



EXPLORING THE CHALLENGES AND OPPORTUNITIES OF ALTERNATIVE FINANCE PRODUCTS WITH INDIGENOUS PEOPLES

Levon Blue^{*1}, Congcong Xing², Thu Pham³ and Kerry Bodle⁴

¹Associate Professor, The University of Queensland

²Research Associate, Queensland University of Technology (QUT)

³Research Fellow, Griffith University

⁴Academic Director (Indigenous), Griffith Business School

*Corresponding author:

Levon Blue

Associate Professor, The University of Queensland

Email: l.blue@uq.edu.au

Key words:

Indigenous peoples,
cryptocurrencies, financial
education, vulnerabilities,
alternative finance

ABSTRACT

Indigenous peoples often invest in cryptocurrencies and non-fungible tokens (NFTs) despite limited research in this area. We undertook this research to identify the demographics of Indigenous Australians who own cryptocurrencies and/or NFTs and to understand the challenges and opportunities faced. In this paper, we provide an overview of how alternative finance is reportedly used in Indigenous communities globally. Next, we focus on 62 Indigenous Australians who own cryptocurrencies and/or NFTs and participated in our online survey. We found Indigenous Australians who had university degrees, worked full-time, and owned a home had significantly higher levels of NFT ownership. The reported challenges were mostly related to storage, and the opportunities were connected to the potential for cryptocurrencies and/or NFTs as a long-term investment. Implications from this research include a continued need for financial planners to offer advice in this area, as schools were the last place Indigenous Australians learned about these alternative financial products.



Introduction

During the global financial crisis (GFC) of 2008, risky banking practices were exposed, including how banks “lend it [money] out in waves of credit bubbles with barely a fraction in reserve” (Dallin 2017, p. 468). These banking practices revealed to the world the trust individuals placed in financial institutions, including some banks, that had to be bailed out by their respective governments (Ait-Sahalia et al. 2012). Faria (2019) argues that the fallout from the GFC shook the inherent trust individuals placed in financial institutions, which resulted in corporate ethics discourse shifting to highlight their “good behaviour” by being seen to be transparent and promoting reporting practices (p. 121). This financial disruption of trust was felt at the individual, government and global levels and continues to cause uncertainty for individuals navigating the changing financial landscape.

During the GFC, Australia and Canada were singled out for performing much better than other banking systems in other parts of the world, including Europe, America and the United Kingdom (Allen et al. 2011). The reason for such stellar performance appears connected to how capital is regulated to ensure quality (Allen et al. 2011). This is not to say that both Australia and Canada were not impacted by the GFC as the market value of their assets declined, but their exposure to sub-prime lending was far lower than that of the above-mentioned countries (Allen et al. 2011). Post GFC, the Australian banking system was under the spotlight during and after a 2019 Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry.

Trust in the Australian banking system is still recovering from the Royal Commission. It found that “[b]illions of dollars were stolen. Dead customers were charged. Worthless products were sold to millions” (Ziffer 2021, para 1). Following the Royal Commission, Commissioner Kenneth Hayne made 76 recommendations, but only 31 were implemented (Butler 2021).

The move away from cash emerged during the COVID-19 pandemic (Caswell et al. 2020), which also increased interest in alternative financial products such as cryptocurrencies and NFTs, and rattled central banks worldwide (Vaart van de 2018). Central banks emerged in the 17th century, when trust in governments was low (Wray 2012). However, cryptocurrencies present a threat to modern central banks because “theoretically the cryptographic protocol of cryptocurrencies makes the role of a CB [central bank] obsolete” (Vaart van de 2018, p. 28; Lagarde 2018). National fiat currencies and cryptocurrencies are both currencies without intrinsic value since fiat currencies have not been linked to the value of gold since 1971 (International Monetary Fund, n.d.). Central banks, however, hold reserves of US dollars and euros to stabilise national currencies, and in 2015, the Chinese Yuan was added to many reserves to soften the Western economic influence (Vaart van de 2018). The author asserts that the solution to overcoming Western economic dominance is possible through decentralised cryptocurrencies. However, a question surrounding the use of crypto and blockchain is related to emancipatory power, as many papers argue that cryptocurrencies support a neoliberal, Western/Global North status quo, at times even serving to strengthen colonial behaviour in vulnerable locations in the Global South (Columbia 2016; Crandall 2019; Howson 2020; Jutel 2022). The above-mentioned claim is beyond the scope of this paper but nevertheless important to point out.

Indigenous¹ peoples have valid reasons to distrust governments, and as the central goals of Canada’s Aboriginal policy was to “eliminate Aboriginal governments; ignore Aboriginal rights;

¹ Indigenous is a term commonly used when referring to Indigenous peoples from all over the world.



terminate the Treaties; and through a process of assimilation, cause Aboriginal peoples to cease to exist as distinct legal, social, cultural, religious, and racial entities in Canada” (Truth and Reconciliation Commission 2015, p. 1). Australia was no different with Queensland (one of its States) establishing in 1897 and enforcing until 1939 the *Aboriginals Protection and Restriction of the Sale of Opium Act*. Under this Act, the local police, who were deemed protectors, had “control over every aspect of life, including: determining where people lived and worked, withholding wages and entitlements, restricting land ownership, removing children from their families by force, and controlling personal relationships and contact with family and community” (Anti-Discrimination Commission Queensland 2017, p. 12). The abovementioned Act remained in force until the 1970s because of successive legislation.

In this paper, we examine the reasons Aboriginal and Torres Strait Islander peoples (hereafter respectfully referred to as Indigenous peoples) might be interested in moving away from centralised financial systems and towards decentralised financial products and services. We share findings from our study with 62 Indigenous Australian participants who own cryptocurrencies and/or NFTs. The lead author is a First Nation Canadian living in Queensland, Australia (where this research took place), the second author is non-Indigenous (Chinese heritage), the third author is non-Indigenous (Vietnamese heritage) and the last author is an Indigenous Australian living in Queensland, Australia.

Seeking something different

It has been suggested that Bitcoin was developed as “a reaction to concerns about the government-based fiat currency system” (Dallyn 2017, p. 468). Schneider (2019) agrees and states that “Bitcoin’s decentralising promise chiefly targeted central banks and their ‘fiat’ currencies” (p. 271). A few years after the GFC, Occupy Wall Street protests were reported to be held in “951 cities in 82 countries” (Rogers 2011) and may have been associated “with the aggravation of socioeconomic asymmetries following the 2008 financial crisis” (Lopes 2022, p. 103). All of the above-mentioned events and the increasing use of social media, especially Twitter², meant that individuals with similar interests, beliefs and values could be connected, and their ideological beliefs could be reinforced through tweeting and gathering in person (Dallyn 2017).

Indigenous communities globally are also a part of the digital revolution³ (Alcantara & Dick 2017; Cordes 2022; Houlbrook-Walk 2022; Palmer-Derrien 2022), which involved moving away from mainstream financial institutions to alternative forms of digital financial products and services, including cryptographic currencies such as Bitcoin and other cryptocurrencies (hereafter referred to as altcoins). Gupta et al. (2018) argue that the digital revolution presents opportunities and challenges for governments, but what is needed are quick responses to these innovations “to harness the opportunities and mitigate the risks” (p. 15). The above-mentioned authors suggest that countries wishing to make the most of the opportunities should focus on their most pressing problems and priorities and the vulnerable populations that will benefit most from these digital innovations, including the use of biometrics technology for authentication processes.

² Now known as “X” but referred to as Twitter in the remainder of this paper.

³ “Digitization makes finance accessible, lowers costs, and creates opportunity” as reported by Ndung’u, N. M., Armando; Ndirangu, Lydia (2016). *Cashing In on the Digital Revolution*. Finance & Development Retrieved from <https://www.imf.org/external/pubs/ft/fandd/2016/06/ndungu.htm>.



