Understanding the Attributes of Trust in Cryptocurrencies

Exploring the Intersection of Centralized Actors and Decentralized Technology

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Exploring the Intersection of Centralized Actors and Decentralized Technology

Understanding the Attributes of Trust in Cryptocurrencies and the Role of Exchanges

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Foreword

I first heard about Bitcoin in 2014, and I remember laughing mockingly when I heard stories about people losing everything. “How could they be this stupid” I asked myself. Now, almost 10 years later, I have finally done my research on what the technology is all about and how it works, and I do understand the early interest. However, I doubt mass adaptation is reached only when the general public can explain what a node, hash, consensus and proof-of-stake is.

These were the initial thoughts when starting the thesis process and the research process to be an opportunity for me to really understand what drove people to invest and accept cryptocurrencies without knowing anything about the technology, and whether mass adaptation is possible without technical skills and knowledge. This thesis has not only provided me with valuable insight to answer these questions, it has given me insight into the dynamics of an emerging technology and the uncertainty experienced by the actors involved.

This project would not have been possible without the help of my supervisor, Dennis Gan, and all participants contributing with data, guiding me through the process, and referring me to other industry experts. As my expertise concerning cryptocurrencies foom a Norwegian angle was limited, their help has been essential in the development of this thesis. I am so thankful for the generous sharing of competence, experiences and literature and appreciate their engagement in my project.

Abstract

Trust plays a crucial part in the adaptation of cryptocurrencies. Most research on trust in cryptocurrencies builds on the Technology Acceptance Model (TAM) concerning blockchain technology or external attributes to trust, such as interpersonal trust and social influence. This paper aims to assess the intersection between cryptocurrencies and centralized cryptocurrency exchanges and whether centralizing the accessibility of cryptocurrencies contributes to the trust. This paper suggests that cryptocurrency exchanges have played a crucial role in enabling cryptocurrencies by simplifying the customer journey. The cryptocurrency market has long been plagued by a lack of trust, but with the implementation of improved regulatory conditions, unscrupulous actors can be effectively identified and filtered out. This, in turn, will enable legitimate actors and innovative technologies and offer secure and empowering services for cryptocurrency trading.

Table 1

Key terms

Term	Explanation
Altcoin	All cryptocurrencies other than Bitcoin (Frankenfield, 2022)
Bitcoin	Bitcoin is a cryptocurrency that was introduced to the public in 2009 by an anonymous developer or group of developers using the name Satoshi Nakamoto. (Jackson, 2022)
Blockchain	A blockchain is a distributed database that maintains a continuously growing list of ordered records, called blocks. These blocks are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data. A blockchain is a decentralized, distributed and public digital ledger that is used to record transactions across many computers so that the record cannot be altered retroactively without the alteration of all subsequent blocks and the consensus of the network. (Synopsis, 2022)
Central Bank Decentralised Currency (CBDC)	CBDCs are digital currencies issued by central banks. Their value is linked to the issuing country's official currency. (McKinsey & Company, 2023)
Centralisation	Centralization refers to the process in which activities involving planning and decision-making within an organization are concentrated to a specific leader or location. (Corporate Finance Institute, 2023)
Commodity-backed money	Currency being used in a nation can be directly exchanged for a specific commodity, such as the

	USD is backed by gold until 1979 (Beggs, 2018)
Credibility	The quality that somebody/something has that makes people believe or trust them. (Oxford Learners Dictionaries, 2023)
Cryptocurrencies	Cryptocurrencies are like money - they can be considered as units of account, store of value and medium of exchange within the system- and can transfer actual value digitally without a central third party. They allow for low-cost, nearly instantaneous, borderless, peer-to-peer transfers. They are not subject to the business hours of mainstream financial institutions. (Frankenfield, 2022)
Cryptocurrency exchange	Platforms that facilitate the trading of cryptocurrencies for other assets, including digital and fiat currencies. (Loo, 2023)
Decentralisation	The distribution of functions, control and information instead of centralizing them in a single entity. The term is used in numerous sectors and industries, from information technology to retail and government. It also denotes a system that has multiple paths for information to flow. (Patrizio, 2023)
Decentralized finance	Decentralized finance (DeFi) builds on distributed ledger technologies (DLT) to offer services such as trading, lending and investing without using a traditional centralized intermediary. (Auer et al., 2023)

Depeg	A depeg is when a cryptocurrency, such as a stablecoin – a cryptocurrency whose value is tied to that of an underlying asset, such as another currency or resource — becomes worth less or more than its pegged asset (OpenCover, 2023).
Fiat currency	Fiat currency values are guaranteed by the government that issues the money, and the government can control the supply of money in circulation in response to economic fluctuations (Wigmore, 2018).
Native token	Native tokens are the foundational tokens of a cryptocurrency blockchain designed to function directly with the blockchain (Jackson, 2022)
Snowball effect	A situation in which something increases in size or importance at a faster and faster rate. (Cambridge Dictionary, 2023.)
Speculations	Engagement in business transactions involves considerable risk but offers the chance of large gains, especially trading in commodities, stocks, etc., in the hope of profit from changes in the market price. (Dictionary.com, 2023.)
Stable coin	Any cryptocurrency designed to have a relatively stable price, typically through being pegged to a commodity or currency or having its supply regulated by an algorithm (Oxford Languages, 2023.)

Trust	The degree to which a user or other stakeholder has confidence that a product or system will behave as intended (ISO - International Organization for Standardization, 2011)

1. Introduction

It is argued that cryptocurrencies have the potential to revolutionize the financial system, yet trust is a critical factor in adopting cryptocurrencies (Sousa et al., 2022). As for any new technology, reliability, capability, and helpfulness correlate with trust (McKnight et al., 2009). Consequently, our understanding of trust in cryptocurrencies could be determined by the belief that the specific technology will consistently operate properly, has the capability, functionality, or features to do for one what one needs to be done, and provides adequate and responsive help for users (McKnight et al., 2009, p. 3).

Although cryptocurrencies, at their core, are just a technology, more attention has been drawn to the social influences and interpersonal trust affecting the adaptation of cryptocurrencies (Jalan et al., 2022; Alaklabi & Kang, 2018). Social factors, such as family, friends, and community, influence an individual's perception of cryptocurrencies. Despite the growing interest in attributes to trust in cryptocurrencies, little attention has been given to institutions enabling crypto trading to a broader audience.

Emerging technologies, such as cryptocurrencies, are evolving at a rapid pace and regulatory bodies and authorities are not able to keep up. Technology and regulatory authorities are facing a pacing-problem, where "existing regulatory systems and ethical frameworks are inadequate to provide effective, meaningful and timely oversight of the current and future generations of emerging technologies." ("Addressing the Pacing Problem," 2011, 199). As technology is out-pacing regulatory frameworks and law, the current regulatory approach will not meet the demands to best protect citizens, ensure fair markets, and enforce regulations, while allowing these new technologies and businesses to flourish (Berthelsen et al., 2023; Eggers et al., 2018)

When Uber was introduced in 2009, they faced regulatory issues, as the newly introduced "ride-sharing" did not fit under the existing regulations and laws considering the taxi industry (Crespo, 2016). The same dilemma can be extracted to cryptocurrencies and law and regulations within traditional finance. Addinitinally, the global open market of cryptocurrencies, enables the total crypto market to grow beyond 1,1 trillion UDS (Slickcharts, 2023). Uber is stabilizing due to new regulations, but the current state of cryptocurrencies is still somewhat unclear. Cryptocurrency enablers, such as cryptocurrency exchanges, are still not sufficiently regulated and the collapse of one of the major actors,

FTX, brought attention to centralized actors providing trust in the industry and how industry experts are working as ambassadors in providing trust, rather than regulatory authorities.

This qualitative study examines the attributes of trust in cryptocurrencies and how cryptocurrency exchanges play a role in the trust and adaptation of an emerging technology. This paper builds on previous papers on trust in cryptocurrencies.

1.1 Motives of Study

Cryptocurrencies have reached most people's attention, and there is not a lack of opinions about digital assets. The media keeps telling stories about people gaining a fortune overnight and losing it simultaneously. Cryptocurrencies are known to carry significant risks and potential for great reward. Investors are obsessed with the hype of cryptocurrencies, and few want to miss the opportunity of potentially making a good investment.

With more than 190 million cryptocurrency owners worldwide (*TripleA*, 2023), the digital asset is getting closer to reaching the point of mass adoption. Nevertheless, the trust breaches experienced by the industry are plentiful. Arguments about cryptocurrencies used to finance terrorism, human trafficking, and money laundering (*UNODC'*, 2017) reinforce this perception.

In November 2022, one of the largest cryptocurrency exchanges, FTX, collapsed. The collapse raises the question of how such a big player could attain trust in the industry and how the breach affected the whole industry.

Additionally, during the summer of 2022, I spent ten weeks in San Francisco interning at a venture capital firm, investing in blockchain startups. During my stay, I tried to understand what investors believed in when investing in blockchain technology and cryptocurrencies, but I am still searching for a satisfying answer.

1.2 Background information

1.2.1 What are cryptocurrencies?

Cryptocurrencies are digital money, based on blockchain technology (Howard et al., 2023). It allows for nearly instantaneous money transfers without needing a third party as it is a decentralized, peer-to-peer network. Furthermore, blockchain’s underlying technology seems

to exceed the potential of just digital money, as it is proven valuable in transparency, security, and ease of transaction (Nibley, 2022). Some of the most well-known cryptocurrencies include Bitcoin, Ethereum, and Litecoin.

Cryptocurrencies can be backed by fiat currencies, other cryptocurrencies, or other assets. In contrast, Ethereum – and most other popular cryptocurrencies – are only supported by the technology behind them (Royal & Beers, 2022). With no value backing the currency, consumers depend solely on the underlying technology to valuate the digital asset. Given the highly fluctuating value, however, the underlying technology might not be the only contributor to trust in cryptocurrencies.

1.2.2 Cryptocurrencies in Norway

From an European perspective, Norway was the most optimistic country confident in the future of cryptocurrency, where 73% believed that cryptocurrencies will still exist in 10 years. However, 11% of Norwegians would buy cryptocurrency if there were easier ways to do so, indicating that buying cryptocurrencies for the first time is still a challenging process (Bitspace, 2019).

