paid out every month with the policy that if the yield drops below 5% for three months in a row your original investment will be paid out along with all your earnings so there is added security if the yield drops below 5% (the yield for September was 12.3%) (Prasad, Shankar, Gupta, & Roy, 2018, p. 436).

It is important to note that this is a very new investment fund and has only been around since the start of 2020 however the results are positive over ten months, investors have seen real returns and the development team is very responsive and active amongst a number of business projects.

Figure 46 below compares the performance of yield nodes to traditional investments within a ten month period.

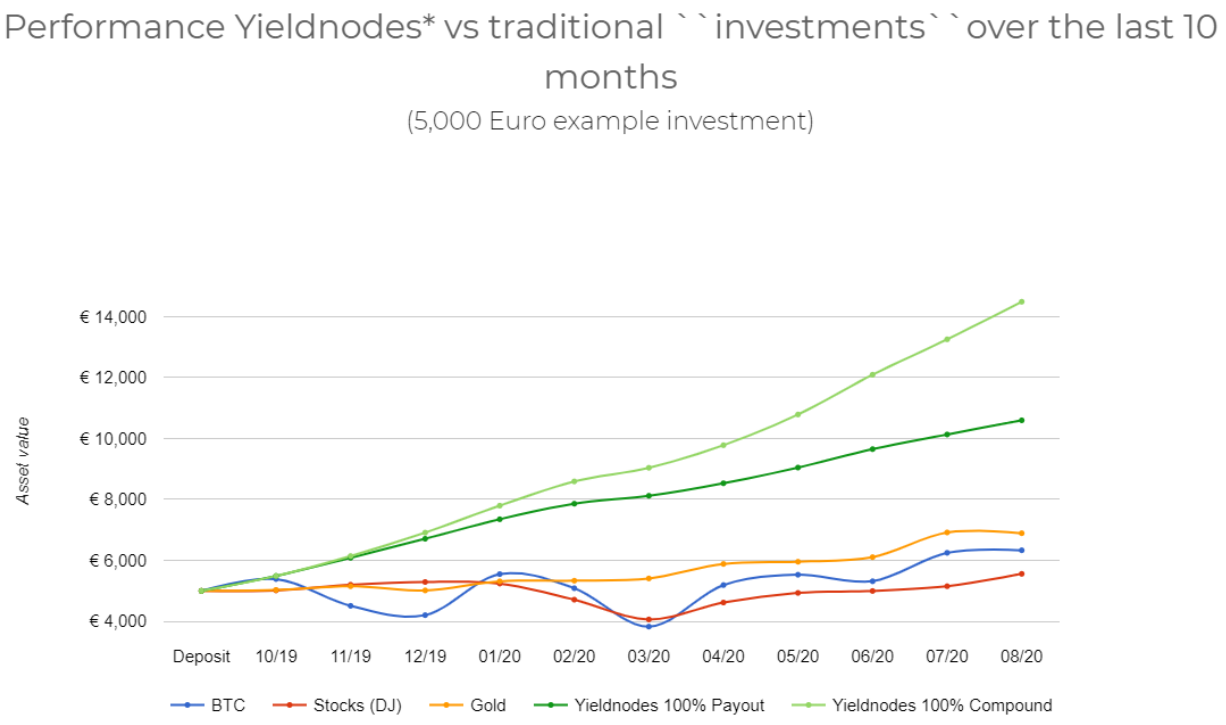

Figure 46 Yieldnodes performance (Prasad, Shankar, Gupta, & Roy, 2018, p. 436)

APPENDIX 3 – BLOCKCHAIN

Where did Blockchain Start?

The concept of blockchain was born out of the work of Haber and Stornetta (1991), who proposed calculating hash values of documents and saving them with a timestamp. Within a data organisation, management, and storage format the records are connected by including all previous record certificate hashes.

Additionally, the timestamping protocol also has submitted data signed by a private key signature (Haber et al., 1991). This process is how bitcoin and other blockchains authorise transactions and add records to the chain.

In addition to their 'timestamping server' discussion, (Haber et al., 1991) also proposed a form of distributed consensus. Submitters of data can ask other participants to verify and sign their request. To tamper with this ledger, a majority of users would have to collude as is the case with bitcoin as detailed by (Haber et al., 1991) below:

> The prospect of a world in which all text, audio, picture, and video documents are in digital form on easily modifiable media raises the issue of how to certify when a document was created or last changed. The problem is to time-stamp the data, not the medium. We propose computationally practical procedures for digital time-stamping of such documents so that it is infeasible for a user either to back-date or to forward-date his document, even with the collusion of a time-stamping service. Our procedures maintain complete privacy of the documents themselves and require no record-keeping by the time-stamping service. (p 1).

Adoption and scalability

Blockchain analysis activities (Bratanova et al., 2019, p. 20) show that Australia is among the first to adopt applications like smart programmable money, bonds operation, international standards, and a national blockchain system. Australia also has specific trials in agriculture, energy, and the public sector industries (Bratanova et al., 2019, p. 20).

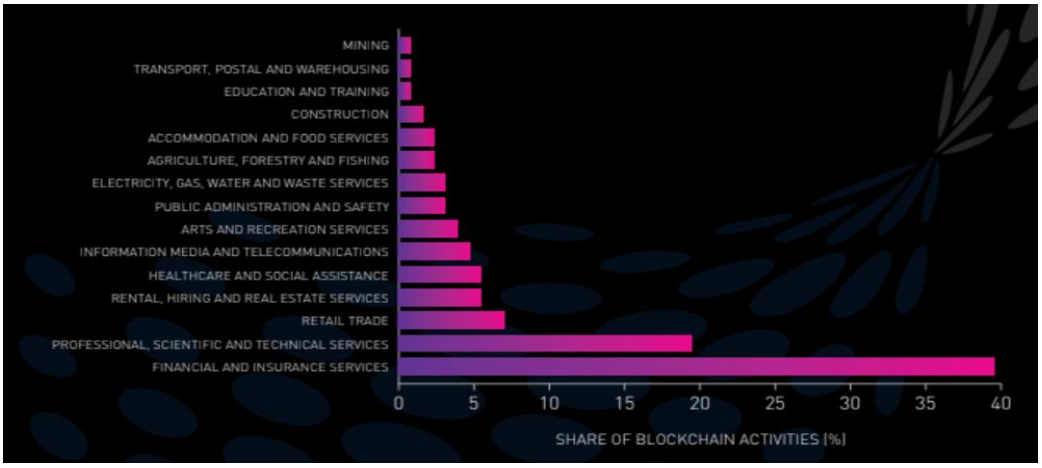

Figure 47 Share of Australian blockchain activities by industry (Bratanova et al., 2019, p.19)

The bitcoin rationale is that mining nodes must verify each transaction occurring in the network (Springrole.com, 2020). The problem increases with the rise in the number of transactions that require more nodes for network support. The number of steps of transactions also simultaneously increase for the process to reach full consensus. Therefore, the network size increases, and there is a fall in the scalability of the block. This setback is negatively affecting the mass adoption of blockchain technology in applications. The process is also data and energy-intensive.