In Canada, Indigenous communities are reported to be interested in alternative forms of financial services and products, including cryptocurrencies⁴ to “reduc[e] the role of the Canadian state in their political, economic, and social lives” (Alcantara & Dick 2017, p. 19). The same may be true for Indigenous peoples and communities in the U.S., Australia and other countries with Indigenous populations who are seeking alternative investments and/or currencies. However, whether altcoins, for example, provide the autonomy sought or simply introduce significant risks of collapse due to flawed design remains to be seen (Vandervort et al. 2015). Regardless of risk, some Indigenous peoples and communities are seeking community currencies⁵ which may be at the individual or community level.

At the individual level, this occurs when a person purchases Bitcoin, for example, and joins the Bitcoin community of owners. At the community level, this could involve purchasing a new altcoin developed for a specific community. An altcoin developed for a specific community may be restricted geographically, usually has a set purpose⁶, may offer incentives to users and is developed for and administered by community members (Vandervort et al. 2015). MazaCoin⁷ is an example of an altcoin in the US that was “...intended to service the Lakota bands of the Great Sioux Nation in the Dakotas” (Cordes 2022, p. 1). This altcoin was designed for a community and has since become an example of the complexities and challenges that can occur.

Aside from community currencies, Indigenous communities are also interested in other alternative financial products and services. For instance, in Canada, OneFeather Mobile Wallet⁸ was developed by Lawrence Lewis, the creator of the digital voting platform⁹ OneFeather. The wallet is supposed “to give Indigenous people access to a digital bank account as well as other crucial features that would ultimately bridge the gap of distrust between the First Nations communities and the Government of Canada” (Lo et al. 2021, p. 404). Aside from being a digital wallet linked to an existing bank account, OneFeather’s services also include renewing your status card¹⁰ with the Canadian Government.

Looking to Australia now, an example includes the Yolngu artists who are reported to have embraced non-fungible tokens (NFTs¹¹). Yolngu artists based in Yirrkala (Northern Territory of Australia) are “known globally for their award-winning innovative works, drawing connections to land and sea” (Houlbrook-Walk 2022, para 1) and have had individual pieces of art “photographed using an infrared camera device before being turned into moving digital works”

⁴ On January 5 2023, CoinMarketCap data revealed that there are 22,191 cryptocurrencies, 537 cryptocurrency exchanges with a market capitalisation of over \$820B (CoinMarketCap 2023).

⁵ Vandervort, Gaucas and Jacques (2015) state that “...Bitcoin can be regarded as a community currency, with the community being those people who care about Bitcoin. They have shown the ability to work together toward goals large and small, to hold informative discussions, to build an economy and to help each other in times of need” (p. 78). They also state that ‘Community currencies include features beyond direct economic value that are intended to advance their goals’ (p. 79).

⁶ For example, “The BerkShares currency maintains a loan fund for local businesses” (Vandervort, Gaucas, and Jacques 2015, p. 79).

⁷ MazaCoin was developed by Payu Harris for his grandma with the “intent of providing his reservation with a more independent economy.” Ryan-Mosley, T. (2022 27 April 2022). *He created an indigenous digital currency. The dream is still alive.* <https://www.technologyreview.com/2022/04/27/1049573/mazacoin-indigenous-digital-currency/>.

⁸ A mobile wallet stores your bank account and/or credit card details on your phone, watch or other mobile device and enables you to pay for products and services without having your physical card present. This technology became widely used during the covid-19 pandemic when individuals were looking for ways to reduce touching. Apple pay and Google pay are examples of mobile wallets.

⁹ OneFeather has been used by many Indigenous communities for their Indigenous elections of Chief and Council.

¹⁰ The Canadian Government recognises Indian status as “the legal standing of a person who is registered under the *Indian Act*”. See more <https://www.sac-isc.gc.ca/eng/1100100032463/1572459644986#sec1>

¹¹ NFTs are described on Investopedia’s website as “non-fungible tokens (NFTs) are assets that have been tokenized via a blockchain. They are assigned unique identification codes and metadata that distinguish them from other tokens.” Sharma, R. (2023). *Non-Fungible Token (NFT): What It Means and How It Works*. Investopedia. <https://www.investopedia.com/non-fungible-tokens-nft-5115211>



that are available as NFTs (Houlbrook-Walk 2022, para 7). Interest in NFTs for Indigenous artists has also resulted in the founding of Provv, which is a company that aims to utilise NFTs “...to help artists – and particularly Indigenous artists – to make more from licensing and selling their work” (Palmer-Derrien 2022, para 1). The company is reported to provide “a platform for visual content creators to maintain ownership of their work through licensing and utilising the boom in the sale of individual digital graphics dubbed non-fungible tokens” (Cross 2022, p. para 2). The revenue potential from licensing art is immense and set up so that ongoing royalty payments from resales are captured, and the artist is paid.

The above-mentioned examples provide a glimpse into some of the ways Indigenous communities and Indigenous peoples in various countries are embracing new forms of digital financial products and services. The purpose of this paper is to understand from an individual perspective what challenges and opportunities exist with Indigenous Australians who have purchased cryptocurrencies and NFTs and are using finance apps. Before we share the results from our study, we provide a brief overview of the difference between decentralised and centralised financial systems.

Decentralised and centralised financial systems

Centralised financial systems are mainstream, backed by the government and the central bank, which make decisions about the supply and demand of money (Vaart van de 2018). In these centralised financial systems, central banks have a main role which includes achieving financial stability through setting interest rates and exchange rates, controlling the money supply and, when necessary, “injecting capital into the system” (Tapscott & Tapscott 2016, p. 294; Vaart van de 2018). Decentralised financial systems operate on distributed ledger technology called blockchain and have no central authority. Instead, decisions are made within the network (Bickers 2020). Bitcoin is an example of a currency that exists on a decentralised platform, whereas fiat currency (aka money) operates in a centralised financial system. Some altcoins are decentralised, and others operate on centralised systems; however, decentralisation is contested, with Schneider (2019) arguing the validity of some decentralisation claims.

With centralised financial systems, there are financial regulations and consumer protection laws. Whereas, with decentralised financial systems, the individual acts as their own bank and must be responsible for the storage and security of their assets. In Australia, where this research took place, cryptocurrency exchange platforms, where an individual buys and sells crypto, are not regulated and are not covered by consumer protection laws. If an individual leaves their purchased crypto on the exchange and the exchange is hacked, the individual loses their asset and has no recourse.

What is known about cryptocurrency investors?

The demographics of cryptocurrency investors in Australia appear to be heavily concentrated by males, with 69% of the over 1 million Australians who own cryptocurrencies identifying as male (Roy Morgan 2022). We also know that one-in-ten are aged under 35 years old (Roy Morgan 2022). Despite there being more younger Australians owning cryptocurrencies, older Australians hold the largest average investment in cryptocurrencies at \$56,200 (Roy Morgan 2022). The above-mentioned survey did not report on the number of Indigenous Australians who



own cryptocurrencies and/or NFTs. To our knowledge, this is the first survey in Australia to report solely on Indigenous Australians who own cryptocurrencies and/or NFTs.

Outside of Australia, cryptocurrency investors are reported to be young males on high incomes (Steinmetz et al. 2021) who are university-educated, city dwellers and active on the internet (Wciom 2019).

Methods

The participants were recruited by a random sampling anonymous online survey and targeted Australians 18 years of age and older who had purchased cryptocurrencies and/or NFTs. The two above-mentioned screening questions were used at the beginning of the survey to ensure appropriate participants were recruited. We also obtained ethical clearance from the Queensland University of Technology (QUT) [Ethics Approval Number 5142] before we engaged Qualtrics to recruit participants.