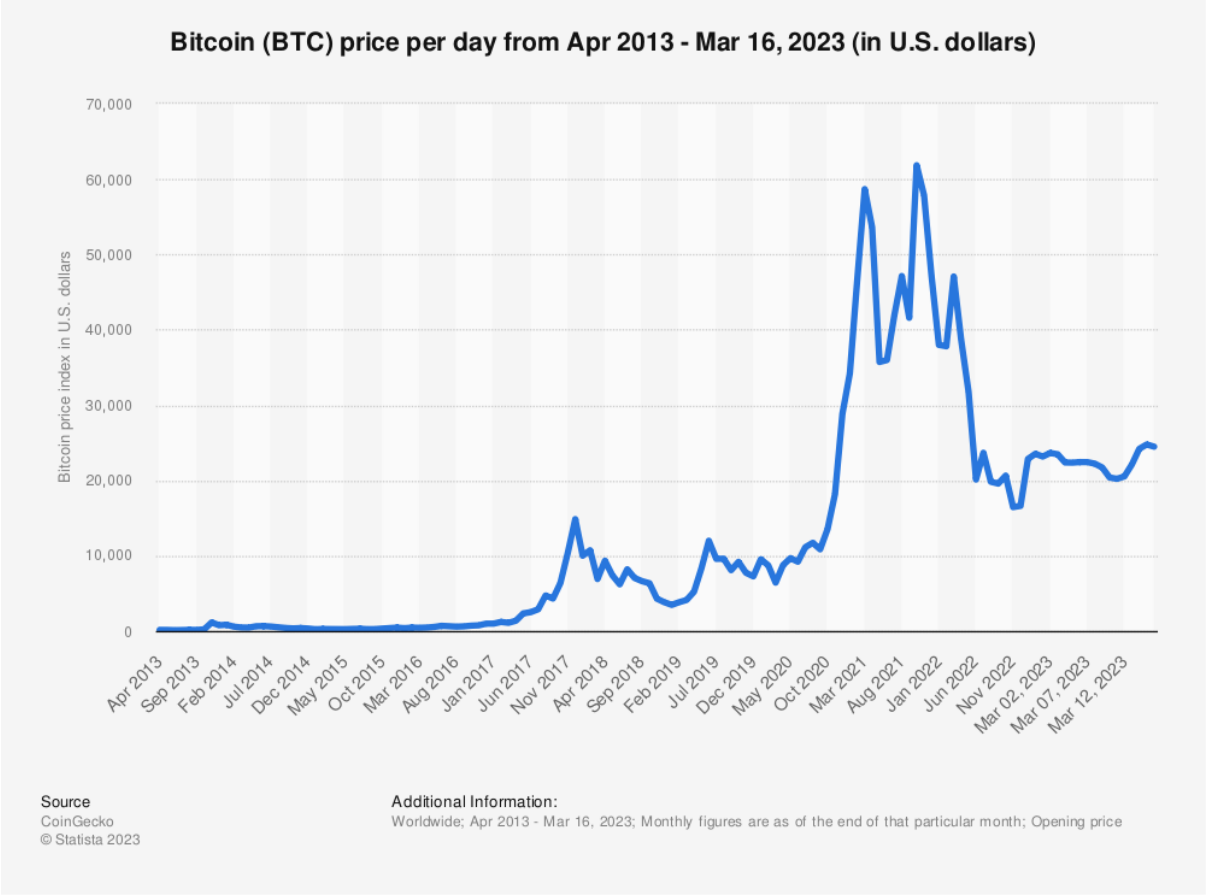
From 2022-2023 the number of Norwegian crypto owners decreased with 75,000 and it is estimated that 345,000 Norwegians owned cryptocurrency as of March 2023. Despite the decreasing trend, Norwegians are increasingly using more advanced products and services within cryptocurrency such as cryptocurrency exchanges. 16% of all crypto owners state that they have used DeFi products. This is an increase of 6% from last year, and 15% of all trading from Norway is carried out on cryptocurrency exchanges. (K33 Research & EY, 2023)

1.2.2 A Brief Summary of Breaches of Trust in Cryptocurrencies

Bitcoin was introduced in 2009 by an anonymous developer or group of developers called Satoshi Nakamoto (CoinTelegraph, 2023.) and was the first-ever cryptocurrency. As of March 2023, the number of existing cryptocurrencies exceeded 22 900 (Howarth, 2023), referred to as altcoins. This number indicates the worldwide interest in digital assets. However, the market has had its ups and downs since its introduction in 2008. Figure 1. shows the historical price of Bitcoin from 2013 - March 2023.

Figure 1

Graph showing historical Bitcoin prices from Apr 2013 - Mar 16



Note. Bitcoin (BTC) price per day from April 2013 - March 16, 2023 (in U.S. dollars). From CoinGecko. Copyright Statista 2023

Though the price of Bitcoin and other altcoins might be independent, the value of an altcoin is frequently evaluated based on the price of Bitcoin. Therefore, if Bitcoin experiences a decrease, the value of altcoins may also decrease, and conversely, if Bitcoin increases, the value of altcoins may also increase. (Bornstein, 2015).

1.2.2 The FTX Collapse and Cryptocurrency Price

"Look, I screwed up" - Sam Bankman-Fried (Gandel, 2022)

Sam Bankman-Fried (SBF) could be considered one of the leading cryptocurrency profiles, with once an estimated net worth of over $26 billion, making him the world's youngest crypto billionaire (Miller, 2023). Furthermore, he was regarded as a thought leader and advocated for cryptocurrency's global adoption and advancement. He earned the respect of

regulators and was recognized by mainstream media outlets such as CNBC (Conklin, 2022) and the New York Times (Yaffe, 2022) for his success in navigating market downturns and for bailing out insolvent lenders like Blockfi, leading to him being hailed as a savior of the cryptocurrency industry (Miller, 2023). This is up until November 2022.

FTX is a cryptocurrency exchange founded by Sam Bankman-Fried in May 2019, after running Alameda Research, a cryptocurrency trading firm, since 2017. FTX's public downfall started November 2, when CoinDesk, a cryptocurrency news site, reported a leaked balance sheet showing that Alameda Research heavily depended on FTX's native token (cryptocurrency), FTT. A rival exchange, Binance, sold all its FFT tokens, leaving FTX in a liquidity crisis. The whole story of the collapse is far more complex than demonstrated in this paper. However, the key takeaways from the incident include a security breach that exposed a vulnerability in the company's system, poor management and ethical concerns, insider trading, and conflicts of interest involving FTX's CEO and Alameda Research. Additionally, various regulatory bodies imposed regulatory issues and sanctions on the company, further contributing to its collapse. (Reiff et al., 2023).

The collapse of FTX and other crypto exchanges is partially due to a misunderstanding about the nature of cryptocurrencies, which builds on trustlessness and decentralization, and the interference of human-driven, highly centralized, and vulnerable nature of cryptocurrency exchanges (Chohan, 2023). Additionally, cryptocurrency exchanges are an Achilles heel within the cryptocurrency and require strict and proactive regulatory oversight. (Chohan, 2023).

1.3 Research Question

The downfall of FTX brought attention to the underlying issue with cryptocurrency exchanges, which rely on trust and human involvement, making them susceptible to fraud, scams, and other financial risks (Chohan, 2023). For cryptocurrency users and investors to have faith in the product, their trust in the cryptocurrency exchange is crucial and outweighs their trust in the blockchain technology used to create cryptocurrencies. Regulatory authorities not being able to catch up with the constantly evolving technology, leaves the crypto market more vulnerable to unserious actors, insufficient technology and malicious activity.

The cryptocurrency market encompasses more than just the digital currency, but explaining the whole cryptocurrency space, from decentralized autonomous organizations (DAOs), smart contracts, and non-fungible tokens (NFTs), is too comprehensive for this thesis. New innovations, terms and concepts are constantly introduced to the market, and should be researched by the reader if the aim is to understand the whole cryptocurrency landscape. The most commonly known use-case for blockchain technology in Norway is cryptocurrencies as mean of investment, so for the convenience of this thesis, the study builds on blockchain technology, cryptocurrencies, cryptocurrency exchanges, and cryptocurrency use cases in Norway.

This paper aims to give an overview on the current status of perceived trust from a Norwegian perspective, building on previous research. The research question considers:

How does trust in cryptocurrency exchanges influence trust in cryptocurrencies and their adoption?

1.4 Relevance for cryptocurrency innovators, investors and consumers

The present thesis offers contributions to cryptocurrency exchanges and consumers. It is relevant to an academic audience, as it provides research on a gap in the trust in cryptocurrency literature and may help provide new information and confirm previous research.

This paper sheds light on the centralised aspects of the decentralised nature of cryptocurrencies and that there are risks consumers should be aware of when getting involved in the crypto market.

The aim of this paper is not to give financial advice or an attempt to attract more people into the cryptocurrency market, but rather an overview of the status of trust in cryptocurrency and the role of decentralized finance (DeFi) companies in providing trust in the industry.

1.5 Structure of the thesis

This thesis consists of six chapters that delve into the research subject. The first chapter introduces the research topic and outlines the research question that serves as the basis for the