The verification process at the inception of blockchain technology was possible, but as more users have participated, the number of transactions has increased drastically. This has resulted in the current situation, where individuals have to wait for new blocks to be generated.

Blockchains, like Bitcoin cryptocurrency, supports seven transactions per second, whereas Ethereum, another cryptocurrency utilising the distributed ledger technology supports 20 per second. In theory, Ethereum can confirm 1000 transactions per second but imposed ‘gas’ limits on each block slows down the process to approximately 20 per second.

It is very unreliable compared to existing technology that Visa utilises that can handle 5,000 per second (Bratanova et al., 2019, p. 26). However, Australia has introduced innovative technology to overcome this hurdle; an example being the RedBelly Blockchain which completes around 660,000 transactions per second (Bratanova et al., 2019, p. 26). Pellar technology is another example of this innovative technology and is capable of up to 20,000 transactions per second. Fintech Australia announced Pellar was the upcoming exporter of the year in 2019.

Switching to alternative coins is always a challenge because Ethereum and Bitcoin are the most valuable and well known, the newer cryptocurrencies are not at the same level currently (Vujicic et al., 2018). If other cryptocurrencies become prevalent, the blockchain would again be facing the same problems.

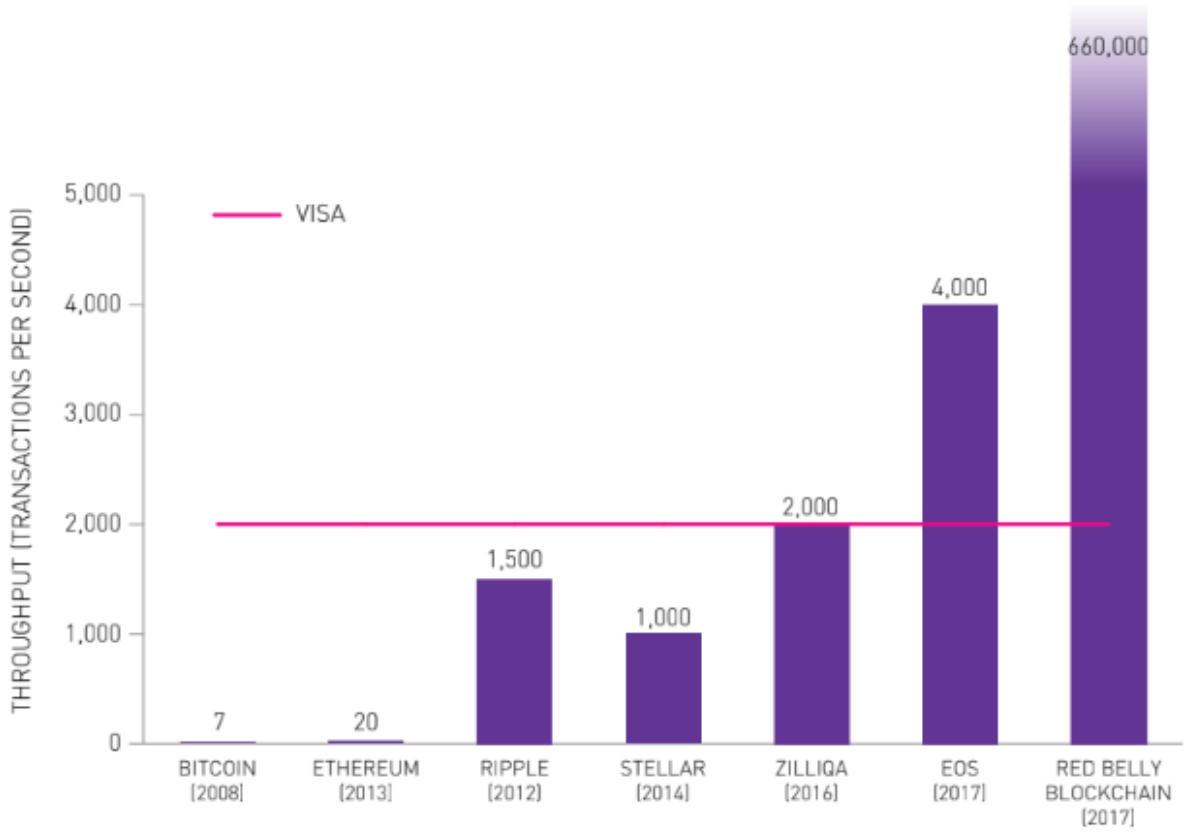

Figure 48 Number of transactions per second across different blockchain systems (Bratanova et al., 2019, p.26)

Smart contracts

Figure 4 below provides a brief overview of storing digital records, exchanging digital assets, and executing smart contracts. When created, smart contracts may assist organisations to reduce administration time, and enable more time in activities that increase revenue. For charities/NFPs, the additional available time may be spent in connecting to current or new donors.