Qualtrics, which partners with over 20 online sample providers, was hired to recruit the participants. In total, we recruited 745 participants to complete the online survey; however, for this article, our focus is on the 62 Indigenous Australian respondents that we purposefully selected. As expected, our analytic samples are more selective and include a large proportion from New South Wales (most populated State in Australia). This should not, however, bias our estimate in our analysis because our intention was not to achieve 'representativeness'. Also note that as all participants had purchased cryptocurrencies and/or NFTs, our findings do not include the views and experiences of Indigenous Australians who have refrained from such alternative financial products. As such the findings from our study are not generalisable, and more representative samples would be needed to achieve generalisability. Nevertheless, these findings are compelling and provide insight into Indigenous Australians and alternative finance, which has limited research.

As mentioned above, the survey questions were designed for a larger study involving 745 Australians aged 18 and over who had purchased cryptocurrencies and/or NFTs (see Blue et al. 2024). Sociological perspectives (Hill 2001; Menzel Baker et al. 2005; Penāloza 1995; Smith & Cooper-Martin 1997) of vulnerability, which is the focus of another paper (see Blue et al. 2024) and social cognitive theory (Bandara 1986), influenced our survey design. This influence is visible in the questions we asked about social influences and/or media influences impacting decision-making.

We analysed survey responses from 62 Indigenous Australians who own cryptocurrencies and/or NFTs. We sought to gain insight from Indigenous Australians who own cryptocurrencies and/or NFTs about what challenges and opportunities exist and how they learned about these alternative financial products, acknowledging that navigating personal finance online has become challenging with the emergence of alternative forms of online financial products and services.

The data we collected were managed and analysed using SPSS 29. Frequencies and percentages were used to calculate survey respondents' demographic information. Crosstabulations and Fisher's exact tests were conducted to examine if Indigenous participants' purchasing behaviours of cryptocurrencies and/or NFTs differed by demographic characteristics. Due to the small sample size, Fisher's exact tests were selected as an alternative when the expected cell count was too small for chi-square tests (Pallant 2020).



Findings

With respect to the participants' demographic characteristics, as displayed in Table 1, female participants (n=35, 56.5%) outweighed male participants (n=26, 41.9%). Approximately half of the sample (n=34) were between 25 years and 44 years, while no participants were aged 65 or above. A larger proportion of participants (n=28, 45.2%) were from New South Wales, followed by Queensland (n=17, 27.4%), Western Australia (n=6, 9.7%), and Tasmania (n=6, 9.7%), Victoria (n=4, 6.4%), and South Australia (n=1, 1.6%). Most of the participants (n=57, 91.9%) were employed, either undertaking full-time (n=48, 77.4%) or part-time and/or casual jobs (n=9, 14.5%), with the remaining 8.1% (n=5) not employed. Nearly sixty percent of the participants (n=37) had a university degree, with the rest of the participants' highest educational level varying from some high school (1.6% (n=1)), high school (16.1% (n=10)), to TAFE (17.7% (n=11)). More than three-quarters (n=48, 77.4%) of the participants lived with others, and more than half of the participants (n=39, 62.9%) owned their own house, while 30.6% of the participants (n=19) held a mortgage for their home. Most of participants (n=57, 91.9%) spoke English at home.

Purchasing cryptocurrencies and NFTs

According to their survey responses, all the participants purchased cryptocurrencies, and 43.5% of the participants (n=27) bought non-fungible tokens (NFTs). Nearly 67.7% of the participants (n=42) used finance apps such as banking apps; buy now, pay later; and investing apps. Table 2 displays Fisher's exact test results assessing the association between the demographics and different purchasing behaviours demonstrated by the survey respondents. Educational level differences were identified ($p < .001$), with Fisher's Exact tests revealing that a larger population of Indigenous participants who held a university degree reported purchasing NFTs (n=27, 37.1%) than those with non-university degrees or diplomas (n=4, 6.5%). Employment condition differences were also identified ($P = .002$), with a larger population of participants who were employed full-time having purchased NFTs (26, 41.9%) compared to those who were employed in part-time/casual jobs or had no jobs (1, 1.6%). Similarly, a larger proportion of participants who owned a house reported buying NFTs (22, 35.5%) than those who rented a home (5, 8.1%) ($p = .009$). There were no statistically significant associations between the usage of financial apps and participants' demographic characteristics.

Cryptocurrencies purchased and acquired and financial apps used

Most Indigenous Australians (n=50, 80.6%) owned Bitcoin, then Ethereum (n=38, 61.3%), followed by Cardano (n=24, 38.7%), Binance coin (n=21, 33.9%), and Solana (n=14 22.6%). A minority of the participants also purchased Dogecoin, Bitcoin Cash, Luna, Shiba Inu, Ripple, and Xep.

Most participants (n=56, 90.3%) acquired cryptocurrencies by purchasing them on an exchange. The rest acquired them by receiving them from someone (n=26, 41.9%) and selling items in video games (n=7, 11.3%).

Aside from purchasing cryptocurrencies and/or NFTs, 62.9% of participants (n=39) were using banking apps, with 40.3% (n=25) using investing apps, 35.5% (n=22) using buy now, pay later apps, 25.8% (n=16) using budgeting apps, and 11.3% (n=7) using wage advances.



Table 1. Demographic information of survey participants.

Variable	Category	Frequency	Percent
Gender	Male	26	41.9
	Female	35	56.5
	Non-binary	1	1.6
Age Range	18-24	11	17.7
	25-34	17	27.4
	35-44	17	27.4
	45-54	11	17.7
	55-64	6	9.8
State	NSW	28	45.2
	QLD	17	27.4
	SA	1	1.6
	TAS_ACT_NT	6	9.7
	VIC	4	6.4
	WA	6	9.7
Employment condition	Full-time	48	77.4
	Part time and/or casual	9	14.5
	Not working	5	8.1
Educational Level	Some high school	1	1.6
	High school	10	16.1
	TAFE	11	17.7
	University	37	59.8
	Other	3	4.8
Housing	Own home with a mortgage	20	32.3
	Own home without a mortgage	19	30.6
	Rent your home	20	32.3
	Prefer not to say	3	4.8
Living condition	Living on my own	14	22.6
	Living with others	48	77.4
Language at home other than English	Yes	5	8.1
	No	57	91.9

Decision making

Among 48 participants who lived with others, 58.3% (n=28) shared their financial decision-making and/or finances with others. Most of the participants chose to share their financial decision-making and/or finances with their spouses (n=16, 57.1%) or partners (n=12, 19.4%).

Table 2. Participants who purchased NFTs and used financial apps by demographic characteristics.

	Purchase NFTS		P value	Use Financial Apps		P value
	Yes N (%)	No N (%)		Yes N (%)	No N (%)	
Gender			p = .450			p = 1.000
Female	17 (27.9%)	18 (29.5%)		24 (39.3%)	11 (18.0%)	
Male	10 (27.9%)	16 (26.2%)		17 (27.9%)	9 (14.8%)	
Age Range			p = .443			p = .055
18-34	14 (22.6%)	14 (22.6%)		15 (24.2%)	13 (21.0%)	
35 or above	13 (21.0%)	21 (33.9%)		27 (43.5%)	7 (11.3%)	
Educational Level			p < .001			p = .051
Non-university	4 (6.5%)	21 (33.9%)		13 (21.0%)	12 (19.4%)	
University	23 (37.1%)	14 (22.6%)		29 (46.8%)	8 (12.9%)	
Employment Condition			p = .002			N/A
Full time	26 (41.9%)	22 (35.5%)		36 (58.1%)	12 (19.4%)	
Part time /casual/no	1 (1.6%)	13 (21.0%)		6 (9.7%)	8 (12.9%)	
Housing Condition			p = .009			p = .410
Own a house	22 (35.5%)	17 (27.4%)		28 (45.2%)	11 (17.7%)	
Rent or other	5 (8.1%)	18 (29.0%)		14 (22.6%)	9 (14.5%)	
Living Condition			p = 1.000			N/A
Living on my own	6 (9.7%)	8 (12.9%)		9 (14.5%)	5 (8.1%)	
Living with others	21 (33.9%)	27 (43.5%)		33 (53.2%)	15 (24.2%)	

Most participants bought or used cryptocurrencies, NFTs, or finance apps on their own, accounting for 50.0% (n=14), 78.6% (n=11), and 72.7% (n=16) respectively. Some of the participants tended to work with their spouse or partner together, either purchasing or using cryptocurrencies (n=8, 28.6%), NFTs (n=1 1.6%), and finance apps (n=5, 8.1%). However, 21.4% of the participants (n=6) reported that it was their spouse or partner who purchased or used cryptocurrencies, with 14.3% (n=2) for NFTs and 4.5% (n=1) for finance apps.