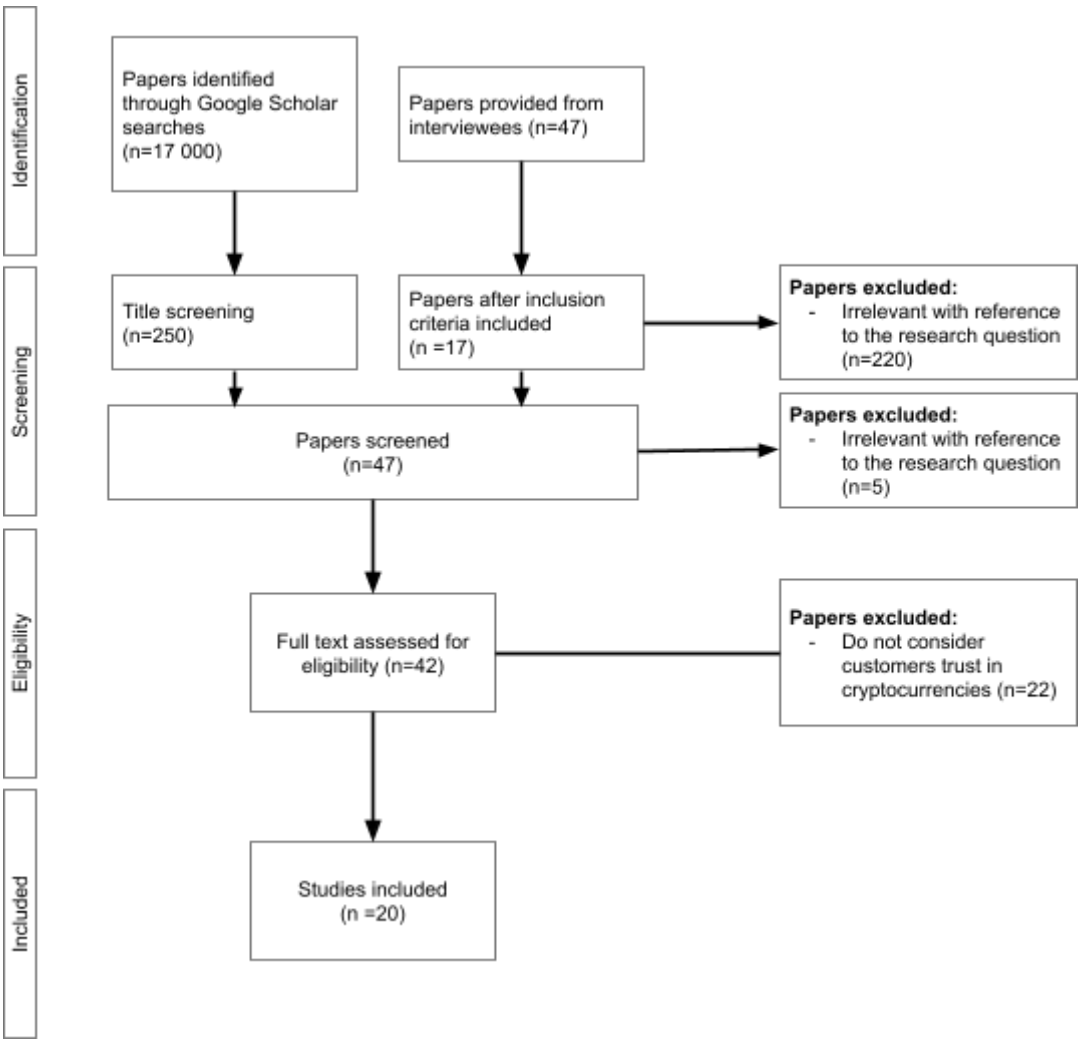
entire study. The second chapter provides background information on the subject under examination. The third chapter details the research methodology that was employed. The fourth chapter presents the findings that were garnered from the study. The fifth chapter engages in an in-depth discussion of the findings and draws overall conclusions. The final chapter summarizes the conclusions and offers insights into the implications, limitations, and avenues for future research.

2. Literature review and hypothesis development

2.1 Literature search and criteria for inclusion

The following chapter of the report provides the reader with background information on research done on trust in cryptocurrencies, along with information on theories related to trust and adaptation. The literature for this study was collected from January to March 2023. I began with a search on Google Scholar using the terms “Trust” and “Cryptocurrencies”. The articles were sorted by relevance, and the first 30 were initially included. After reading the abstract, irrelevant articles were filtered out according to the inclusion criteria, given in figure 2. Secondly, literature searches were conducted as my understanding of cryptocurrencies improved, and the search words, such as “Technology acceptance model” were included. The angle of looking further into the regulatory issues concerning emerging technologies, and the regulatory lag was later included as a crucial aspect in this study, and a third literature search was conducted. The process of identifying relevant papers related to research and case-studies of the pacing-problem included Google searches and identification of relevant articles on Google Scholar, using the same technique as abovementioned. The interviewees also provided literature, shown in Table 2 in appendices.

Figure 2



2.2 Contributors to trust in cryptocurrencies

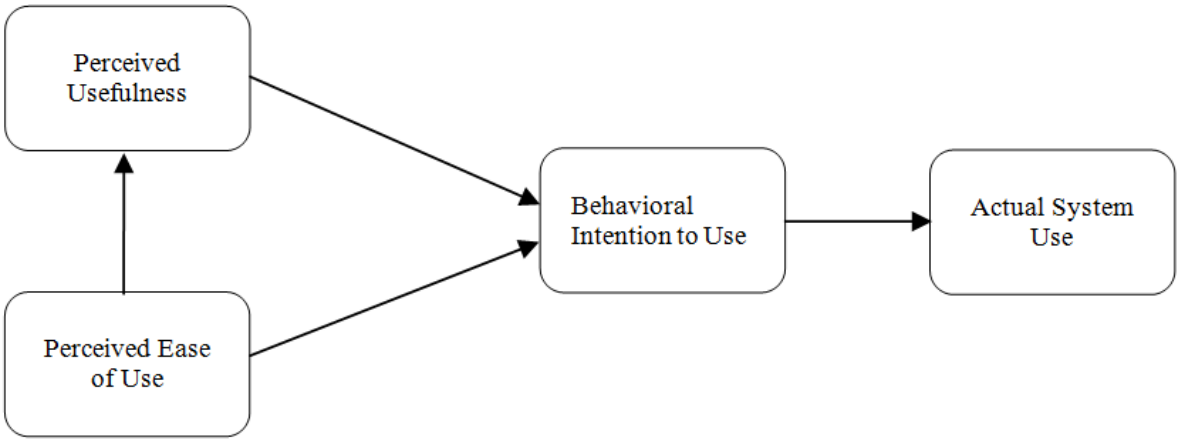
"In other words, it is essentially the core properties of blockchain technology that facilitate the creation of trust in cryptocurrencies" (Marella et al., 2020, p. 268).

One of the core features of cryptocurrencies is that they are trustless, meaning that they do not need the legal, monetary, or institutional backing that traditional financial services employ (Marella et al., 2020, p. 1). Trustless systems achieve consensus primarily through code, asymmetric cryptography, and blockchain network protocols. (Cryptopedia Staff, 2022). However, for the general public to adopt the technology, the consumers' trust in the technology itself is not sufficient to achieve adaptation.

2.2.1 Technology Acceptance Model

The Technology Acceptance Model (TAM) posits that two factors determine whether a new technology will be accepted by its potential users: (1) perceived usefulness and (2) perceived ease of use (Davis, 1989). Perceived usefulness considers the degree to which a person believes using a particular system would enhance job performance. Perceived ease of use considers the degree to which a person believes using a particular system would be free of effort (Davis, 1993, p. 320).

Figure 3 - Technology Acceptance Model



Note. The Technology Acceptance Model (Davis, 1989)

Per the technology acceptance theory, perceived usefulness, ease of use, and trust contribute to the intention to use cryptocurrencies. (Mendoza-Tello et al., 2019, p. 211; Aril, Esch, Bakpayev & Laurence, 2020). Building on this theory, functionality, reliability, and helpfulness are key aspects (Marella et al., 2020, p. 261). For cryptocurrencies to grow beyond technically-savvy audiences and include a broader base of individual users, the accessibility of blockchain-related technologies plays a crucial role (Gurguc et al., 2018).

Bitcoin users perceive the transparency and accountability of the technology, as the main attributes that contribute to trust. A high level of transparency and accountability eliminates the necessity of a trusted central authority to govern the system. (Marella et al., 2020, 268). Blockchain technology and its ability to solve the desired task determine the customers' trust.

Another study on trust in cryptocurrencies argues that trust in the government and the speed of transactions are the main factors contributing to consumers' trust in cryptocurrencies. A positive and significant correlation between trust in governments and cryptocurrencies

indicates that governmental initiatives regarding regulations and policies are crucial to obtaining consumers' trust. (Aril et al., 2020, p. 1)

2.2.2 Theory of planned behavior

Theory of planned behavior is another approach to evaluate what influences people to invest in cryptocurrencies (Norisnita & Indriati, 2022). The study suggests that an individual's intention to adopt new technology, such as cryptocurrency, is influenced by attitudes toward the technology, subjective norms, and perceived behavior.

Attitudes refer to a person's positive or negative feelings towards technology, shaped by their beliefs and values. For example, an individual who views cryptocurrency as a secure investment with a strong potential for growth may have a positive attitude toward it. Subjective norms refer to the perceived social pressure to adopt the technology. For example, suppose an individual believes that their peers or essential references, such as business leaders and experts in the field, are invested in cryptocurrency. In that case, they may feel social pressure to do the same. Perceived behavioral control refers to the belief that an individual has the capability and resources to adopt the technology. For example, individuals who believe they have the knowledge and technical skills to manage their cryptocurrency investments securely may have a higher perceived behavioral control. (Norisnita & Indriati, 2022)

Furthermore, the concept of facilitating conditions as an extension of the Theory of Planned Behavior in their research. They defined Facilitating Conditions as an individual's belief in the existence of an organizational and technical infrastructure that supports the use of a system. This definition encompasses the concepts of compatibility and perceived behavioral control from the Theory of Planned Behavior (Bommer et al., 2022, p.6).

Technology and Regulations

Technology is evolving rapidly and the gap between law and regulations and technology is growing (Marchant, 2011, p. 19). The gap is mainly present in terms of Artificial Intelligence (AI), the Internet of Things (IoT), and Blockchain, among others (Brashier, 2021). The present challenge of technology outpacing law and regulations can be traced back to 1986 when the US Office of Technology (OTA) stated that “[o]nce a relatively slow and ponderous process, technological change is now outpacing the legal structure that governs the system

and is creating pressures on Congress to adjust the law to accommodate these changes" (Office of Technology Assessment, 1986).

Developing and implementing new regulations is a timely process. Regulations are typically developed through lengthy processes that can take years to complete. However, technology is evolving much faster, which means that by the time regulations are implemented, the technology may have already moved on to the next iteration (Marchant, 2011, p. 19).

Knowledge is indispensable in dealing with the task of regulating technologies and markets (Demortain, 2017, p. 21). One of the critical challenges is the lack of understanding among regulators of the technology itself. Many regulatory bodies have limited technical expertise, making it difficult for them to develop regulations that effectively address the risks and opportunities presented by emerging technologies ("Experts in the Regulation of Technology and Risk: An Ecological Perspective on Regulatory Science," 2023, 225).

When Uber was introduced in 2009, it disrupted the taxi industry, by providing a more user-friendly and cost-efficient way to get around through a mobile app (Crespo, 2016). The taxi industry is heavily regulated in markets around the world, but with the new era of sharing economy, and "ride-sharing" imposed regulatory hurdles, as Uber's operations did not fit into the existing regulations for taxis, resulting in a legal gray area (Crespo, 2016). The same goes for cryptocurrencies, where the regulatory framework considering traditional finance does not consider markets in crypto assets (Brown, 2022).

"Regulation of AI is essential" - **Sam Altman** CEO of OpenAI (Bhuiyan, 2023)

AI has received tremendous attention in recent years, and the launch of ChatGPT captured the world's attention, as it reached more than 1 million users only 5 days after its launch (Ahlgren, 2023). However, with powerful technology comes great responsibility. An Open Letter published March 22, 2023 called for "all AI labs to immediately pause for at least 6 months the training of AI systems more powerful than GPT-4." (Future of Life Institute, 2023). Though AI has proven its value in terms of improved efficiency, content generation and manufacturing (Burns, 2018), "Advanced AI could represent a profound change in the history of life on Earth, and should be planned for and managed with commensurate care and resources." as stated in the paper. The development of AI is moving rapidly, and regulatory bodies are not able to keep up with the rapid evolution.