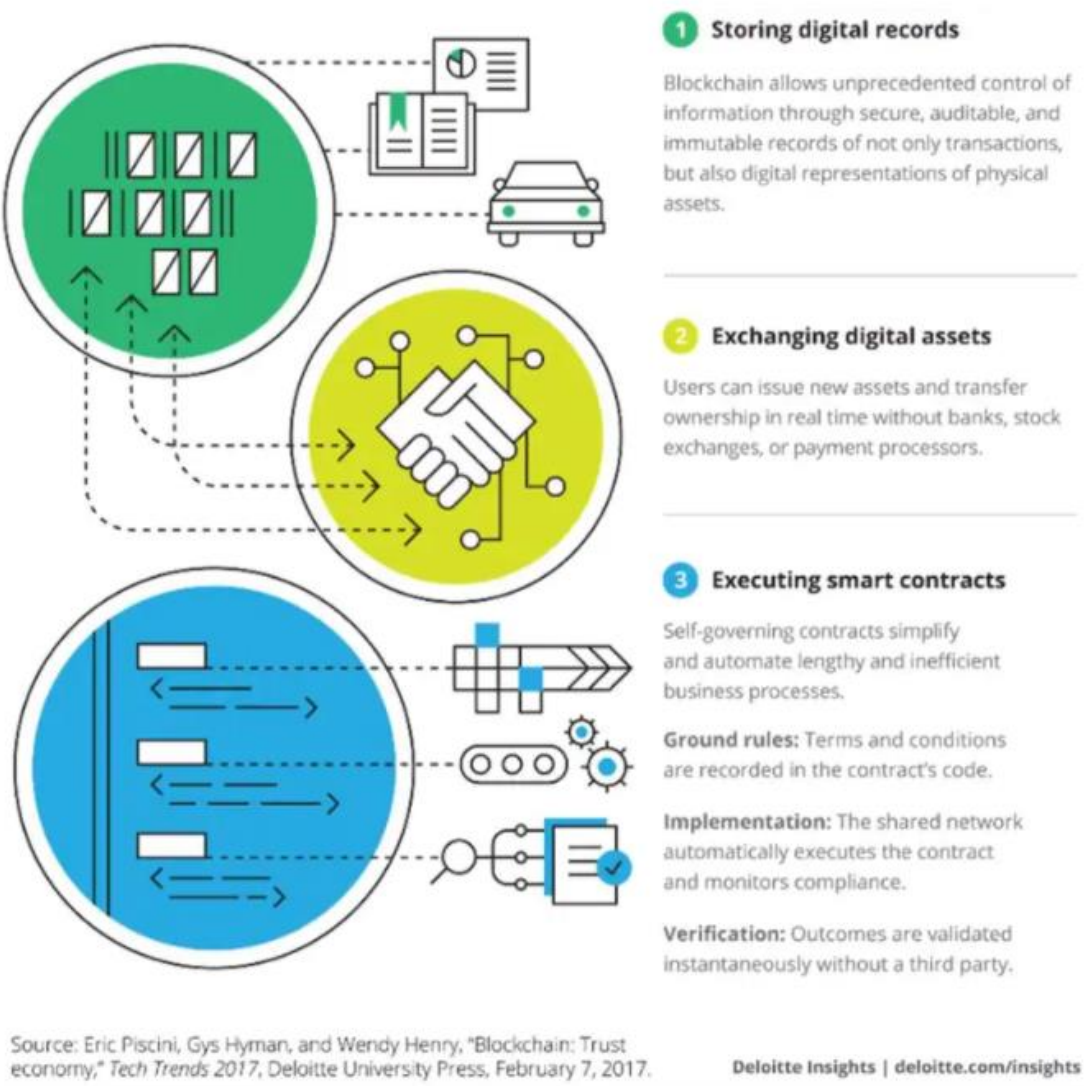

Figure 49 Brief overview of smart contracts (Hems & Stephens, 2018)

Research relating to smart contracts can involve lengthy descriptions and a level of technical information. Table 10 below is a simple summary outlining the benefits and disadvantages to consider for creating smart contracts.

Table 10 *Pros and Cons of Smart Contracts for organisations* (Mack, 2018; Banu, 2018)

Pros	Cons
Tool selection to create Distributed Application (DApp)	Setting up can be tedious and time-consuming
Flexibility in building up applications	Coding must be perfect and without bugs,

	otherwise, funds can be stolen
Tamperproof with increased security and auditability from the decentralised architecture of blockchain	Unclear presently how Government will regulate such contracts (see section 4.2)

Information Security Governance

There are very few organisations with appropriate security certification. In fact, a search of ISO 27001 certified organisations associated within the sector yields very little results. The fragmented regulatory landscape as identified within section 4 is likely to be a driving factor in this. ISO 27001 Certification is seen as a global standard for information security management, and one that global technology companies strive to achieve. It is a rigorous process to gain certification (ISO 31000, 2018) and is just one method of validating the company's commitment toward data protection. You can search for certified organisations via the JAS-ANZ register: https://www.jas-anz.org/our-directory/certified-organisations?combine=crypto&location=&scope=. JAS-ANZ maintain a central register of certified organisations, which includes the scope of each organisations accreditation. The following statement outlines the JAS-ANZ objective "*The Joint Accreditation System of Australia and New Zealand (JAS-ANZ) helps markets work better by providing internationally recognised accreditation services that create economic benefit".*

ISO 27001 Certification is just one of the common factors in determining an organisations information security governance. Other forms of this include:

- SOC I, II and III compliance. Systems Organisation and Control (SOC) reporting demonstrates transparency and trust with regards to data protection and overall risk management in regards to information security. PWC provides a detailed breakdown of the SOC compliance framework (PricewaterhouseCoopers, n.d.).
- NIST Framework compliance. The National Institute of Standards and Technology (NIST) Cybersecurity Framework provides a structure that organisations can adopt for information security management. There are various elements to the framework which are all centred around cybersecurity management (National Institute of Standards and Technology, 2018).
- PCI-DSS. The Payment Card Industry (PCI) Standard Council helps merchants and financial institutions implement standards for security policies, technologies and ongoing processes that protect their payment systems from breaches and theft of cardholder data. This would be applicable to exchanges and other third-party platforms that manage the transition from cryptocurrency to fiat currency and vice versa.

Vulnerabilities and attacks scenarios

Fig 56 Vulnerabilities (Vi) and Attack scenarios (Si) affecting the BSMD ecosystem depending on the affected layer of the BSMD (Al Mallah et al, 2020)

Vulnerabilities of blockchain technologies

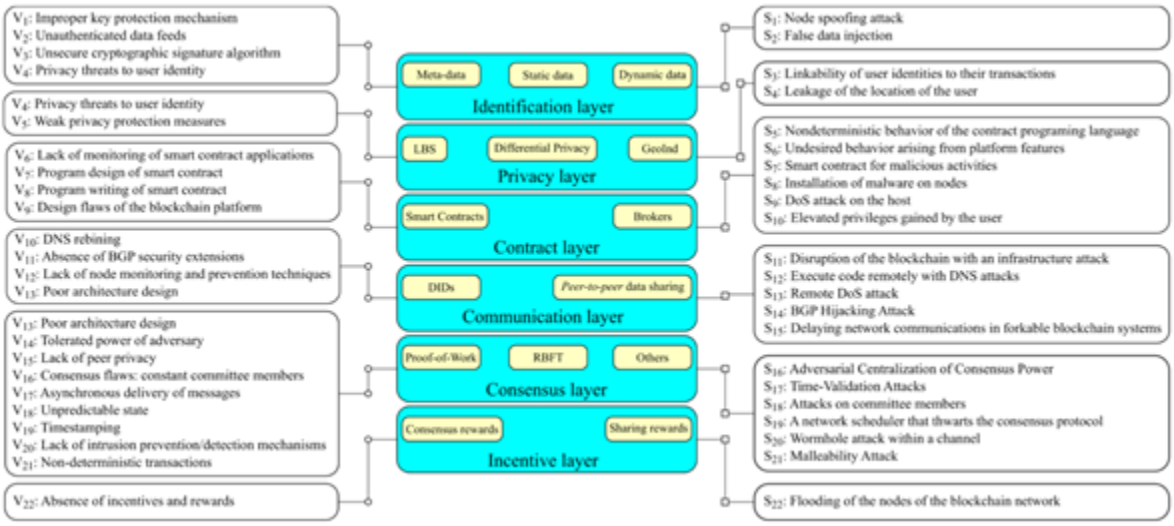

Figure 37 Vulnerabilities (V_i) and Attack scenarios (S_i) affecting the BSMD ecosystem depending on the affected layer of the BSMD (Al Mallah et al, 2020)

Third Ledger

Blockchain technology has positive and negative implications for Boards and Committees to consider (Barker, 2020). The use of blockchain technology has the potential to reduce reporting and auditing costs due to what is considered a third ledger. Links to reporting agencies through blockchain can see real-time reporting and reconciliations completed instantaneously, reducing timing issues and increasing transparency. An example of a third ledger is through the work Oxfam did in Vanuatu (Christie, 2020). The program was a cash disbursement program where a voucher was issued directly to those in need to purchase emergency supplies. The vendors or suppliers of these emergency supplies then recorded the purchases with the vouchers in a blockchain-powered application that in real-time reported the supplies back to Oxfam. Oxfam then had information on what supplies were needed in what quantities for future disaster management. Similar blockchain applications can be used for data sharing for reporting and auditing purposes.