In the next section, we share the challenges and opportunities reported by participants who purchased cryptocurrencies.

Challenges navigating personal finance online

Concerns over the security of cryptocurrencies and NFTs

Most of the participants (n=51, 82.3%) store their cryptocurrencies in a software wallet¹², followed by 50% (n=31) on the exchange and 38.7% (n=24) in the hardware wallet. Regarding the storage of NFTs, most participants (n=15 24.2%) stored NFTs in a software wallet, followed by 29.0% (n=18) in a hardware wallet and 24.2% (n=15) on the exchange.

We also asked participants if they had concerns about the storage of cryptocurrencies, and 41.9% of participants (n=26) stated they did, and 40.7% of participants (n=11) were concerned

¹² Wallets are often referred to as software/soft/hot wallets, meaning they are stored using some form of software. Hard/cold wallets are stored offline on a USB-like device. A custodian wallet includes storing your crypto on the exchange.



about the storage of NFTs. In addition, 14 participants reported their concerns over the security of cryptocurrencies, worrying about losing their money, while two participants also worried about being hacked, and another four participants felt distressed about potential theft and fraud due to cryptocurrencies. Apart from the concerns above, one participant doubted the legitimacy of owning cryptocurrencies or NFTs, and three participants were not confident about their knowledge of cryptocurrencies or NFTs.

In total, 16 participants (26.7%) reported losing their cryptocurrencies due to storage issues, and 6 participants (22.2%) lost their NFTs due to poor storage. Overall, a few participants reported losing their cryptocurrencies or NFTs because of inappropriate storage.

Among those who reported the loss of cryptocurrencies, 56.3% of the participants (n=9) lost over \$1000 and 7 participants (43.8%) lost less than \$1000. While among those who reported the loss of NFTs, four participants (66.7%) reported that they lost less than \$1000, and two participants (33.3%) reported that they lost over \$1000.

When examining the participants who lost funds and concerns over the security, Fisher's Exact Test revealed that a larger proportion of participants who had concerns about the security of cryptocurrencies lost their investments (n=14, 23.7%) than those who did not have concerns (n=2, 3.4%), $\chi^2 = 18.31$, $p < .001$.

In addition to concerns about security, 48.4% of participants (n=30) received unsolicited advice about investments relating to cryptocurrencies. The participants stated that they were mostly approached by email (n=20, 32.3%), text (n=14, 22.6%), followed by phone (n=12, 19.4%), and direct message (via social media platforms) (n=9, 14.5%). Three participants (4.8%) also indicated that they were approached in person.

IT literacy

Most participants rated their technologies for purchasing, selling, and storing cryptocurrencies, NFTs, or finance apps as average or above. For example, 48.4 % of participants (n=30) perceived their technology skills in cryptocurrencies as above average, and another 40.3% of participants (n=25) rated their technology skills as average. Among the 26 participants who purchased NFTs, 53.8% of participants (n=14) rated themselves as above average, with another seven participants (26.9%) self-rated as average. Of the 41 participants who used finance apps, more than half of the participants (n=23, 56.1%) considered their technology skills as average, with another 14 participants (34.1%) rating them as above average. A minority of participants rated their technology skills as below average, with 11.3% (n=7) for cryptocurrencies, 19.2% (n=5) for NFTs, and 9.8% (n=7) for finance apps.

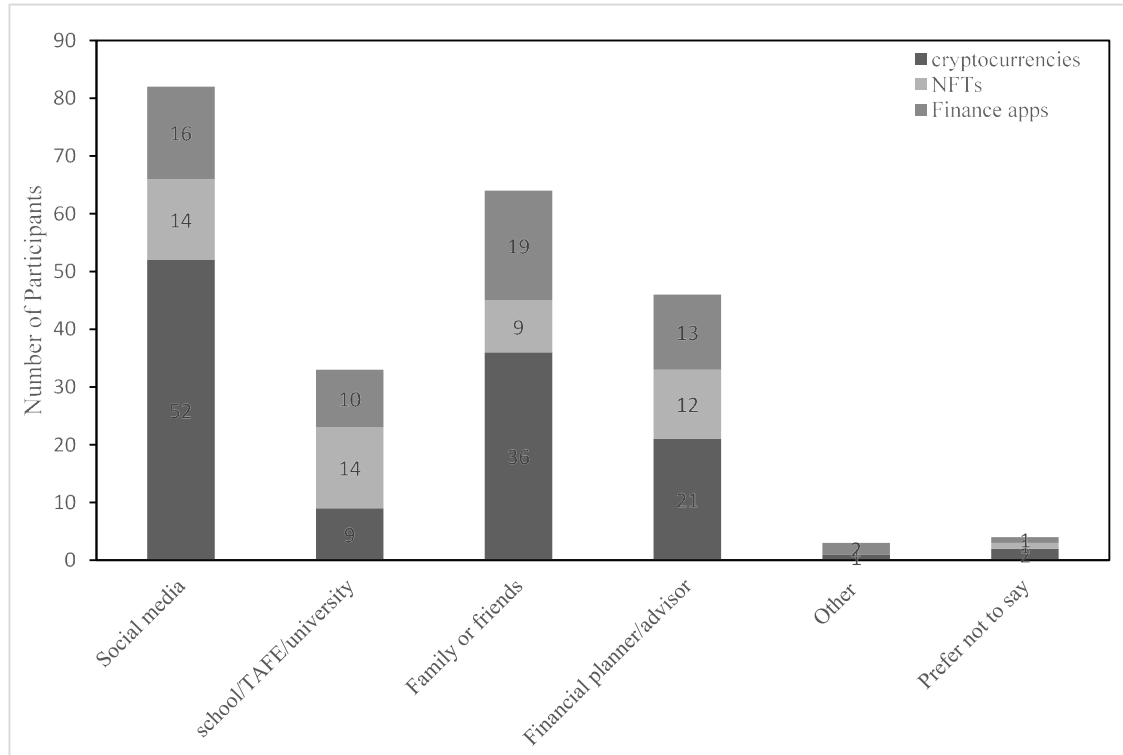
Limited channels of learning about cryptocurrencies and NFTs

As displayed in Figure 1, most of the participants learned from social media about cryptocurrencies (n=52, 83.9%), NFTs (n=14, 22.6%), and finance apps (n=16, 25.8%).

Families or friends also served as a key source of knowledge, with 58.1% (n=36) for cryptocurrencies, 14.5% (n=9) for NFTs, and 30.6% (n=19) for finance apps. Financial planners or advisors were also an important source for participants to acquire cryptocurrencies



Figure 1: Sources of learning about cryptocurrencies, NFTs, and finance apps.



(n=21, 33.9%), NFTs (n=12, 19.4%), and finance apps (n=13, 21.0%). A minority of participants received information about cryptocurrencies (n=9 14.5%), NFTs (n=14 22.6%), and finance apps (n=10 16.1%) from school, TAFE, or university.

Among different social media platforms, TikTok was found to be the most popular platform used to learn about cryptocurrencies (n=24, 38.7%), NFTs (n=9, 14.5%), and finance apps (n=12, 19.4%), followed by YouTube, Instagram, Facebook, Twitter, and LinkedIn.