The founder and CEO of OpenAI, Sam Altman, called for the US to regulate artificial intelligence (Clayton, 2023). OpenAI owns the AI products ChatGPT and DALL-E, and as the CEO of the leading global company within AI, Sam Altman has become a spokesman within the AI industry. Given the skepticism associated with rapidly evolving AI technology, and the risk that might expose, Sam Altman, is addressing the ethical question that AI Raises, and pushes more regulations (Clayton, 2023).

3. Research methodology

In researching trust in cryptocurrencies, various methodologies can be employed. Nonetheless, a predominant trend among researchers is to adopt a quantitative approach, relying on survey responses as the primary data source. Furthermore, most of the research on trust in cryptocurrencies is grounded in the technology acceptance model or theory of planned behavior. A gap in current research has been identified and considered an empirical research approach to investigate cryptocurrency exchanges and their responsibility in providing trust, as regulatory authorities are still catching up with legal aspects concerning the industry.

3.1 Theoretical framework

With historical collapses in cryptocurrency and highly fluctuating prices, exploring the interaction between blockchain technology and centralization still needs to be completed. Due to the speculative nature of cryptocurrencies and incomplete qualitative data on attributes contributing to trust, a grounded theory approach will be applied to explore the phenomenon.

3.2 Data Collection

The starting point of the data collection period was to get as much information on the attributes that contribute to trust in cryptocurrencies. This project began by thoroughly analyzing the research done in the field of trust and cryptocurrencies. I did literature searches on Google Scholar and reached out to my network of cryptocurrency investors, users, and individuals unfamiliar with the technology, to seek input on interview objects and case studies. (see Figure 1 for inclusion and exclusion criteria and Appendix 1 for literature included).

3.2.1 Primary data collection

The primary data collection consisted of semi-structured interviews with industry experts, financial experts, and cryptocurrency enthusiasts. As I collected information from multiple sources, the data collection approach was adaptable and constantly evolving (Gioia et al., 2013). An initial literature review and conversations with industry experts, cryptocurrency

users, and blockchain inventors helped me select cases for further analysis. I interviewed six individuals, representing the Central Bank of Norway, one of the leading Norwegian cryptocurrency exchanges and a successful blockchain startup located in Zürich, Switzerland.

The interviewees were selected to abstain insights covering financial institutions, regulators, and visionaries. The interviews lasted between thirty to ninety minutes. Interviews with companies were held over the phone or via Google Meet, at their offices or cafés. The interviews began with the interviewee introducing themselves and their experience in the cryptocurrency/blockchain experience. I then briefly introduced the context of the master thesis, where I introduced the interviewee to the topics I wanted to discuss in this paper. This included the collapse of FTX, historical breaches, factors influencing perceived trust, and the regulatory status globally and nationally.

The data collected from the interviews included the standpoint of the institution the interviewee represented and their personal beliefs. Rather than focusing solely on the current state of cryptocurrencies and blockchain technology, the interviews also included a discussion on the potential future use of the technology. The utilization of various data sources enables triangulation, a process that converges multiple lines of inquiry and enhances construct validity (Denzin and Lincoln, 2011; Lincoln and Guba, 1985). Table 1 outlines interview subjects' data, experience, and the institution they represent.

Though the interviews were structured around an interview guide, the guide had to go through several iterations as my understanding of the topic broadened.The initial interviews were more structured and in accordance with the interview guide, found in Appendix 3.

Table 1

Interviewees

Interviewee	**Relevance**	**Role**
Financial expert 1 (FE1)	Involved in the proof-of-concept of centralized bank decentralized currency in Norway	Head of Analytics
Financial expert 2 (FE2)	Senior Advisor involved in the proof-of-concept of centralized bank decentralized currency in Norway	Senior Advisor
Industry expert 1 (IE1)	Co-founder and product owner of a cryptocurrency exchange	Product owner

Industry Expert 2 (IE2)	Blockchain enthusiasts and wrote his master thesis on the blockchain technology	Consultant
Industry expert 3 (IE3)	Founder and CEO of a blockchain startup	CEO
Blockchain technology Enthusiast 1 (BE1)	Has been heavily involved in the blockchain industry since 2017 and experienced being scammed by a CCE in 2020.	Entrepreneur

3.2.2 Observation data

I attended conferences to gain further insight into cryptocurrencies, regulations, trust, and the current state of the cryptocurrency landscape in Norway. One was an exclusive event arranged by one of Norway's most prominent business newspapers, Dagens Næringsliv. The presenters represented top Norwegian leaders in finance, blockchain, regulations, and financial reporting. The second event was a panel debate at one of Norway's technology incubators, TheFactory, presenting a cryptocurrency and a blockchain entrepreneur, as well as a blockchain-specialized lawyer..

I took notes during all hearings and transcribed the notes in more complete notes later that day. This data was used to complement, confirm and shape emerging theoretical theories. These notes resulted in 5 pages of single-spaced text.

Table 2

Data sources from observations

Observee	**Institution**	**Role**
Torbjørn Bull Jenssen	Arcane Crypto	Co-founder and Chief Executive Officer
Thuc Tuan Hoang	Firi	Co-founder and Chief Executive Officer
Stig Aleksander Kjos-Mathisen	Norwegian Block Exchange	Managing Director
Knut Sandal	Norwegian Central Bank	Director, Unit for Payment Analysis and Innovation
Roar Bjærum	Lendo Group	Chief Executive Officer
Emma Tryti	Kron AS	Chief Executive Officer

Kari Olrud Moen	Finans Norge	Chief Executive Officer
Ramtin Matin	Sparebank 1 SR- Bank	Director of innovation
Alf Gunnar Andersen	Fintech Norway & Horde	Board member & Chief Executive Officer
Terje Erikstad	Dagens Næringsliv	Financial editor
Camilla Julie Wollan	DLA Piper Norway	Partner, and one of Norway's leading lawyers in digital assets, virtual currency, and e-money
Wilhelm Myrer	Empower.eco	Co-founder and Chief Executive Officer
Tomas Veiden	Presail	Co-founder and Chief Technology Officer

3.2.3 Secondary data collection

Through the interview process, all interviewees referred me to secondary data to build on their claims and hypothesis. This literature is shown in Appendix 2.

3.3 Data analysis

Though the data analysis process was iterated, I followed the framework suggested by Gioia 2013 when analyzing the data. The insights shared during the interviews were coded in first-order concepts, demonstrating informant-centric terms and codes (Gioia et al., 2013, p. 18). Nevertheless, as all interviews were held in Norwegian, specific terms and codes might have been manipulated in the coding process.

3.3.1 Identifying first-order codes

Interview protocols were transcribed into Excel, limiting rephrasing and generalizing the statements. This resulted in a total of more than 700 cells of phrases extracted from the interviews. Data irrelevant to the aim of this thesis and repeated claims were removed. The remaining 300 lines were then translated into English. As the interviewees represented different areas of expertise, ranging from finance, blockchain and more commercial aspects of cryptocurrencies, the initial coding was done separately. Each protocol had a separate sheet in Excel. This approach ensured that the raw data was not biased toward the other interviewees' perspectives or influenced by me generalizing the statements.

The analysis process was initiated using an open-coding approach (Strauss & Corbin, 1998) centered around identifying keywords that indicated the interviewee's perceived trust in cryptocurrencies. This included the various actors and channels influencing consumers' perspectives towards cryptocurrencies, cryptocurrency use-cases and target markets, simulators, and preventers towards cryptocurrency innovation and regulations, among others. The language and particular phrasing of the interviewees were used to develop a comprehensive understanding of their perspectives, and initial first-order codes were evolved.

As the process continued across the interviews, the data was merged into one Excel sheet, and I repeatedly identified present concepts (Corbin & Strauss, 1990). This resulted in 112 codes. The data was thoroughly examined by reading, re-reading, and re-coding it multiple times based on my evolving comprehension (Lincoln & Guba, 1985). This process helped me develop an initial classification system that accurately reflected the informants' perspectives. The codes were coded according to relevance and similarity. The final number of codes was 27.

3.3.2 Researcher-centric second-order codes

In this stage, I explored the relationships between the codes identified in the open coding stage. This involved organizing the codes into broader categories or themes and identifying the relationships between them (Strauss & Corbin, 1998, p. 58). Additionally, observations, including voice recordings from the fintech conference and panel debate and additional literature provided by interviewees, contributed to a more comprehensive understanding of each category. Like previous phases, this was an iterative process, continuously switching between developing theoretical concepts and analyzing the data. More abstract concepts were developed as I improved my understanding of the relationship between the first-order categories.