General Ledger

A relational database is a combination of tables, columns, and records; with defined relations between each table or set of information (Anwar, 2019). The set of information is organized heavily to help find the right data at the right time (Anwar, 2019). Figure 50 below compares public blockchain and relational databases against key characteristics, with a scale of one to three stars and star outline being half a point. Garrard and Fielke (2020) describe:

> The key differences are that public blockchains are fully decentralized,

immutable, and robust to a wide variety of failures, whereas traditional databases are easy to query, can have large amounts of data written to them quickly, and if necessary can be made confidential. (p. 5)

	Blockchain	Relational database
Decentralization	★★★	☆
Immutability	★★★	★
Confidentiality	★	★★★
Write Speed	☆	★★★
Robustness	★★★	★☆
Querying	★☆	★★★

Figure 50 Comparison of key characteristics in public blockchain and relational databases (Garrard & Fielke, 2020, p. 4).

The write speed of relational databases is noted as three stars due to the capacity to write large amounts of data quickly, without having to be constantly re-authenticated like blockchain which has a cryptographic signature (Garrard & Fielke, 2020). At its core, anything of value can be transacted, moved, and stored securely in a blockchain distributed ledger without requiring a central point of control (Wiatt, 2019, para. 4). Figure 51 below shows the differences between traditional transactions with a bank and a blockchain ledger.

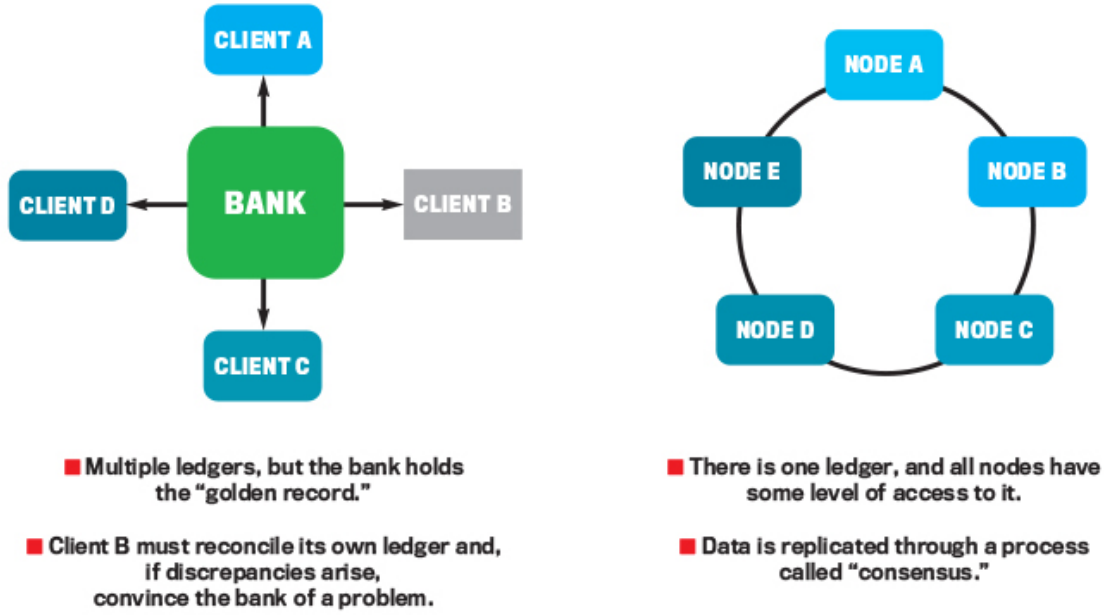

Figure 51 Comparison of traditional transactions and a blockchain ledger (Wiatt, 2019)

Blockchain Vendors

Charities/NFPs interested in exploring the introduction of blockchain into their businesses may seek the expertise of blockchain vendor service providers, or a blockchain advisory service, to ensure a fit-for-purpose solution for their particular organisation or needs. Blockchain vendors are companies that provide services to other startups or businesses aiming to use blockchain (Singh, 2019). They are a key component of the blockchain ecosystem.

It is important to note that "due to the low maturity of the technology and much unclear business ROI, most of these services revolt around proof of concept and strategic advice...however...experienced blockchain consulting providers do also exist, and they are growing rapidly" (Anwar, 2019). The diagram below outlines the blockchain vendor landscape and outlines the steps an organisation may take when choosing a blockchain vendor.