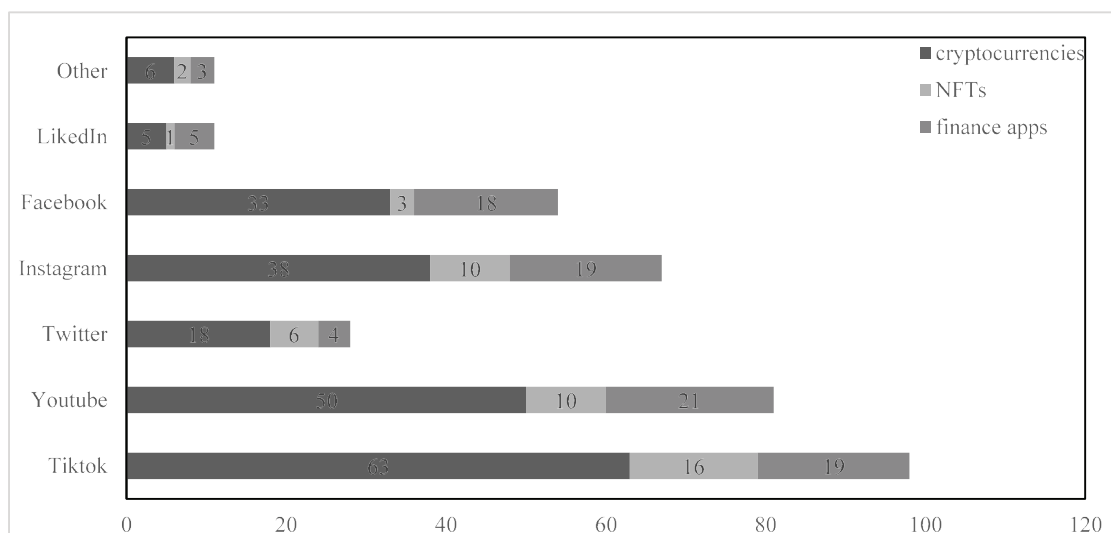
Crypto, Financial and Tax Literacy

When surveying whether participants believed the saying ‘not your keys, not your coins’, more than half of the participants (n=32, 52.5%) agreed with the saying, while another 19.7% of the participants (n=12) tended to reject the saying. The remaining 27.9% of the participants (n=17) were unsure. This question is connected to having ownership of Bitcoin and the storage of your private keys. We also asked a math question relating to Bitcoin; more than half of the participants (n=35, 56.5%) chose the correct answer, while 37% (n=23) were incorrect, and 6.5 % (n=4) were unsure. The question we asked was: *If Bitcoin was worth \$ 40,000 when you purchased it and 12 months later it was worth \$80,000. How much has Bitcoin increased?*

We were also interested in participants’ understanding of the tax implications of buying and selling cryptocurrencies. We asked participants this question: Is it true that selling your cryptocurrencies will result in a taxable event (i.e., capital gains or capital loss that needs to be reported to the Australian Taxation Office)? The results revealed that 69.4% of participants



Figure 2: Social media platforms for learning about cryptocurrencies, NFTs, and finance apps.



(n=43) believed that 21.0% of the participants (n=13) were unsure about it, 8.1% of the participants (n=5) perceived it was wrong, and one participant (1.6%) 'preferred not to say'.

If participants had sold their cryptocurrency we asked if they had made a capital gain or loss. Among 36 participants who sold their cryptocurrencies, 30 participants (83.3%) reported that they paid capital gains taxes (indicating a gain was made), while 5 participants (13.9%) did not pay any capital gains taxes (indicating a loss), and one participant (2.8%) were unsure of this.

Next, we report on the opportunities identified.

Opportunities provided by cryptocurrencies and finance apps

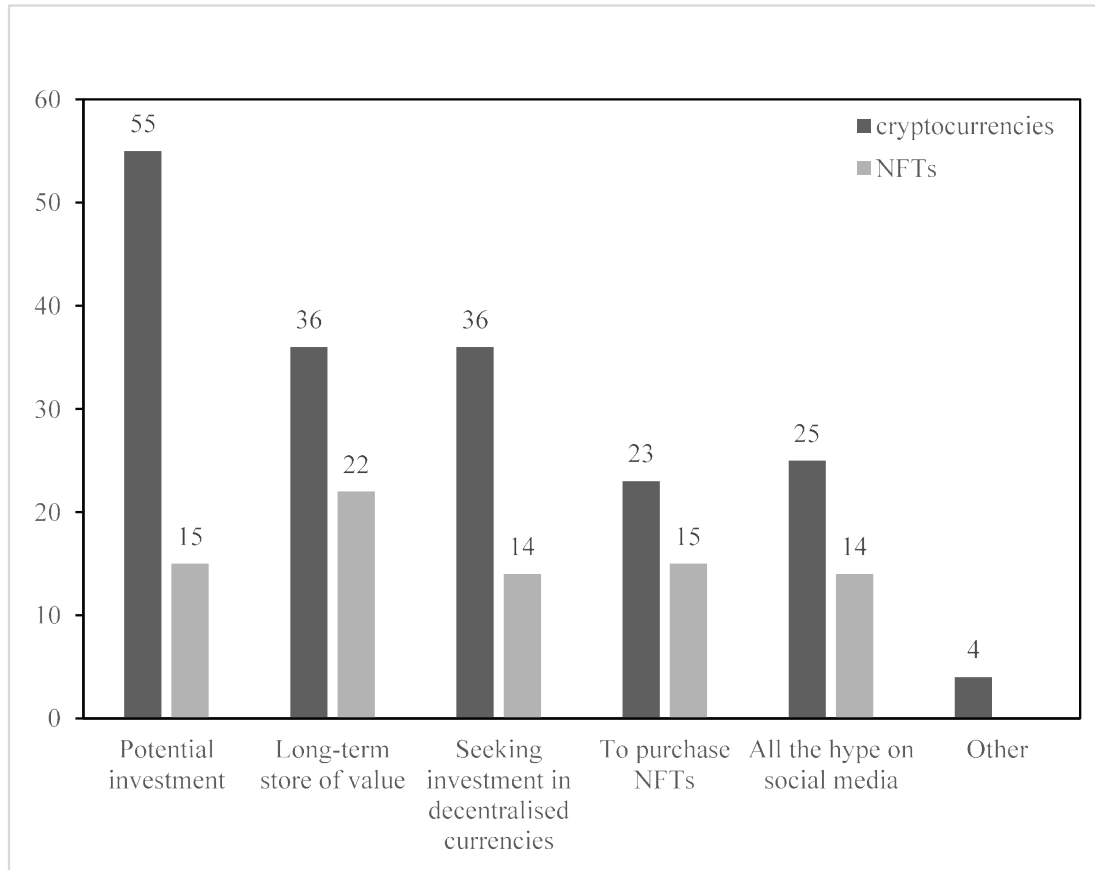
The reported motivation to buy or hold cryptocurrencies was as a potential investment (n=55) or 88.7%. An equal number of the participants (n=36, 58.1%) stated that they were drawn to cryptocurrencies as a long-term-store of value and because they were seeking investments in decentralised currencies. At the same time, 40.3% of participants (n=25) claimed that all the hype on social media triggered their purchase intention. Regarding reasons for buying NFTs, long-term store of value was the most pronounced reason, accounting for 35.5% (n=22), followed by 24.2% (n=15) as a potential investment and equally 22.6% (n=14) sought NFTs because of its decentralisation and all the hype on social media (see Figure 3).

Regarding the purchase of NFTs attributed to 'All the hype on social media', educational level differences were identified ($P = .005$), with Fisher's Exact Test revealing that a significantly larger proportion of participants had a university degree (n=13, 21.0%) than those with non-university degrees or diplomas (n=1, 1.6%).