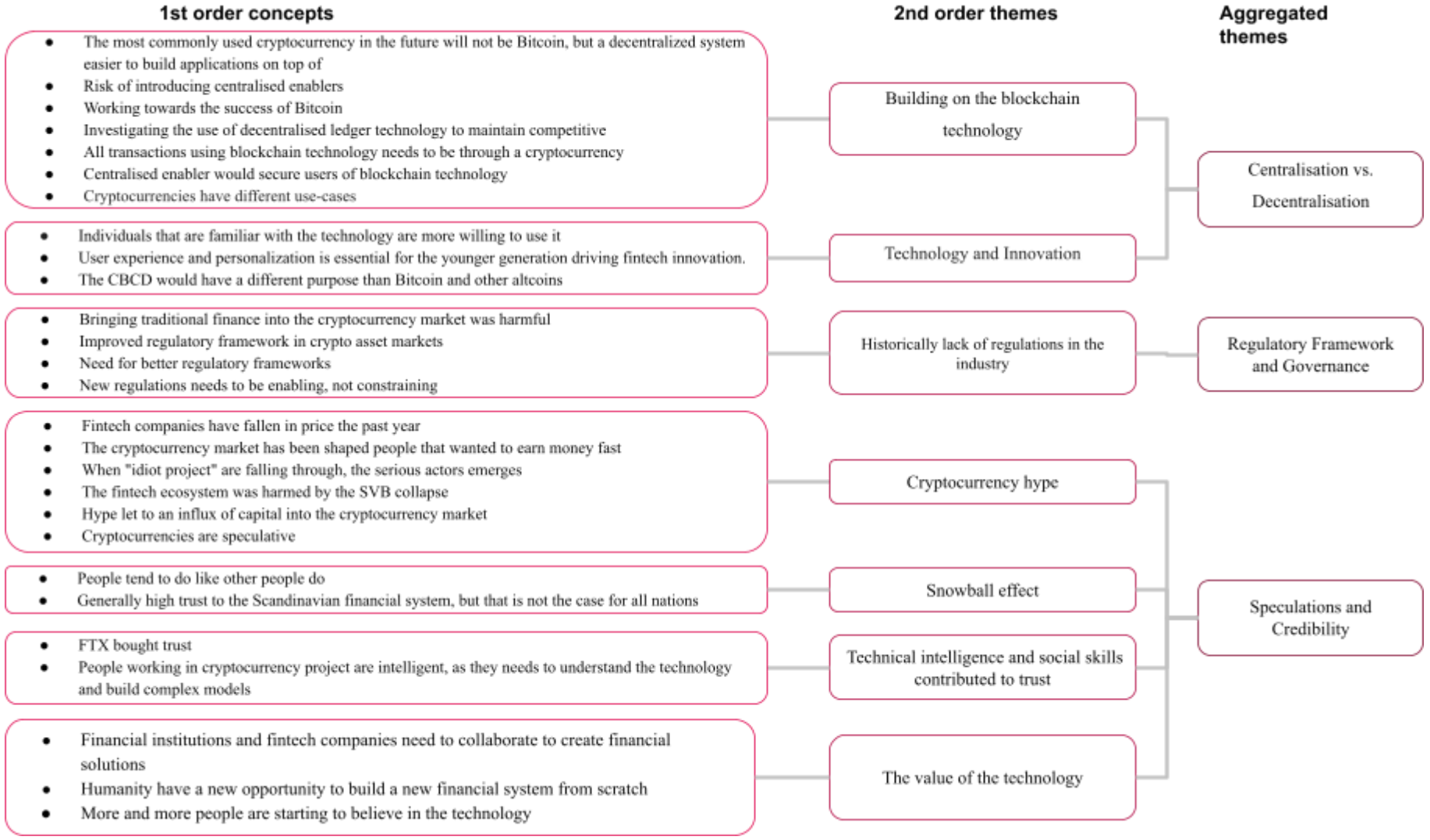
3.3.3 Theoretical coding, overarching dimensions, and data structure

To complete the analysis, the second-order themes were abstracted into higher-ordered theoretical dimensions. This process included constant comparison (Glaser and Strauss, 1967). The goal was to identify patterns and boundary conditions, which were further elaborated using a grounded theory methodology (Strauss and Corbin, 1998).

This process emphasized the strong division between centralization and decentralization in cryptocurrency and how regulatory bodies and authorities, credibility, and speculations strongly influence trust in the two dimensions.

Figure 3

Data Structure

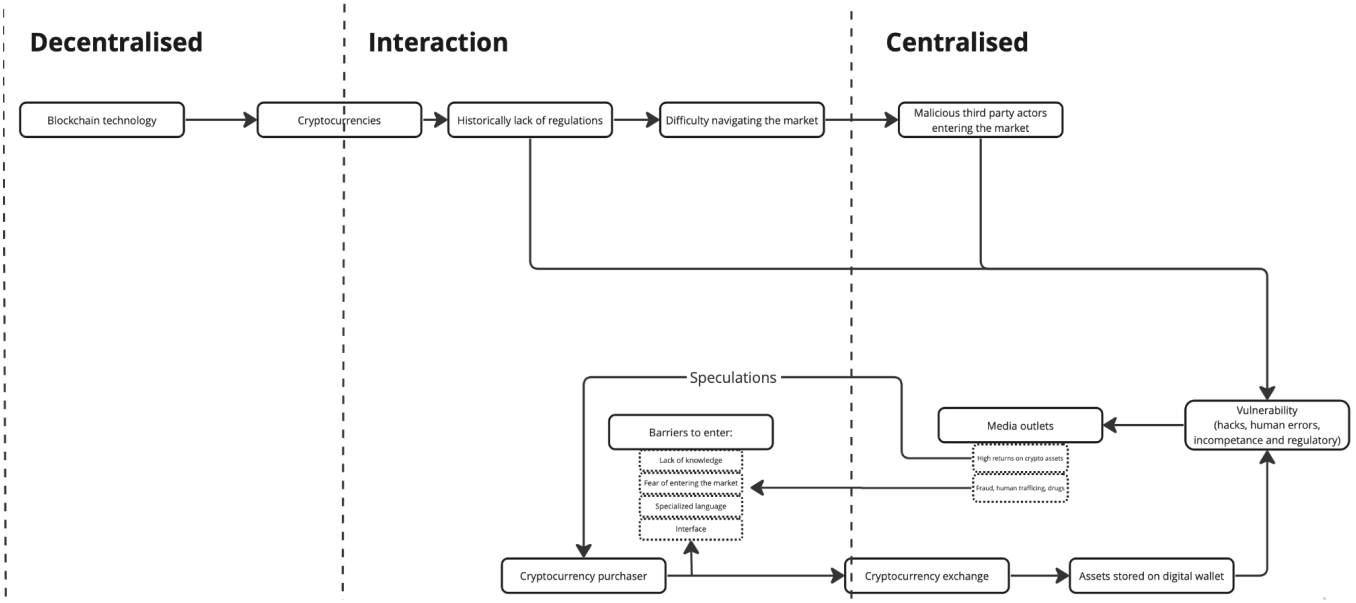


Note. The data structure used for analysis based on the Gioia Method (Gioia et al. 2013)

3.3.4 From data structure to grounded theory

Figure 4

Key Dynamics Underlying Individuals Perceived Trust in Cryptocurrencies



Note. Aschjem, M. S, (2023). A model demonstrating the intersection between decentralized technology and centralized actors.

The model demonstrates a simplified model of the interaction and influencing factors on users' intention to invest in cryptocurrencies, as extracted from the data collection. The model highlights the role of regulations and media outlets in providing trust and mistrust within the crypto industry. Cryptocurrencies are based on the completely decentralized technology blockchain. The blockchain is, however, usually created by a centralized organization or company. Cryptocurrencies and enablers have been operating in a regulative gray-area, and poor solutions and technology have been introduced to the market. With improved access to cryptocurrencies and the potential of high reward associated with cryptocurrencies, a large group of users and investors have been exposed to the digital asset, for better and worse. Media have covered stories of both sides of the story and speculations have driven the hype to invest or retain from cryptocurrencies.

This process made me aware of the complexity concerning the crypto market, and the countless aspects that affect perceived trust in cryptocurrencies. The chosen angle of presenting the finding was therefore to map out all contributors identified in this analysis, rather than going into detail on one particular topic.

4. Findings

This chapter lists the results found from this analysis and aims to demonstrate attributes to trust in cryptocurrencies. The data suggests that trust/mistrust is built between centralized actors and decentralized technology, in the regulatory framework and governance considering cryptocurrencies, from credibility and speculations.

4.1 Centralisation vs. Decentralization

To distinguish between centralization and decentralization is essential when discussing cryptocurrencies. Blockchain technology is based on decentralized ledger technology, yet for most people to access the asset, they must go through the pathway of a centralized third-party actor (IE2). Actors involved in cryptocurrency generally agree that decentralized blockchain technology is not the main contributor to trust in cryptocurrency, rather than the centralized actors building on top of the technology, such as FTX (Torbjørn Bull). BE1 claims that the more centralized a system is, the more vulnerable it becomes to hacks, fraud, and incompetence (BE1).

Before cryptocurrency exchanges were introduced, individuals primarily traded cryptocurrencies through peer-to-peer transactions. This included over-the-counter trading, online forums, or in-person trades. (Wilson, 2019). Not only did this way of trading come with the risk of trading with suspicious actors, but it also contributed to the exclusivity of the market. Lack of knowledge on cryptocurrencies and how to access them hindered individuals from entering the market. On the other hand, centralization makes cryptocurrencies more vulnerable to hacks and malicious actors (BE1). As blockchain technology is trustless and does not require third-party enablers to be efficient, the interference of third-party actors is the reason for hacks and fraud. Torbjørn Bull claims there is no systematic error with the technology, but rather incompetence and bringing traditional (regulated) finance into crypto.

On April 26th, 2023, more than 1500 cryptocurrencies had entered the market (Blockspot, 2023), and even central banks have even implemented or completed proof-of-concept on central bank decentralized currency (CBDC) (IE3). There is a clear trend of increased attention to cryptocurrencies and the potential of using blockchain technology as a financial solution.

A digital currency is needed to transact over a blockchain network (IE3). The Ethereum blockchain has its native token, Ether, and Bitcoin, BTC (IE3). Bitcoins' only purpose is to serve as a cryptocurrency and is completely decentralized (BE1). The Ethereum design makes it possible to build applications on the network and provides a more extensive range of use cases than Bitcoin. The Ethereum network is commonly used for centralized enablers to build on top of. CBDCs are digital currencies issued and regulated by central banks.

Central banks are looking at alternative payment systems that replace coins and banknotes. This digital asset would, however, have a different use case than how we know cryptocurrencies today, and would instead work as a day-to-day payment option for their customers. According to IE3, banks could potentially reduce overhead costs by implementing blockchain technology.

The cryptocurrency market experienced major hype in 2020 and 2021 (CE3), which led to an influx of capital and aggressive growth in the industry. More market capital attracted innovators to create and build centralized businesses in the industry. The hype was exacerbated by media coverage, and the price went into a self-reinforcing spiral. "The price 1-2 years ago was about ten times compared to today's pricing - that was unsustainable" (IE3). Ultimately the cryptocurrency market crashed when interest rates were raised, and credit houses collapsed (Torbjørn Bull).