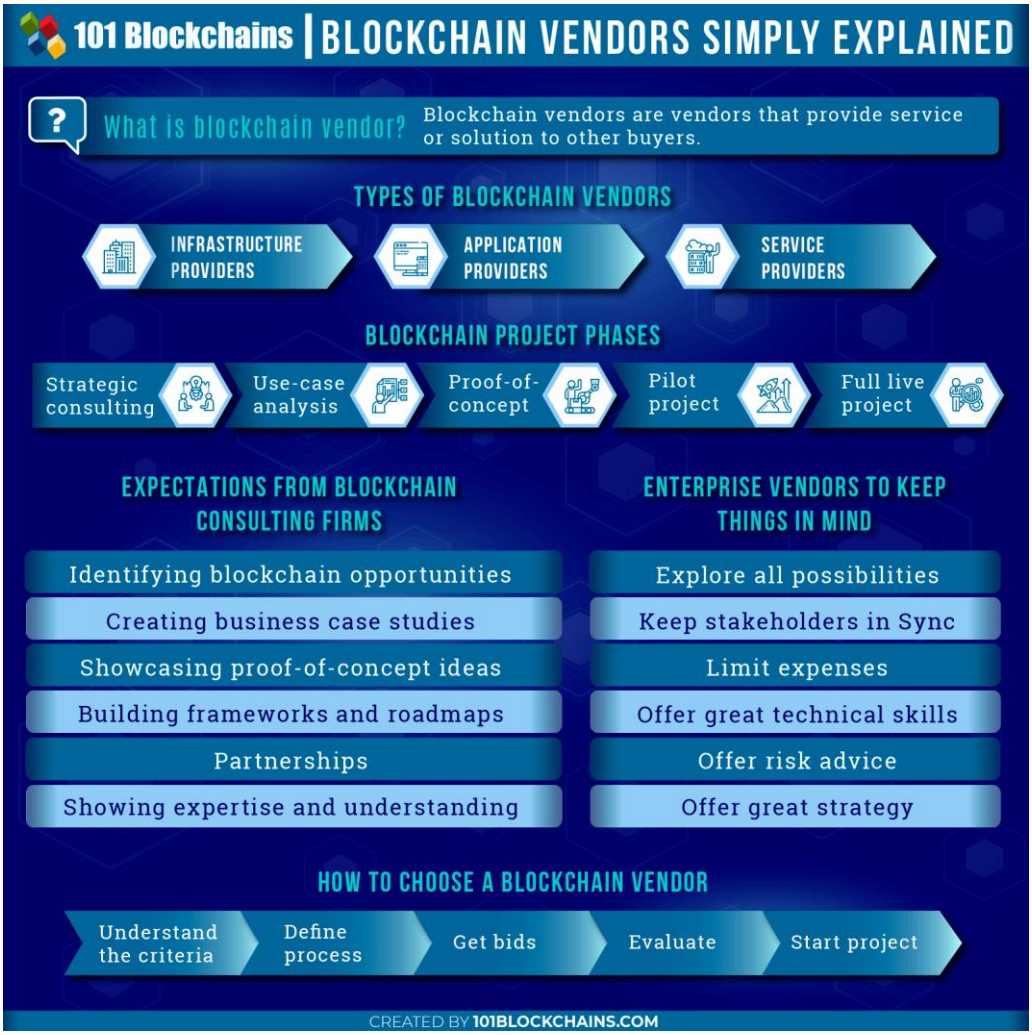

Figure 52 Blockchain Vendors Simply Explained. (Anwar, 2019)

Blockchain vendors include: Oracle, Microsoft Azure, SAP, IBM Blockchain, BigchainDB, Amazon Web Services and Applied Blockchain (Singh, 2019). Blockchain advisory services

include: BC Strategists, ConsenSys, Fintricity, BCS Technology, Accenture, EY, Deloitte, PWC, IBM and 101 Blockchain (Anwar, 2019).

Blockchain education

RMIT (2020) is now offering courses on blockchain for industries to learn about the technology and how it may be applied to their own sector or organisation. Currently RMIT offers three courses, ranging from 6 weeks to 12 months.

- Graduate Certificate in Blockchain Enabled Business, to develop the knowledge and skills to effectively formulate a blockchain strategy and confidently communicate its business value with stakeholders.
- Designing Blockchain Solutions, to strengthen your technical understanding of blockchain and evaluate the different platforms to create your own blockchain solution architecture, without even needing a code.
- Developing a blockchain strategy to understand the fundamentals and impact of blockchain, and work with leading industry experts to build a real-world strategy for your business.

Further Case Study: UNICEF Innovation Fund: Blockchain Portfolio

In February UNICEF Innovation Fund (2019) announced seed funding to six start-up companies whose business model is based on blockchain technology. Throughout this experience, UNICEF is leveraging the learnings and growth of the companies to better understand how blockchain can be used in developing and emerging economies (Chapiro & Hydary, 2019). UNICEF's (2019) support of blockchain and cryptocurrency resulted in the establishment of the UNICEF Cryptocurrency Fund.

The cryptocurrency donations will benefit children and young people around the world, with contributions of cryptocurrency held and granted out in the same cryptocurrency (UNICEF, 2019). The article also notes how the UNICEF committees of the USA, Australia, and New Zealand also accept cryptocurrency (UNICEF, 2019).

In March 2020, UNICEF Innovation Fund noted how all six companies graduated from the twelve months of support. Table 10 below summaries how each company engages with blockchain.

Table 10. *UNICEF Innovation Fund Graduates 2020*

Company	Location	How the business engages with blockchain
Atix Labs	Argentina	An Open source blockchain social impact funding platform that matches small to medium sized enterprises to funders across the world[1].
OS-City (previously One Smart)	Mexico	Addressing misappropriation of funds using blockchain and AI to increase transparency and accountability of government resource allocation[2]
Prescrypto	Mexico	A blockchain health technology application designed to manage sensitive clinical data in a secure and private way[3].
Sta Twig	India	Developing digital solutions to help track and strengthen the delivery of vaccines to children[4]
W3 Engineers	Bangladesh	Developing an open-source blockchain and mesh networking based solution to provide connectivity for unconnected people[5].
Coinsence	Tunisia	Enabling communities working on social impact causes them to create their own currencies to mobilise resources to generate imput[6].

[1] Quote from Audrey Tan, Project Lead, Atix Labs (UNICEF, 2020)
[2] Quote from Jesus Cepeda, CEO, OS City (UNICEF, 2020)
[3] Quote from Everardo J, Barojas, Founder and Director, Prescrypto (UNICEF, 2020)
[4] Quote from Sid Chakravarthy, Co-Founder StaTwig (UNICEF, 2020)
[5] Quote from Rakib Islam, CEO, W3 Engineers Ltd (UNICEF, 2020)
[6] Quote from Karim Chabrak, Founder, Coinsence.org (UNICEF, 2020)

Table 11: *Key Benefits of blockchain and cryptocurrency technologies*

Aspect	Factors
Decentralisation	Unlike traditional currencies, cryptocurrency is decentralised, which essentially means that the currency is not controlled by central banks or governments. Meaning that there is no intermediary that sits between the producer and the consumer. Currently for a charity to move traditional currencies across borders, there may be a long chain of banks, legal firms, NGOs, and potentially government bodies. The nature of blockchain is that it is based on Peer to Peer transfer; owners of crypto can transfer from one person's wallet to another person's wallet without the need for third-party intermediaries.
Ledger Technology	A key highlight with the ledger technology behind crypto and blockchain is that each transaction is unique, unlike traditional money. For example, if you trade Australian dollars of the same value between person to person, there is no difference in transaction identifier each time that dollar moves (it needs to be compared with physical evidence of transaction). However, with the cryptocurrency movement, there is a unique identifier for that transaction each time. Each transaction is a block in the chain with a unique record. This enables the donor to fully trace where that cryptocurrency has gone.
Generation Appeal	As indicated above, studies have shown that Generation Z is more likely to be philanthropic and show greater regard for the planet's future. Generation Z is also more likely to see value in and hold quantities of cryptocurrency. Having the ability to accept cryptocurrency in this form is appealing to the more philanthropic generations such as Generation Z.

The Giving Block

The Giving Block. (2019, October 1). Pineapple fund: $55,000,000 in bitcoin grants donated to nonprofits. Here's what happened: Accept Bitcoin & Crypto Donations | The Giving Block | United States. https://www.thegivingblock.com/post/pineapple-fund-bitcoin-donated-to-nonprofits-here-s-what-happened

APPENDIX 4 COMPLIANCE

Tax Compliance

For a charity/NFP to be considered for tax concessions they must be registered with the ACNC. The following further criteria also have to be met to be considered -
According to the ATO (2020a) the charity/NFP must meet one of these three rules:

- In Australia test - The charity/NFP must have a physical presence in Australia including operations and expenditure,
- Have deductible gift recipient status,
- Prescribed by Law - so if operations are outside of Australia then tax exemptions in their own country.