When surveying how finance apps impacted participants' financial situation, many participants (n=33, 53.2%) agreed that finance apps give them greater control over their finances, followed by 26 participants (41.9%) who think that finance apps 'gives me the ability to meet my financial goals' and 24 participants (38.7%) who maintain that finance apps 'gives me greater financial freedom to make choices to enjoy life'. About 19.4% of participants (n=12) believe that finance apps provide the ability to absorb a financial shock.



Figure 3: The potential opportunities provided by cryptocurrencies or NFTs.



Limitations

Our study had a small sample size (n=62). Our survey was with Indigenous Australians who own cryptocurrencies and/or NFTs. Indigenous Australians who do not own cryptocurrencies and/or NFTs were screened out. We, therefore, cannot draw any conclusion as to the financial decision-making of Indigenous Australians who do not own cryptocurrencies and/or NFTs, nor can we make conclusions about differences from the participants of this survey.

Implications from this research

The findings from this research differed from those reported (Roy Morgan 2022; Steinmetz et al. 2021; Wcion 2019) with regards to gender, as our study had more female participants owning cryptocurrencies and/or NFTs than males. However, typically, females complete surveys at higher levels than males. Our findings were also similar to those reported in the above-cited studies, with most participants of our study also working full-time and owning their own home (assuming higher incomes) as well as being university-educated. Our study also identified that Indigenous peoples do purchase alternative financial products, including cryptocurrencies and NFTs, which has not been widely reported.

We found that there remains to be opportunities to further educate Indigenous peoples about storing cryptocurrencies and/or NFTs, including the importance of not sharing private keys. Further opportunities exist based on mathematics, which are related to doing quick maths



to calculate return on investments and understand the tax implications of buying and selling cryptocurrencies. Both above-mentioned areas to provide further education also align with findings from non-Indigenous Australians who own cryptocurrencies and/or NFTs (Blue et al. 2024). With educational institutions identified as the last place, Indigenous peoples learned about crypto and NFTs. This finding points to an urgent need to include alternative financial products and services in financial literacy education curricula.

We see an opportunity here for compulsory schools, vocational schools, universities, and/or financial planners to fill this gap by educating people about alternative digital forms of financial products and services to help prevent the loss of investments and exploitation through scams. Demystifying the process of owning, storing, and selling cryptocurrencies and NFTs will help to prevent exploitation. Topics such as protecting your investments (holding your keys in the case of Bitcoin), offering refreshers on how to calculate returns on investments, and calculating the tax implications for buying and selling cryptocurrencies and NFTs are needed.

Future research

We suggest that future research is needed to understand Indigenous Australian's interest in cryptocurrencies and NFTs. This could include a larger data set of participants, comparative studies, additional demographic data captured (e.g. income) and/or qualitative research to further contextual individual's interest (or lack of interest) in cryptocurrencies and NFTs.

Conclusion

In this paper, we shared why Indigenous communities have been reported to be interested in cryptocurrencies and NFTs in Canada, the US and Australia. We then shared the findings from our survey with 62 Indigenous Australians about the challenges and opportunities participants identified when owning cryptocurrencies and/or NFTs. The findings revealed that Indigenous Australians have strong reasons for seeking alternative investments. There are opportunities for further strengthening knowledge about cryptocurrencies and NFTs through increased offerings in educational settings and by advice providers, including financial planners whom some participants sought advice from on cryptocurrencies and/or NFTs.

Acknowledgements

The authors would like to acknowledge the funding received from Queensland University of Technology's Early Career Researcher Scheme.

References

Aït-Sahalia, Y, Andritzky, J, Jobst, A, Nowak, S & Tamirisa, N 2012, 'Market response to policy initiatives during the global financial crisis', *Journal of International Economics*, vol. 87, no. 1, pp. 162-177.



Alcantara, C & Dick, C 2017, 'Decolonization in a digital age: cryptocurrencies and indigenous self-determination in Canada', *Canadian Journal of Law and Society/La Revue Canadienne Droit et Société*, vol. 32, no. 1, pp. 19-35.

Allen, DE, Boffey, R & Powell, RJ 2011, *Peas in a pod: Canadian and Australian banks before and during a global financial crisis*, SSRN, retrieved from <https://ssrn.com/abstract=1884084> or <http://dx.doi.org/10.2139/ssrn.1884084>.

Anti-Discrimination Commission Queensland 2017, *Aboriginal people in Queensland: a brief human rights history*, retrieved from https://www.qhrc.qld.gov.au/__data/assets/pdf_file/0013/10606/Aboriginal-timeline-FINAL-updated-25-July-2018.pdf.

Bandara, A 1986, *Social foundations of thought and action: A social cognitive theory*, National Institute of Mental Health, Prentice-Hall, Inc.

Bickers, K 2020, *Bitcoin clarity: The complete beginners guide to understanding*, Bickers & Sons.

Blue, LE, Xing, C & Pham, T 2024, 'Cryptocurrencies: Who's vulnerable and what are the vulnerabilities?', *Australia Journal of Social Issues* (in press).

Butler, B 2021, 'Banking Royal Commission: Most recommendations have been abandoned or delayed', *The Guardian*, 19 January, retrieved from <https://www.theguardian.com/australia-news/2021/jan/19/banking-royal-commission-most-recommendations-have-been-abandoned-or-delayed>.

Caswell, E, Hewkin Smith, M, Learmonth, D & Pearce, G 2020, 'Cash in the time of Covid (Q4)', *Quarterly Bulletin*, Bank of England.

CoinMarketCap 2023, *Today's cryptocurrency prices by market cap*, retrieved 5 January 2023 from <https://coinmarketcap.com/>.

Cordes, A 2022, 'Storying Indigenous cryptocurrency: reckoning with the ghosts of US settler colonialism in the cultural economy', *Journal of Cultural Economy*, viewed 12 June 2024, <https://doi.org/10.1080/17530350.2022.2110924>.

Crandall, J 2019, 'Blockchains and the "chains of empire": Contextualizing blockchain, cryptocurrency, and neoliberalism in Puerto Rico', *Design and Culture*, vol. 11, no. 3, pp. 279-300.

Cross, J 2022, 'Indigenous entrepreneur's start-up to help artists gain fair payment', *National Indigenous Times*, retrieved from <https://nit.com.au/15-03-2022/2801/indigenous-entrepreneurs-start-up-to-help-artists-gain-fair-payment>.

Dallin, S 2017, 'Cryptocurrencies as market singularities: the strange case of Bitcoin', *Journal of Cultural Economy*, vol. 10, no. 5, pp. 462-473.

Farell, R 2015, *An analysis of the cryptocurrency industry*, retrieved from https://repository.upenn.edu/cgi/viewcontent.cgi?article=1133&context=wharton_research_scholars.

Faria, I 2019, 'Trust, reputation and ambiguous freedoms: financial institutions and subversive libertarians navigating blockchain, markets, and regulation', *Journal of Cultural Economy*, vol. 12, no. 2, pp. 119-132.