Table 3

Overarching Dimension: Centralisation vs. Decentralisation

Second-Order themes and First-Order Categories	Representative Quotation
Building on blockchain technology a. The most commonly used cryptocurrency in the future will not be Bitcoin, but a decentralized system that is easier to build applications on top of b. Risk of introducing centralized enablers c. Working towards the success of Bitcoin d. All transactions using blockchain technology need to be through a cryptocurrency, e. A centralized enabler would secure users of blockchain technology f. Cryptocurrencies have different	a. "Bitcoin is not very inviting to build on top of. I have more faith in decentralized systems that you can build applications on top of" (IE3) b. "The more centralized a system is, the more vulnerable it becomes to hacks, fraud, and incompetence" (BE1) c. "I believe in Bitcoin because it cannot be controlled as it is completely decentralized" (BE1). "Bitcoin is going to stay - so many enthusiasts out there really working for Bitcoin to be a thing" (IE2). "Bitcoin is more like a religion, and so many people are working hard for it to be a thing" (BE1). "Bitcoin

Second-Order themes and First-Order Categories	Representative Quotation
use-cases g. They are investigating using decentralized ledger technology to maintain competitive Technology and Innovation h. Individuals familiar with the technology are more willing to use it i. User experience and personalization are essential for the younger generation driving fintech innovation. j. The CBCD would have a different purpose than Bitcoin and other altcoins k. The systems behind traditional finance and fintech are too complex for people to understand	is likely to run in parallel with the centralized financial system" (BE1) d. "If you are going to do all the transactions over a crypto-based ecosystem, you need a currency, but it can be a stablecoin" (IE3). e. "Centrally regulated or centrally controlled, if something were to happen, it is still possible to reverse it - not possible with fully decentralized blockchain" (IE3). "Circle is also centralized, which has proven to be a huge advantage. Little depeg when SVB collapsed, they got that money back with Blackrock in the background that just shuffled in money - centralized and open communication about how much collateral" (IE3). "Circle, an issuer of US dollar coins (they are considered to have done everything right, cooperation with Visa, for example) - had part of the deposits in SVB. When SVB collapsed, it became uncertain whether one would get the change back, creating uncertainty in the market" (Torbjørn). "Crypto exchanges are often the gate into the crypto space" (IE2) f. "Trust to blockchain technology is not the same as trust to cryptocurrencies" (FE1) "Importance of separating between cryptocurrencies as a vision/philosophy/religion and cryptocurrencies as a medium of investment" (IE2) g. "The Central Bank is looking at alternative payment systems to replace coins and banknotes" (FE1) h. "Strategic investors often understand the technology and are more willing to use it" (IE3) i. "One of the most important things in fintech is the user experience. Fintech is run by the young, and young people are concerned with personification "Emma Tryti "We are cautious about using the blockchain terminology. I think blockchain is becoming associated with crypto, which is recognized as very volatile, so project owners wonder why they should take this

Second-Order themes and First-Order Categories	Representative Quotation
	additional risk when they can continue to do it the traditional way". (IE3) j. "Cryptocurrencies and a digital central bank currency would have different use cases" (FE1) k. "we are unable to understand the complex system in the background - somewhat the same things with crypto, only that here SBF has built a super complex system, you could not quite see the complexities behind" (IE3)

4.2 Regulatory Framework and Governance

The need for regulatory frameworks for cryptocurrencies was identified as a crucial aspect of the cryptocurrency industry. The data suggest that the lack of regulations has made the entrance of malicious actors into the cryptocurrency space more accessible, and cryptocurrencies as a means of purchase in illegal activities (BE1). Media covering these stories have contributed to individuals being scared off from getting involved in the hype, either from investing, using, or innovating with the technology (FE1).

The lack of regulations in cryptocurrencies makes cryptocurrencies much different from fiat currencies. Once a payment is made with cryptocurrency, it is typically irreversible, and funds might be lost (IE3). Furthermore, a cryptocurrency wallet is often secured by a private key. A private key is an alphanumeric code used in cryptography, similar to a password (Jackson, 2023). If the code is lost, the user can no longer access their assets, and a centralized bank cannot assist.

There are few truly decentralized cryptocurrency exchanges, and most cryptocurrency exchanges are driven by know-your-customer policies (IE2). According to the Thales Group, the term "Know Your Customer" (KYC) alludes to the procedure of confirming a customer's identity before carrying out a transaction or offering a service (Thales Group*, 2023)*). As most cryptocurrency exchanges require customers to provide a variety of personal data,

including name, date of birth, address, and identity papers like a passport or driver's license, the risk of malicious activity might be reduced. This is one example of how regulations have improved the security of the cryptocurrency space.

The European Commission put forth the Markets in Crypto Assets (MiCA) regulation, which seeks to increase the security and transparency of the crypto asset market in the European Union (EU) (Issam, 2022). The main goal is to promote market integrity, consumer protection, and the financial system's stability while providing a unified legal framework for crypto assets. In addition to addressing the risks presented, such as market manipulation and money laundering, MiCA aims to establish clear regulations for issuing, trading, and custody of crypto assets. The framework aims to boost confidence in the cryptocurrency asset market and make integrating into the more extensive financial system easier. (News European Parliament, 2023)

Silicon Valley Bank, Credit Suisse, and the Crypto Industry

Silicon Valley Bank (SVB) collapsed in March 2023 and had a tremendous effect on the fintech industry, including companies operating with cryptocurrencies. SVB is a state-chartered commercial bank in Santa Clara, California (DFPI, 2023). SVB had larger deposits than loans, and some of these deposits were placed in government bonds. When the interest rate increased, the bonds fell in price, and led to the bank collapsing in March 2023. (Terje Erikstad). SVB's customer group consisted, among others, of start-up companies (Terje Erikstad), and many players in the crypto economy had funds in this bank (Torbjørn Bull). The bank's customers are less secure when such events happen in an unregulated space, such as crypto.

Circle began as a peer-to-peer payment technology company managing the stablecoin USDC (Frankenfield et al., 2021). Circle is considered a cryptocurrency company with high integrity and credibility, as they collaborate with VISA, amongst others. The company had parts of their deposits in SVB, and when SVB collapsed, customers of Circle were concerned about whether they would get their funds back. IE3 stated that the centralization of Circle was an advantage, in this case. With Black Rock in the back, the fund manages Circle, they could ensure that customers did get their fund back (IE3).

The involvement of established financial companies in the cryptocurrency market introduced regulated aspects of finance into an otherwise unregulated space, contributing to the severity of the crisis (Torbjørn Bull). Traditional finance is highly regulated, whereas decentralized finance is not, and treating crypto like fiat coins comes with the risk of added uncertainty when projects fail. However, the collapse of insufficient technology and projects contributed to credibility amongst the cryptocurrency companies that remain (BE1; IE3).

Blockchain is associated with blockchain technology, and due to the vulnerability and added risk that comes with cryptocurrencies, blockchain companies do not want to be identified with blockchain (IE3). However, potential customers familiar with the technology are more willing to use it. Furthermore, educating potential customers on the benefits of utilizing the technology improves the credibility and willingness to use it.

To found a cryptocurrency exchange in Norway in 2017 was easy (IE1). Only a few papers were needed to start a cryptocurrency exchange, though the situation is different now. Norway has developed a framework for digital assets, called an E-money license, and a common regulatory framework for the EU, Markets in Crypto Assets (MiCA) is soon to be implemented (IE1).

More innovation between banks and innovators is required to develop good blockchain-based financial solutions. However, the fintech industry has historically been in a regulatory gray-zone, and hence experienced the entrance of malicious actors. Banks are risk-averse by nature, and cryptocurrencies come with an additional risk due to the lack of regulations. Collaboration between banks and cryptocurrencies could improve the regulatory aspect of cryptocurrencies and accelerate the development of improved financial solutions based on blockchain technology (Kari Olrud Moen).

The addition of regulatory frameworks into the crypto industry has been beneficial in preventing third-party activity and securing customer funds. However, to promote innovation and beneficial solutions, such a regulatory framework must enable rather than constrain. A common regulatory framework in the EU is a positive addition to the crypto industry, but it is currently difficult to understand how it will affect the industry as it is complex and challenging to navigate. (IE2)

Table 4

Overarching Dimension: Regulatory Framework and Governance

Second-Order Themes and First-Order Categories	Representative Quotation
Overarching Dimension: Regulatory Framework and Governance	
Historically lack of regulations in the industry a. Bringing traditional finance into the cryptocurrency market was harmful b. Improved regulatory framework in crypto-asset markets c. Need for better regulatory frameworks d. New regulations need to be enabling, not constraining	a. "It is interesting to see that it was not a systemic weakness with the cryptocurrencies, but that they had brought rather unregulated aspects of traditional finance into crypto, which was one of the important drivers of the crash." (Torbjørn) "Many who previously worked in regular financial companies started companies (financial companies and crypto banks), which started with financial operations/lending, and it was that dynamic that was the underlying main reason why we had a crash." (Torbjørn) "bringing rather unregulated aspects of traditional finance into crypto, which was one of the important drivers of the crash" (Torbjørn) b. "Easy to start a cryptocurrency company back in 2017, but much harder now." (IE1) "Buying trust and getting profiled people to speak about the company was the credibility you had to use back then to build trust. Today, the regulations have been developed and most cryptocurrency exchanges are driven by know-your-customers" (IE2). "Cryptocurrency companies in Norway need a e-money license (Finanstilsynet) to operate" (IE1) "The MiCA regulation will work as a common ground for the whole EU" (IE1) c. "Financial innovation has often operated in a regulatory gray zone and there is a need for a better framework and regulations" (Morten Baltzersen) “There are still structural barriers to achieving mass adoption of cryptocurrency – more regulation is needed" ((Terje Erikstad) “Technology needs to go through several phases and it should to improve and develop" (IE2) "Regulations in cryptocurrencies is important as it covers the centralized actors running on top of the blockchain technology, such as FTX, Binance and Firi" (BE1) "Norway is far behind in the development of regulation. In the development of the EU's MiCA (markets in crypto assets) there was only one representative" (Thuc Hoang)

Second-Order Themes and First-Order Categories	Representative Quotation
Overarching Dimension: Regulatory Framework and Governance	
	d. "We need to be very careful to build up the regulation and not make it contraining, but enabling" (IE3) "The MiCA framework is heavy and hard to navigate around" (IE1) "New regulations cannot be troublesome, but helpful" (Terje Erikstad)

4.3 Speculations and Credibility

Traditional investors, such as Mark Mobius, claim that Bitcoin is not a means of investment but rather *"speculations and fun"* (Dailey, 2021). Even though a rather big user group swears to cryptocurrencies as opposed to traditional financial institutions, they can also be debated as part of a diversified financial portfolio, similar to a stock or a fund. Additionally, cryptocurrencies seem to have brought tremendous value to areas, where there is less trust to the financial institutions and provided a cheap and efficient alternative for money transfer without the need of a traditional bank account.

Though Bitcoin is just a technology, some might argue that it is a social movement. In its white paper, it simply explained the core technicalities of the technology (Nakamoto, 2008). However, a technology that allows for cash transfer without the need for a financial institution, has also proven to be politically driven. It is argued that financial institutions have contributed to economic downturns and widening socio-economic disparities, and hence a need for an alternative to traditional monetary systems (CE1). It is also claimed that centralized payment systems are compromising user privacy, diminishing human rights and depreciating money due to incompetence by governmental and corporate players (Kamau & Danise, 2022).

CE1 suggested that one of the core elements that drew people to get involved in the crypto space was greediness and the hope of quick return, reinforced by the historically high return

on the asset. From 2011 to 2021, the average annual return on Bitcoin was 230%, ten times higher than the NASDAQ 100 (Young, 2021). Though with little general knowledge on the technology and how to access it, a few established cryptocurrency exchanges grew enormously as more people joined in, creating a snowball effect.