The charity/NFP must also meet the following two rules:

- Governing rules - complies with all the governing rules including policy, actions, and affairs,
- Income and asset condition - all income and assets must be used solely for the purpose for which the charity/NFP was set up.

There are other advantages if eligible for tax concessions including Goods and Services Tax (GST) concessions and Fringe Benefits Tax (FBT) exemptions. State taxes may also be exempt, including payroll tax and land tax. These will not be discussed as it is outside the scope of the report - but more information can be located: https://www.ato.gov.au/Non-profit/Getting-started/What-tax-concessions-are-available-/

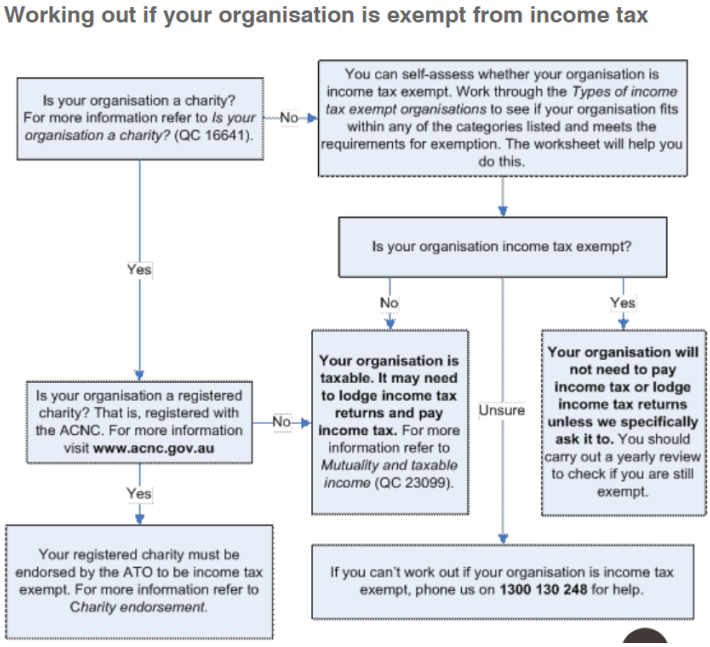

Figure 53 Working out if your organisation is exempt from income tax (ATO 2020b)

Worldwide Classifications

The Law Library of Congress (2018) examples include:

- United Kingdom - corporations pay corporate tax, unincorporated business pay income tax and individuals pay capital gains tax,
- Canada - considers cryptocurrency as a commodity and not a government-issued currency,
- China - does not recognise cryptocurrency tender as a tool for purchases. They have not passed any legislation and have a crackdown on any cryptocurrency activity,
- USA - considers cryptocurrency property and is subject to capital gains tax.

Depending on the jurisdiction there are countries that allow cryptocurrency markets and have been proactive in enacting specific regulation to these markets, and there are also countries that allow markets but are yet to enact any regulation. On the other hand, there are a couple of countries that are actively restricting cryptocurrency markets, more specifically in China and Iran (The Law Library of Congress, 2018).

Highlighted below are examples of different countries and their current regulatory compliance regarding cryptocurrency. Figure 54 below provides a list of countries that have bans on the use of cryptocurrencies.

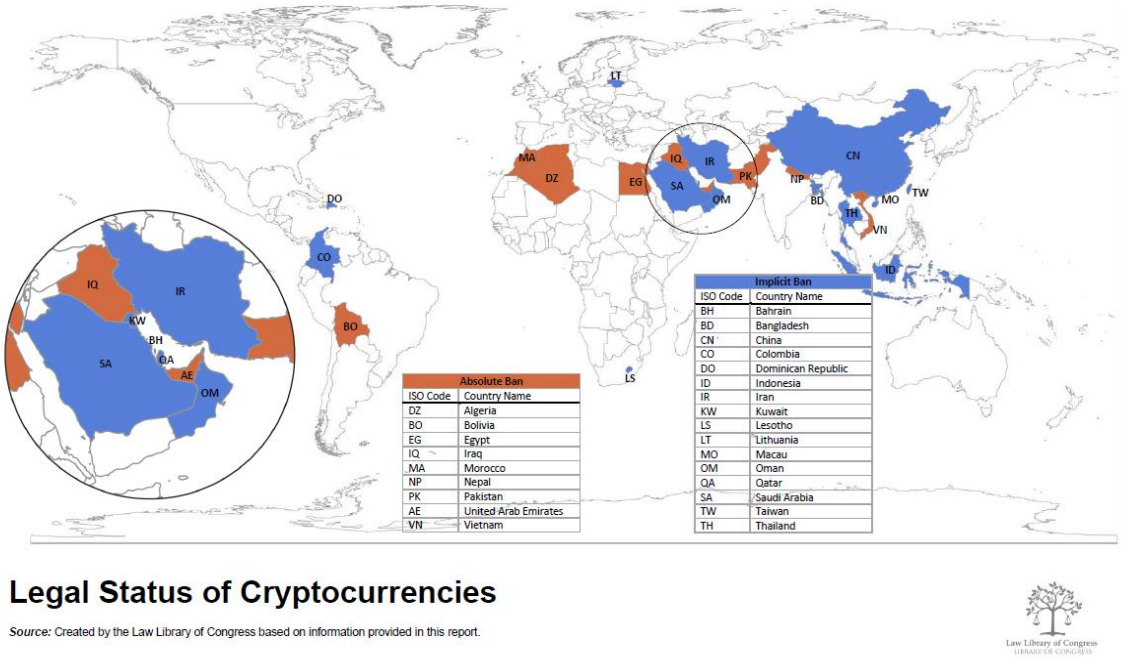

Figure 54 Legal status of Cryptocurrencies (The Law Library of Congress, 2018)