- Columbia, D 2016, *The politics of Bitcoin: Software as right-wing extremism*, University of Minnesota Press.
- Gupta, S, Keen, M, Shah, A & Verdier, G 2018, 'Public finance goes digital', *Finance & Development*, vol. 55, no. 1, pp. 12-15.
- Hill, RP 2001, *Surviving in a material world: The lived experience of people in poverty*, University of Notre Dame Press, Notre Dame, IN.
- Houlbrook-Walk, M 2022, 'Indigenous artists from East Arnhem Land venture into billion-dollar NFT digital marketplace', *Australian Broadcast Corporation*, retrieved from <https://www.abc.net.au/news/2022-03-21/yolngu-artists-yirrkalá-nfts/100916188>.
- Howson, P 2020, 'Climate crises and crypto-colonialism: Conjuring value on the Blockchain frontiers of the global South', *Frontiers in Blockchain*, vol. 3, pp. 1-6, retrieved from <https://doi.org/10.3389/fbloc.2020.00022>.
- International Monetary Fund, n.d., *The end of the Bretton Woods system (1972-81)*, retrieved from <https://www.imf.org/external/about/histend.htm>.
- Jutel, O 2022, 'Blockchain humanitarianism and crypto-colonialism', *Patterns*, vol. 3, no. 1, pp. 1-8, retrieved from [https://www.cell.com/patterns/pdf/S2666-3899\(21\)00305-6.pdf](https://www.cell.com/patterns/pdf/S2666-3899(21)00305-6.pdf).
- Lagarde, C 2018, 'Central banking and fintech—a brave new world?', *Innovations: Technology, Governance, Globalization*, vol. 12, no. 1-2, pp. 4-8.
- Lo, K, Liu, F & Huang, J 2021, 'OneFeather mobile wallet: a digital solution for Indigenous peoples in Canada?', *Accounting Perspectives*, vol. 20, no. 3, pp. 403-419.
- Lopes, DS 2022, 'The common places of alternative finance: assemblages, stoppages, and the political mobilisation of space', *Journal of Cultural Economy*, vol. 15, no. 1, pp. 103-120.
- Menzel Baker, S, Gentry, JW & Rittenburg, TL 2005, 'Building understanding of the domain of consumer vulnerability', *Journal of Macromarketing*, vol. 25, no. 2, pp. 128-139.
- Ndung'u, NM, Armando, N & Ndirangu, L 2016, 'Cashing in on the digital revolution', *Finance & Development*, retrieved from <https://www.imf.org/external/pubs/ft/fandd/2016/06/ndungu.htm>.
- Pallant, J 2020, *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (5th ed.), Routledge.
- Palmer-Derrien, S 2022, 'How this Indigenous-led startup is using NFTs to help artists get a better deal', *SmartCompany*, retrieved from <https://www.smartcompany.com.au/startupsmart/news/provvy-indigenous-led-startup-nft-art/>.
- Penáloza, L 1995, 'Immigrant consumers: Marketing and public policy considerations in the global economy', *Journal of Consumer Research*, vol. 31, December, pp. 441-454.
- Rogers, S 2011, 'Occupy protests around the world: full list visualised', *The Guardian*, retrieved from <https://www.theguardian.com/news/datablog/2011/oct/17/occupy-protests-world-list-map>.
- Roy Morgan 2022, 'Over 1 million Australians now own Cryptocurrencies such as Bitcoin, Ethereum, Ripple, Cardano, Dogecoin and Shiba Inu', *Finding No. 8929*, retrieved from <https://www.roymorgan.com/findings/over-1-million-australians-now-own-cryptocurrencies-such-as-bitcoin-ethereum-ripple-cardano-dogecoin-and-shiba-inu>.



Ryan-Mosley, T 2022, 'He created an Indigenous digital currency. The dream is still alive', *Technology Review*, retrieved from <https://www.technologyreview.com/2022/04/27/1049573/mazacoin-indigenous-digital-currency/>.

Schneider, N 2019, 'Decentralization: an incomplete ambition', *Journal of Cultural Economy*, vol. 12, no. 4, pp. 265-285.

Sharma, R 2023, 'Non-Fungible Token (NFT): What It Means and How It Works', *Investopedia*, retrieved from <https://www.investopedia.com/non-fungible-tokens-nft-5115211>.

Smith, NC & Copper-Martin, E 1997, 'Ethics and target marketing: The role of product harm and consumer vulnerability', *Ethics and Target Marketing*, vol. 61, July, pp. 1-20.

Steinmetz, F, von Meduna, M, Lennart, A & Fiedler, I 2021, 'Ownership, uses and perceptions of cryptocurrency: Results from a population survey', *Technological Forecasting & Social Change*, vol. 173(C), retrieved from <10.1016/j.techfore.2021.121073>.

Tapscott, D & Tapscott, A 2016, *Blockchain revolution: how the technology behind bitcoin is changing money, business, and the world*, Penguin.

Truth and Reconciliation Commission 2015, *Honouring the truth, reconciling for the future. Summary of the Final Report of the Truth and Reconciliation Commission of Canada*, retrieved from <https://nctr.ca/about/history-of-the-trc/trc-website/>.

Vaart van de, S 2018, *Centralised Regulation of Decentralised Money*, Radboud University Nijmegen, Netherlands, retrieved from <https://theses.ubn.ru.nl/server/api/core/bitstreams/37f11ed9-8a5e-4f58-ad86-2b6fb99703fd/content>.

Vandervort, D, Gaucas, D & Jacques, RS 2015, 'Issues in designing a bitcoin-like community currency', *Financial Cryptography and Data Security: FC 2015 International Workshops, BITCOIN, WAHC, and Wearable, San Juan, Puerto Rico, January 30 2015, Revised Selected Papers*.

Wciom 2019, *Cryptocurrencies: After the hype*, retrieved from <https://wciom.ru/index.php?id=236&uid=9646>.

Wray, LR 2012, *Introduction to an Alternative History of Money*, Levy Economics Institute Working Paper No. 717, retrieved from <https://www.econstor.eu/bitstream/10419/79469/1/715291335.pdf>.

Ziffer, D 2021, 'Banking Royal Commission recommendations flounder, two years on', *ABC News*, retrieved from <https://www.abc.net.au/news/2021-02-04/banking-royal-commission-hayne-final-report-two-years-on/13110938>.



Appendix 1: Survey Questions

Developing financially capable citizens in an era of finance apps and cryptocurrencies

Screening questions:

1. What is your age range?
 - a. Under 18 (Survey ends)
 - b. 18 – 24
 - c. 25 – 34
 - d. 35 – 44
 - e. 45 – 54
 - f. 55 – 64
 - g. 65 or above
2. Have you ever bought cryptocurrencies, non-fungible tokens (NFTs), and/or used finance apps such as banking apps, buy now pay later, investing apps, etc.? (Please select 'yes' for all options if applicable.)
 - a. Yes to cryptocurrencies (go to cryptocurrencies questions and NFTs and finance apps questions will not be displayed. If this option is NOT chosen, the survey will end.)
 - b. Yes to NFTs (go to cryptocurrencies and NFTs questions)
 - c. Yes to finance apps (go to finance apps questions)
 - d. No to all (survey ends)

Note: If both option a, b and c are selected, NFTs, cryptocurrencies and finance apps questions will be displayed.
3. How do you define your living situation?
 - a. Living on my own (skip to question 7).
 - b. Living with others (then ask question 4, 5, & 6 below).
 - c. Prefer not to say (then ask question 4, 5, & 6 below).

Note: Only ask Q4, 5, and 6 if b or c is selected in Q3.
4. Do you share your financial decision-making and/or finances with someone else?
 - a. Yes (go to Question 5)
 - b. No (go to cryptocurrencies or finance apps questions depend on which option participant chose in Question 2)
 - c. Prefer not to say (go to cryptocurrencies or finance apps questions depend on which option participant chose in Question 2)
5. Who do you share your financial decision-making and/or finances with?
 - a. Spouse (go to question 6)
 - b. Partner (go to question 6)



- c. Other (please specify): _____ (go to cryptocurrencies or finance apps questions depend on which option participant chose in Question 1)
- d. Prefer not to say (go to cryptocurrencies or finance apps questions depend on which option participant chose in Question 1)
6. Who purchased and/or uses the: _____?

	I did	My spouse/partner did	Both of us have	Other	Prefer not to say
NFTs					
Cryptocurrencies					
Finance apps					

- *NFTs option only appears if participant chose "Yes to NFTs" in Q2*
- *Cryptocurrencies option only appears if participant chose "Yes to cryptocurrencies" in Q2*
- *Finance apps option only appears if participant chose "Yes to finance apps" in Q2*

Questions about Cryptocurrencies

7. What cryptocurrency(ies) do you currently hold/own? (Please select all that apply.)
- Bitcoin
 - Ethereum
 - Binance Coin
 - Cardano
 - Solana
 - Other (please specify): _____
8. How did you acquire cryptocurrencies? (Please select all that apply.)
- Purchased off an exchange
 - Received from someone
 - Selling items in video games
 - Other (please specify): _____
9. What made you want to buy/hold: _____? (Please select all that apply.)