Most people do not understand the complexity behind financial systems, though as customers, we expect it to be safe and trust it (IE3). In cryptocurrency exchanges, people will not necessarily question the complex system behind it but rather trust the interface of the application and the people behind the project. To gain this trust, the people need to have technical skills to build the system and be socially smart to sell it. As quoted by IE3, "We cannot say that people who work in blockchain systems are stupid - they have to understand the technology, and build complex economic models, which make it possible to confuse people. They are not criminals, but super intelligent people, who on top of this are socially smart".

FTX's founder and CEO used the media and profiled people to create trust. FTX was invited to Congress to educate the US government on the potential of cryptocurrencies, and profiled people, such as Tom Brandy, Stephen Curry, and Larry David, were paid to speak about the cryptocurrency exchange (FE1). The Norwegian cryptocurrency exchange, Firi, on the other hand, has created trust through their involvement of commonly known actors, such as Vipps and the Norwegian Financial Supervisory Authority, and through open communication about their collateral and customer fund storage (IE1).

Filtering Out the Unserious Actors

"When the tide goes out, you see who is swimming naked" - Warren Buffet (Murray & Lau, 2022)

During the historical cryptocurrency hypes, people went into the market with the hope of quick returns (FE2). When markets are rising, most actors appear to be doing well (IE3), but only the technology and companies offer sufficient and robust solutions when the market is low. These circles in the market are building the credibility of blockchain companies as unserious actors are filtered out.

As it seems, the historical collapse seems to have some positive effects on the credibility of the cryptocurrency market by filtering out unserious actors and improving customers' security. When FTX collapsed, a Norwegian cryptocurrency exchange experienced a sharp increase in deposits from foreign exchanges (IE1). The operations manager at the company argues “that there are a number of Norwegians who have kept their funds on foreign exchanges, but who have become unsure whether they are safe, and are moving their funds to Norwegian exchanges” (Lea, 2022).

As unserious actors are filtered out, and more public knowledge about the benefits of blockchain technology, more people are also willing to use it (IE3). There is still a caution in the industry of using the block-chain term, as it is associated with crypto currencies, and that is again associated with an additional risk (IE3).

Table 5

Speculations and Credibility

Second-Order Themes and First-Order Categories	Representative Quotation
Speculations and Credibility	
Cryptocurrency hype a. Fintech companies have fallen in price the past year b. The cryptocurrency market has been shaped people that wanted to earn money fast c. When "idiot project" are falling, serious ones emerges d. The fintech ecosystem was harmed by the SVB collapse e. Hype let to an influx of capital into the cryptocurrency market f. Cryptocurrencies are speculative Snowball effect g. People tend to do like	a. "Fintech companies have fallen sharply in value over the past year - note that this is an overall picture and does not reflect all fintech companies" (Terje Erikstad) b. "The crypto market has been popularized by charlatans who want to make money fast - travel to Cuba and buy a nice house and lie on the beach" (IE3) "People did not ask questions about the FTX before because they became greedy and had a hope of a high return" (BE1) "FTX is an example of speculative, incompetence and regulatory errors" (BE1) c. "FTX is a result of the underlying hype of projects that were doomed to fail from the start" (IE3) "very good with the FTX crisis - The economist “when the tide runs back, you see who is extremely naked” (IE3) "New technology is always volatile, looking at Apples historical stock price for example. Technology will go through different faces, which is healthy" (BE1) "The development of the crypto market has been a

Second-Order Themes and First-Order Categories	Representative Quotation
Speculations and Credibility	
other people do h. Generally high trust to the Scandinavian financial system, but that is not the case for all nations Technical intelligence and social skills contributed to trust i. People working in cryptocurrency project are intelligent, as they needs to understand the technology and build complex models j. FTX bought trust The value of the technology k. Financial institutions and fintech companies need to collaborate to create financial solutions l. Humanity have a new opportunity to build a new financial system from scratch m. More and more people are starting to believe in the technology	process where you have to filter out technology that does not satisfy and unscrupulous actors" (FE2) d. "SVB had larger deposits than loans - SVB had some deposits in government bonds and when the interest rate went up, these fell in price. SVB's customer group consisted, among other things, of start-up companies without insurance" (Terje Erikstad) e. "The price 1-2 years ago was almost 10x compared to today's pricing - that in itself was not sustainable" (IE3) "When the price has taken off (due to hype and media coverage), more people come in, more people buy, the price goes up and you get a self-reinforcing spiral that goes up" (Torbjørn Bull) f. "Cryptocurrencies are highly speculative" (FE1) "Blockchain technology er driven by speculations, but is proven valuable in many parts of the world, where there is low trust in financial institutions" (BE1) g. "Human nature is like a flock of sheep, when one leaves, the rest follow. If one trusts a person, we feel. The same can be said about the traditional financial system too, look at Bank Swiss, which went bankrupt - why should we trust them?" (IE3) "People were advised to invest in SVB days before it went bankrupt" (Terje Erikstad) h. "Generally high trust in the Scandinavian financial system" (FE1) "Norway might have the best financial system in the world, but that is the outlier. Other financial institutions are less trusted than in Norway, and people need a trustless, efficient, and cheap parallel financial option" (IE2) "Firi and FTX were/are operating under completely different circumstances" (IE2) i. "We can't say that people who work in blockchain systems are stupid people - they have to understand the technology, build complex tokenomics models, which make it possible to confuse people - they are not criminals, as we know them daily, but super intelligent people, who on top of this are socially smart" (IE3)

Second-Order Themes and First-Order Categories	Representative Quotation
Speculations and Credibility	
	j. "It is possible to buy trust, looking at the example of FTX paying high profiled people to advertise for them" (FE1) "FTX paid celebrities to speak about them" (IE1) "FTX spoke in the congress trying to teach the senator about cryptocurrencies and how to utilize it" (FE1) k. A lot has happened within fintech and development is going fast. It is a wish from financial institutions (banks) that everyone should contribute to the development of fintech solutions. (Kari Olsrud) "Traditional banks rely on fintech companies for innovation. However, this is difficult as there are a lot of emotions and thoughts linked to innovation, start-ups and finance. Banks are risk averse by nature" (Kari Olrud Moen) "Vontobel Bank has done a proof of concept towards the end of last year and Central Bank has done the same" (IE3) "Central banks will create an e-wallet in the background, create keys and make the entire transaction in the background much more cost-effective, and save the bank huge overhead costs" (IE3) l. "Humanity in general has been given a great opportunity to start from scratch in building up a financial system that can build up transparent, scalable and actually serve the purpose it was created to serve" (IE3) m. "Instead of talking about blockchain, we would say that we are using new technology, and after two to three meeting, they are more willing to try it" (IE3) "It has become too big to destroy - very seriously states are pushing in the direction of digitization - Switzerland, Singapore, Germany" (IE3)

5. Discussion

My findings indicate that it is in the intersection between blockchain technology and third-party entities trust is made or broken in the cryptocurrency industry. Media outlets exacerbate this trust or distrust by covering stories of people building their wealth by trading or innovating with the technology or stories of fraud, hacks, and unethical use of cryptocurrencies. However, centralized cryptocurrency exchanges have made cryptocurrencies more accessible to a bigger audience by providing a platform for trading cryptocurrencies.

Cryptocurrency Exchanges - Enablers or Constrainers?

Though the introduction of cryptocurrency exchanges has enabled cryptocurrencies to reach a bigger audience, it has also contributed to distrust in the cryptocurrency industry. Human errors and incompetence have led to the collapse of several cryptocurrency projects, and customer funds have been lost. Additionally, the cryptocurrency hype attracted more innovators into the industry, and with a lack of regulations, these actors could serve insufficient technology and products to their customers. The loss of customer funds and insufficient customer security, have resulted in mistrust to the industry, and the crypto and blockchain term, is associated with additional risk and illegal activity. However, improved knowledge of blockchain technology seems to stimulate customers' willingness to use the technology.

If blockchain were to be commonly used, the user would not necessarily be aware of the underlying technology when utilizing it. When discussing technology adaptation, the technology adoption lifecycle (Appendix 4), is often referred to to describe a population's adaptation and acceptance towards a new innovation. One could discuss whether blockchain and cryptocurrencies are still in the early adopter phase in Norway, as the use-cases are still undergoing proof-of-concept. However, in other areas, governments have already offered financial solutions building on blockchain technology to the general public. If cryptocurrencies were to be widely accepted and adapted in Norway, the skepticism associated would likely decrease as people experienced the technology’s ease of use and perceived usefulness, as demonstrated in TAM.

The centralization of crypto assets has enabled regulatory bodies to control the crypto market. Regulations such as MiCA, and Norway's E-money license, focus on actors involved in the cryptocurrency market. The aim is to make crypto trading, innovation, and investments more secure. As markets in crypto assets are more secure than previously, the industry's integrity might also improve. Moreover, with an already improved regulatory framework considering markets in cryptocurrencies, customers can be more confident that the crypto services offered are safe.

The Value of Cryptocurrencies

One could discuss that the value of cryptocurrencies is simply the number of dollars worth. However, as cryptocurrencies are digital tokens used in transactions on the network they are built on, the value can also be reflected in the total value going into the network. Looking at the example of Ethereum, the total market value exceeds 257,1 billion USD, whereas the native token, Ether, is 1863 USD per April 24th, 2023 (CoinMarketCap, 2023). Additionally, value is created in the convenience for users and a potential reduced overhead cost for financial institutions.

When there is low trust in the national financial system, cryptocurrencies have brought tremendous value to their users. In Scandinavia, there is generally a high trust in the financial sector, so the need for cryptocurrencies is more of a speculative and fun investment or a part of a diversified investment portfolio. However, technologies, entrepreneurs, and financial institutions find interest in blockchain technology, as an opportunity to improve the current financial solutions.

Cryptocurrency Spring, Fall, and Winter

Media have been great contributors to speculations and distrust in cryptocurrencies. As individuals have observed that there is potential for quick gains trading and innovating with blockchain technology and cryptocurrencies, the industry experienced an influx of capital, and companies building on blockchain technology, or enabling cryptocurrencies to a broader audience, grew enormously during the hypes in 2017, and later in 2021 and 2022.

Although there are groups of enthusiasts working hard for cryptocurrencies to be a thing, a large group of people have joined with the intention of a quick return and later diversifying their financial portfolio. However, as the crypto market is less regulated than traditional

finance, it has been more vulnerable to hacking, fraud and malicious activity. Media outlets exacerbate speculations, as more people are drawn to cryptocurrencies when the prices increase and vice versa. This is also the case in traditional finance, but regulatory frameworks and credibility contribute to greater stability and banking compliance.