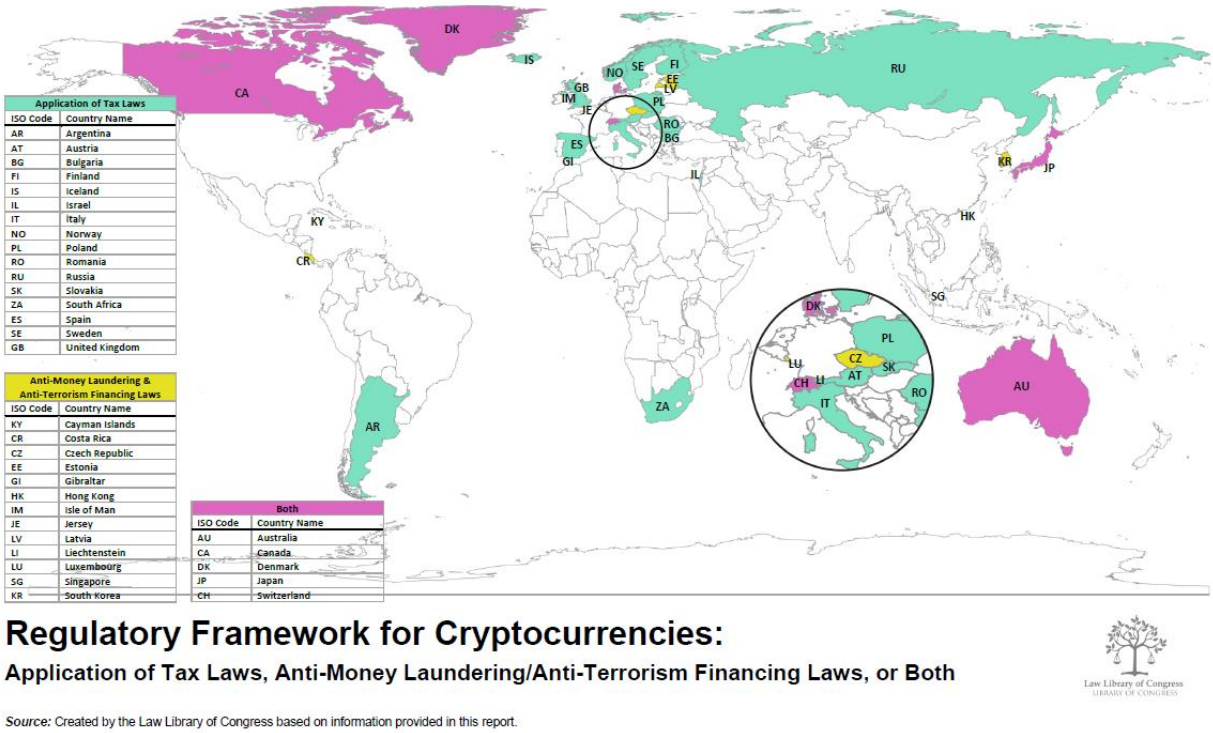

Figure 55 Regulatory Framework for Cryptocurrencies (The Law Library of Congress, 2018)

Figure 55 above details the countries that have tax laws, anti-money laundering, and anti-terrorism financing laws or both. As identified Australia has both regulations in place.

The United States has the most cryptocurrency users and the most Bitcoin ATMs in the world (Irwin & Dawson, 2019). Regulation on cryptocurrency in the USA has mainly been developed and implemented on a state by state basis. This means that the patchwork of regulation hinders users across the states as they try to navigate each state's laws.

Residents of other countries are fast becoming big users of this currency. Sweden has seen increased use of cryptocurrency and the Swedish Tax Board has given a preliminary ruling that Bitcoin is not subject to Swedish Value-added Tax (VAT), but is subject to the Swedish Financial Supervisory Authority and treated as currency (De Zilva, 2018). This ruling is in line with Sweden's desire to become a cashless society. It is expected other countries will follow Sweden’s example as they strive to operate within a modernised economy. De Zilva (2018) also comments that the ATO should consider cryptocurrencies as a foreign currency as they behave in the same way as foreign currencies.

Privacy Principles

Table 12 *Privacy Principles* (OAIC, n.d.-b)

Principle	Title	Purpose
APP 1	Open and transparent management of personal information	Ensures that APP entities manage personal information in an open and transparent way. This includes having a clearly expressed and up to date APP privacy policy.
APP 2	Anonymity and pseudonymity	Requires APP entities to give individuals the option of not identifying themselves, or of using a pseudonym. Limited exceptions apply.
APP 3	Collection of solicited personal information	Outlines when an APP entity can collect personal information that is solicited. It applies higher standards to the collection of sensitive information.
APP 6	Use or disclosure of personal information	Outlines the circumstances in which an APP entity may use or disclose personal information that it holds.
APP 8	Cross-border disclosure of personal information	Outlines the steps an APP entity must take to protect personal information before it is disclosed overseas.
APP 9	Adoption, use, or disclosure of government related identifiers	Outlines the limited circumstances when an organisation may adopt a government related identifier of an individual as its own identifier, or use or disclose a government related identifier of an individual.
APP 10	Quality of personal information	An APP entity must take reasonable steps to ensure the personal information it collects is accurate, up to date, and complete. An entity must also take reasonable steps to ensure the personal information it uses or discloses is accurate, up to date, complete and relevant, having regard to the purpose of the use or disclosure.
APP 11	Security of personal information	An APP entity must take reasonable steps to protect the personal information it holds from misuse, interference, and loss, and from

		unauthorised access, modification, or disclosure. An entity has obligations to destroy or de-identify personal information in certain circumstances.

Cryptocurrency ATO case studies

ATO Case Study Example

Example 1

On 5 July 2017, Katrina acquired 100 Coin A for $15,000. On 15 November 2017, through a reputable digital currency exchange, Katrina exchanged 20 of Coin A for 100 of Coin B.

Using the exchange rates on the reputable digital currency exchange at the time of the transaction, the market value of 100 Coin B was $6,000. For the purposes of working out Katrina's capital gain for her disposal of Coin A, her capital proceeds are $6,000.

Figure 56, Transacting with Cryptocurrency (ATO, 2020a)

ATO examples of using cryptocurrency in business are listed below in Figures 57 and 58:

Example 1

Sachin is in the business of trading cryptocurrency. On 15 December 2017, he purchases 1,500 Coin A for $150,000. On the same day, he sells 1,000 Coin A for $200,000. As Sachin holds the cryptocurrency for sale or exchange in the ordinary course of his business, Sachin can claim a deduction for $150,000 for the acquisition for Coin A and declares income of $200,000 for the later sale of Coin A.

Figure 57 Cryptocurrency used in Business (ATO, 2020a)

Example 1

Dora provides legal advice to Project ICO and receives 10,000 ICO tokens as consideration for her services. The money value of the 10,000 ICO tokens is ordinary income of Dora at the time the tokens are derived.

When Dora later sells her cryptocurrency the cost base of her tokens is their market value at the time she received them.

Figure 58 Receipt of cryptocurrency for services provided. (ATO, 2020a)

RBA Digital strategy and current compliance.

As demonstrated on the RBA cash and non-cash payment records below, the digital strategy and future for charities/NFPs is likely to see digital payments becoming mainstream.