	Potential investment	Long-term store of value	Seeking investment in decentralised currencies	To purchase NFTs	All the hype on social media	Other	Prefer not to say
Cryptocurrencies							
NFTs							

- *NFTs option only appears if participant chose "Yes to NFTs" in Q2*

10. Where do you store your: _____? (Please select all that apply.)

	Software wallet (including mobile, desktop and web)	Hardware wallet	On the exchange	Other	Not sure	Prefer not to say
Cryptocurrencies						
NFTs						

- *NFTs option only appears if participant chose "Yes to NFTs" in Q2*



11. Do you have any concern about the storage of your: _____?

	Yes	No
Cryptocurrencies		
NFTs		

- *NFTs option only appears if participants chose "Yes to NFTs" in Q2*
- *If yes is selected, then Q12 will be asked:*

12. What are your concerns related to?

- Cryptocurrencies: _____
- NFTs: _____

**NFTs option only appears if participant chose "Yes to NFTs" in Q2*

13. Have you ever lost your: _____ due to storage issues?

	Yes	No	Prefer not to say
Cryptocurrencies			
NFTs			

- *NFTs option only appears if participants chose "Yes to NFTs" in Q2*
- *If yes is selected, then Q22 will be asked:*

14. How much did you lose?

	Under \$1000	Over \$1000	Prefer not to say
Cryptocurrencies			
NFTs			

15. How would you rate your technology skills?

	Below average	Average	Above average	Prefer not to say	N/A
NFTs					
Purchasing, selling and storing cryptocurrencies					
Finance apps					

- *NFTs option only appears if participant chose "Yes to NFTs" in Q2*
- *Finance apps option only appears if participant chose "Yes to Finance apps" in Q2*

16. Have you ever sought financial advice about cryptocurrencies?

- Yes
- No
- Not sure
- Prefer not to say

17. Have you ever sought financial advice about investments including superannuation?

- Yes
- No
- Not sure
- Prefer not to say



18. What is the total value of the _____ you own?

	Less than \$1000	Between \$1000 - \$4,999	Between \$5,000 - \$9,999	Between \$10,000 - \$49,999	Over \$50,000	Prefer not to say
Cryptocurrencies						
NFTs						

- *NFTs option only appears if participants chose "Yes to NFTs" in Q2*

19. Do you believe the saying "not your keys, not your coins"?

- Yes
- No
- Not sure
- Prefer not to say

20. If Bitcoin was worth \$40,000 when you purchased and 12 months later it was worth \$80,000. How much has Bitcoin increased by?

- 2000%
- 200%
- 50%
- 20%
- Not sure
- Prefer not to say

21. Is it true that selling your cryptocurrencies will result in a taxable event (i.e., capital gains or capital loss that needs to be reported to the Australian Taxation Office)?

- True
- False
- Not sure
- Prefer not to say

22. Have you ever sold your cryptocurrency?

- Yes
 - Why did you sell your cryptocurrency? (Please select all that apply.)
 - Because I made a profit
 - Because I made a loss
 - Because I needed the money
 - Because I wanted to buy a different cryptocurrency
 - Other (please specify):

- No

23. Did you pay capital gains taxes on the sale of your cryptocurrencies?

- Yes
- No



c. Not sure

d. Other (please specify): _____

e. Prefer not to say

24. Select the statement that best describe your plans with your: _____. (Please select all that apply.)

	Long-term investment	Short-term investment	Continuing to acquire more cryptocurrencies	No plans to buy anymore	Planning on selling soon	None of the above are relevant to me	Other	Prefer not to say
Cryptocurrencies								
NFTs								

• *NFTs option only appears if participant chose "Yes to NFTs" in Q2*

25. Who do you discuss: _____ with? (Please select all that apply.)

	Friends/ Colleagues	Family/ Partner			Online communities	Other	Prefer not to say
Cryptocurrencies							
NFTs							

• *NFTs option only appears if participant chose "Yes to NFTs" in Q2*

26. Have you ever been approached by someone offering unsolicited advice and/or investments relating to cryptocurrencies?

a. Yes

i. How did they contact you? (Please select all that apply.)

1. Email

2. Text

3. Phone

4. Direct messages (DM)

5. Other (please specify):

b. No

Questions about finance apps

27. What finance apps do you use? (Please select all that apply) (this question will NOT be displayed if Q6 – the option 'My spouse/partner did' is selected)

a. Banking apps

b. Investing

c. Budgeting

d. Buy now, pay later

e. Wages advance

f. Other (please specify):



28. Select the statement that best describe how finance apps impacted your financial situation. (Please select all that apply.)

- a. Finance apps give me greater control over my financial future
- b. Provide me with the ability to absorb a financial shock
- c. Give me greater financial freedom to make choices to enjoy life
- d. Give me the ability to meet my financial goals
- e. None of the above are relevant to me
- f. Prefer not to say

29. How did you learn about: _____? (Please select all that apply.)

	Social media	School/TAFE/ University	Family or friends	Financial Planner/Advisor	Other	Prefer not to say
NFTs						
Cryptocurrencies						
Finance apps						

- If social media option is selected, then Q29 will be asked:

30. Which social media platforms did you learn about: _____? (Please select all that apply.)

	Tiktok	YouTube	Twitter	Instagram	Facebook	LinkedIn	Other
NFTs							
Cryptocurrencies							
Finance apps							

- *NFTs option only appears if participant chose "Yes to NFTs" in Q2*
- *Cryptocurrencies option only appears if participant chose "Yes to cryptocurrencies" in Q2*
- *Finance apps option only appears if participants chose "Yes to finance apps" in Q2*

Questions about NFTs, cryptocurrencies and finance apps

31. Where would you recommend someone interested in learning more about: _____ go?

- NFTs: _____
- Cryptocurrencies: _____
- Finance apps: _____

32. How do you prefer to learn about NFTs, cryptocurrencies and/or finance apps? (Please select all that apply)?

- a. Online videos/courses
- b. Social media platforms on:
 - 1. Tiktok
 - 2. YouTube
 - 3. Twitter
 - 4. Instagram
 - 5. Facebook
 - 6. LinkedIn
 - 7. Other (please specify): _____



- c. School/ TAFE/ University
- d. Financial planner/advisors
- e. Other (please specify):

Demographic questions

33. What is your gender?
- a. Male
 - b. Female
 - c. Non-binary
 - d. Other
 - e. Prefer not to say
34. Do you identify as:
- a. Aboriginal
 - b. Torres Strait Islander
 - c. Aboriginal and Torres Strait Islander
 - d. Neither Aboriginal or Torres Strait Islander
 - e. Prefer not to say
35. Are you currently employed?
- a. Yes - Full time (go to Q35)
 - b. Yes - Part time and/or casually (go to Q35)
 - c. No (go to Q34)
 - d. Prefer not to say (go to Q34)
36. Are you currently studying?
- a. Yes – Full time
 - b. Yes – Part time and/or casually
 - c. No
 - d. Prefer not to say
37. What is your highest level of education?
- a. Some high school
 - b. High school
 - c. TAFE
 - d. University
 - e. Other (please specify)
38. What is the postal code where you live?
- _____



39. Do you currently_____?
- a. Own your home with a mortgage
 - b. Own your home without a mortgage
 - c. Rent your home
 - d. Other (please specify): _____
 - e. Prefer not to say
40. Do you speak another language at home other than English?
- a. Yes (please specify the language):
 - b. No
 - c. Prefer not to say

End of Survey