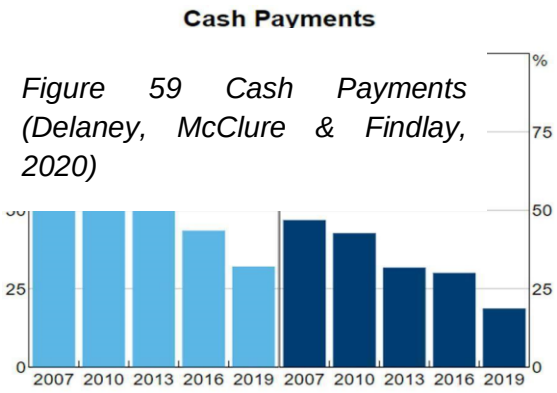

Figure 59 Cash Payments (Delaney, McClure & Findlay, 2020)

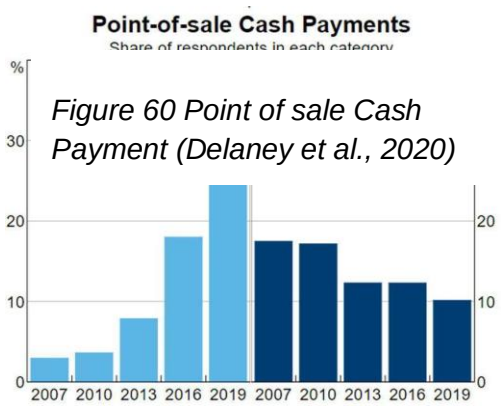

Figure 60 Point of sale Cash Payment (Delaney et al., 2020)

Price volatility and lack of scalability are some of the common shortcomings of the use of cryptocurrency. The volatility of cryptocurrency is more than five times higher than that of traditional asset classes such as stocks and bonds (Liu & Serletis, 2019).

To mitigate the high price fluctuations demonstrated in Figure 61 below, RBA economists are looking to generate network effects that enable payment methods to become, or remain, niche for widespread household and business payment use.

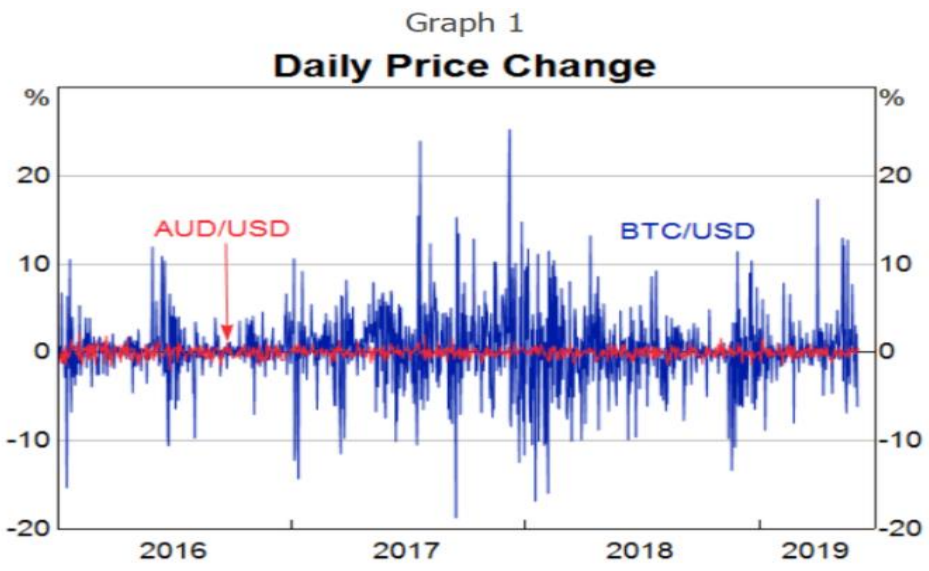

Figure 61 Daily Price Change (Richards, 2018)

In the wake of COVID 19 there has been an increase of virtual platforms. Businesses in Southport, Townsville, and Brisbane use digital currency as a means of payment (see case study 3.11.1 on Travelbybit). There is a greater need for more convenient and accessible virtual platforms for consumers and businesses. From the widespread adoption of Blockchain, the RBA is now considering expediting the research and acceptance of an eAUD/digital wallet. There are some key challenges for RBA to consider including:

a.) Establishing certainty around settlement finality for both consumers and merchants. For instance, where goods and services are being delivered in exchange for bitcoins, the lack of a prompt settlement finality can be a significant problem for its users.

b.) The high energy consumption, as discussed in 3.11.1, could lead to environmentally conscious donors remaining with traditional forms of donation.

Table 12. *Timeline 2020; Key Moments in the campaign to #fixfundraising* (Not-for-profit Law, 2020)

October	Pressure to reduce red tape and simplify the Registration, Regulation and Reporting processes for Charities placed on the government. Release of published paper 'Proposing a way forward for better fundraising regulation'.
September	In response to the proposed Charitable Fundraising Regulation 2020 (NSW Government, 2020) Response filed by NFP-Law to encourage the harmonisation of fundraising laws in Australia.
August	Press release by the Shadow Government highlighting outdated laws requiring reform and Victorian Legislation amendment to the Fundraising Act 1998 to recognise entities registered under the ACNC Act 2021
July	Western Australia complete changes to the Charitable Collections Act 1946 that mean that charity licences do not expire (no renewal every 3 years) plus Western Australian charities that are registered and report annually to the ACNC are not required to also submit annual financial statements to WA Government.
June	Regulators to take a supportive approach for organisations that cannot comply with registration requirements in multiple states or territories due to COVID-19.
May	NFP working group created to investigate how charities can support communities during and after COVID-19 & how to support the charity sector with dropping donation levels and fundraising regulation
April	Charities Crisis Cabinet seeks fundraising reform in response to COVID-19 (open letter to Australian Government)
March	Government response; ACNC legislation review 2018 was rejected including fundraising reform request which failed to embrace a nationally consistent regulatory regime

Risk Analysis

Context					Identification			Treatment
No.	ort Sect	Risk Category	Technology	Technology Sub-Category	Event	Consequence	Risk	Recommendation
1	1.2	Financial	Blockchain Technology	Ledger	The use of immutable ledger means that once a block is added to a chain it can not be undone. This may have implications on the the reversal of transactions.	Donor or charity is unable to reverse an transaction on the blockchain resultng in potential loss of revenue	Low	The recommendation is that .....
2	1.2.1	Operational	Blockchain Technology	Scale and Maturity	Utilisation of immature technology with limited validation in the market. Platforms may tend to be minimal viable product and lack future proofed architecture	Product life-cycle is low meaning that potential vulnerabilities have not been identified. This may lead to loss of platform operation or worse - security breaches	High	Due dilligence is needed on any blockchain platform. The outlined memeber evaluation tool will assist in facilating this cheks. However, in general blockchain technology should as a minimum be: 1. Certified to 2.
3	4.3.6	Financial	Cryptocurrency Exhanges	Exchanges	Reserve Bank of Australia (RBA) does not currently identify cryptocurrency as money.	Funds must be converted from Cryptocurrency to AUD, the Australian Dollar Value is subject to coin volatility, therefore benefactor donation amount may be effected.	Medium	
4	2.3	Financial	Cryptocurrency	Exchanges	The cryptocurrency market is extremely volatile, the average daily amplitude (fluctuation from price low to price high) can be as high as ten times greater than the money market.	The contributed amount may not match what the donor expected to give.	Low	The recommendation is that .....
5	4.3.8	Compliance	Blockchain Technology		Privacy ACT; 13 Privacy Principles legislated. Most notable risk is that blockchain in its design does not allow removal of personal information once entered.	Personal Information of donors is shared in breach of the privacy act	Low	

Figure 62 Risk Analysis (Dūcere Industry Project Group, 2020)

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