Navigating the cryptocurrency space is tiresome, and knowing what information to believe or trust is impossible. Opinions and speculations have driven the cryptocurrency markets rather than a belief in the technology itself. The media cover profiled people's opinions and the public is presented with news of wealth built on cryptocurrencies and others claiming crypto owners are idiots. Though new technologies seem to go through hype cycles, one could argue that cryptocurrencies are slightly different, as it considers finance rather than a service or technological solution, such as AI, mobile phones, and the internet, as we know it today.

When individuals experienced the massive return on cryptocurrency investment, more people got involved in the market, with hopes of the same gain. Like in any financial market, there are cycles of people buying in and others following. The cryptocurrency market is open to anyone, and cryptocurrency exchanges have enabled a bigger audience to enter, in contrast to AI and mobile phones, where most people will not be able to invest, see the fluctuating market value, or be given the option of buying out at any given time. Furthermore, a more open and accessible market leaves a bigger audience of inexperienced investors and individuals vulnerable to investing in a technology hype that "did not deliver", to fraud and scams.

Institutional interest in the technology enhances the argument that blockchain technology has reached the point of growth and adaptation. With improved regulations and more serious actors in the industry, fundamental technology is expected to be improved and will continue to be developed. As with any new technology, the hype will slow down, and the volatility will stabilize.

Regulatory Frameworks and Innovation Stimulation

The introduction of cryptocurrencies and the underlying technology, blockchain, has introduced an arena for innovation. Trading with cryptocurrencies before the introduction of cryptocurrency exchanges was far more risky, as it consisted of trading through online forums or over the counter. For individuals unfamiliar with how to access the cryptocurrency space

and not willing to take the risk of trusting strangers, cryptocurrency exchanges provide a platform with a simple interface and logins.

Despite regulations providing improved security for technology users and innovators, the dilemma of over-regulations offers the potential danger of restricting innovation. However, data from this research suggest a clear agreement from the cryptocurrency industry that more regulations are needed, and there is a willingness from industry experts to contribute to the development of such a regulatory framework. As it seems, both from the perspective of Sam Altman (IA industry) and the markets in crypto assets, collaborating in establishing clear regulatory guidelines and laws considering emerging technologies, contributes to improved market integrity and responsible innovation.

User accessibility to cryptocurrency has improved recently, as one can make an account through a centralized third-party actor. However, as mentioned above, this has also served huge issues for the cryptocurrency industry. Implementing regulatory frameworks and governance might improve the regulatory issues and volatility regarding cryptocurrencies, but is hard to navigate around. During the interview with a cryptocurrency exchange, it was suggested to look further into the MiCA framework to fully understand what it means and how cryptocurrency companies can navigate it. This gives an indicator that the new regulations are creating confusion in the cryptocurrency markets. A regulatory framework is crucial for all parties involved in the digital asset space. However, it needs to provide security that enables innovators to build in the space rather than constraints that hinder innovation.

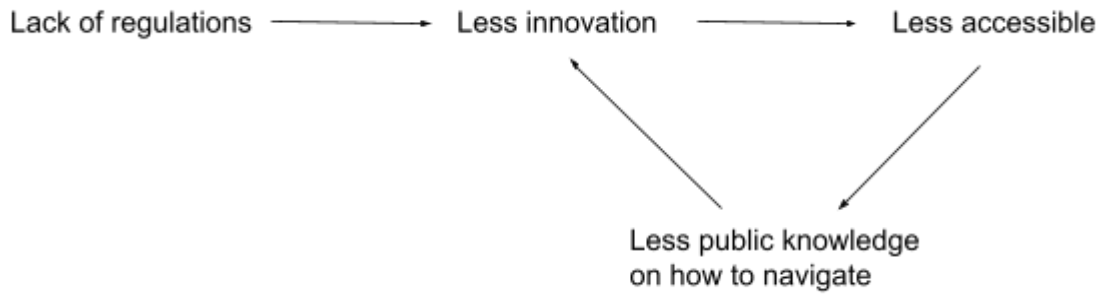
Though these cryptocurrency exchanges have a history of being unregulated, the regulatory framework considering cryptocurrency exchanges has also come a long way. A KYC policy now drives cryptocurrency exchanges, and in the case of Norway, Firi is involved with the Norwegian Financial Supervisory Authority. Furthermore, offering a familiar interface and log-in (Vipps or Bank-ID), reinforces this trust. Open communication transparency about customer funds and collateral storage are additional contributors to trust.

Third-party enablers provide an easier market to regulate. The MiCA framework considered markets in digital assets, such as cryptocurrency exchanges. As trading with digital assets gets centralized through exchanges, trading is also easier to regulate in comparison to distributed peer-to-peer trading. It could therefore be argued whether introducing centralized enablers can make cryptocurrency trading more secure.

Figure 5 demonstrates a simplified model of negative feedback, as a result of limited regulations. On the other hand, Figure 6, demonstrated the potential positive feedback loop by providing an enabling and secure regulatory framework considering crypto assets. The figures are based on the results in this paper.

Figur 5.

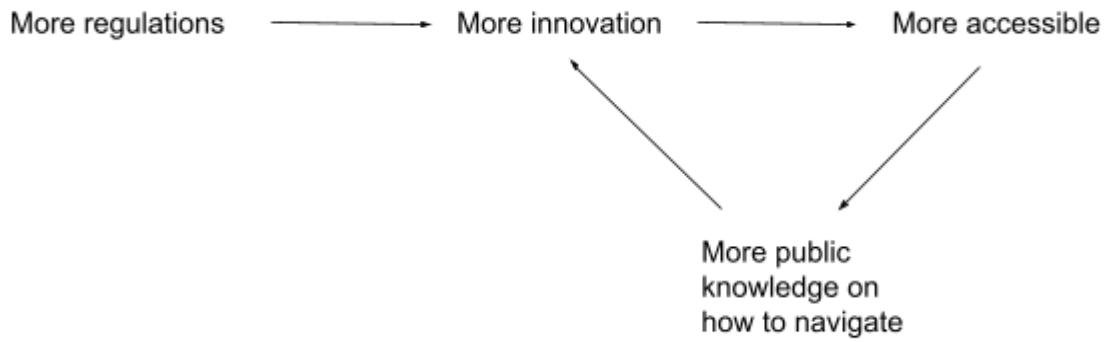
Negative feedback - lack of regulations hinders innovation



Note. Aschjem, M. S, (2023). A model demonstrating how regulations can hinder innovation

Fig. 6.

Positive feedback - Regulations fosters innovation.



Note. Aschjem, M. S, (2023). A model demonstrating how regulations can stimulate innovation

Circle has been considered as one of the most serious actors in the cryptocurrency market. When Silicon Valley Bank filed for bankruptcy in March 2023, many of its customers were unsure whether they would get their money back. In this case, customers did get their funds back, and that proved the importance of a regulated cryptocurrency industry, and is an example of a success story of a regulated cryptocurrency space function.

Regulatory frameworks and collaboration between financial institutions and DeFi companies could foster innovation, but the bank's risk-averse nature is a barrier. The current status of many DeFi companies is that they are either operating in a legal gray-zone or confused on how to navigate the regulatory landscape considering digital currencies. Creating enabling regulations could therefore be a catalyst in encouraging more innovators to get involved. Furthermore, improved collaboration between financial institutions and DeFi startups could accelerate the development of innovation to improve financial solutions. The addition of commonly known financial institutions in the crypto asset market could further improve the industry's credibility and invite more customers in, such as in the case of Circle, VISA and Blackrock.

One could discuss that there are several factors leading people to trust FTX. Speculations and the wish to gain money fast and individuals simply "following the pack" are among these. Despite the downfall of FTX, SBF contributed to increased knowledge about the cryptocurrency industry and its potential. The aim of FTX was likely not an attempt to scam its customers but rather a result of rapid growth and technology that did not support this. The purpose of regulations is to protect customers and provide guidance to innovators on how to operate. The absence of such regulations has been cited as a contributing factor to the collapse of FTX, which grew too quickly without adequate support systems in place.

Industry experts are involved in the development of new regulations. Thuc Hoang, CEO of Firi, was involved in the development of MiCA, Sam Altman testified before members of a Senate subcommittee and urged regulations, and Sam Bankman-Fried participated in a hearing before the U.S. Senate Committee. Despite the apparent willingness of industry experts to improve the regulatory framework considering their representative industries, one could discuss the intention. Regulatory bodies seem to be dependent on industry experts in the development of emerging technology regulations, yet the problem arises when the technology is moving rapidly and even industry experts are falling behind, such as in the case of FTX.

The Future of Cryptocurrencies

The previous cryptocurrency hype, sky rocked cryptocurrency prices and valuations on blockchain technology. Even within the industry, it is claimed that the valuations were

unsustainable. As more people are starting to see the value in the underlying technology, and even central banks have implemented or conducted proof-of-concept, proving the value of the underlying technology, rather than pure speculations on a certain altcoin. There is, however, a disagreement about what the digital asset will look like and to what extent it will be controlled.

On one side, it is believed that Bitcoin should and will be the main digital currency, as it is the only cryptocurrency that cannot be controlled. However, as third-party actors are simplifying the customer journey to access Bitcoin available to a bigger audience, the concept of complete decentralization weakens. Furthermore, Bitcoin's technology is less versatile, and new applications cannot be built on top of the technology. Ethereum and Solana are other technologies, more versatile than Bitcoin. Their native tokens are used in transactions, and other features, such as smart contracts, broaden the use cases for the technology.

One argument is that digital currencies have the potential to replace fiat currencies and that central banks will be the entity regulating the asset, as it can lower overhead costs dramatically. CBDCs are already being implemented, and several central banks have already completed their proof of concept, though this digital coin would have a different purpose than cryptocurrencies. It is argued that cryptocurrencies would function in parallel with traditional finance. In areas such as Norway, where there is high trust in the financial system, cryptocurrencies are likely to function as a means of investment rather than for everyday use.

A digital token is needed to make transactions on the blockchain. As banks are evaluating or adopting the technology, a bigger user group might get familiar with the terminology and hence be less skeptical. As stated by IE3, banks would create a wallet in the background and make the user experiences as seamless as possible. However, given the skepticism associated with blockchain and cryptocurrencies, central banks are less likely to be associated with the added perceived risk associated with cryptocurrencies. On the other hand, as blockchain technology is getting closer to reaching a point of stability, given the growth and institutional adaptation, the perceived risk and opinion-based skepticism associated with blockchain might be a problem of the past.

Painful Lesson Learnt

Even though human errors cause major collapses in the cryptocurrency space, centralized third-party enablers have also contributed to improved trust in the cryptocurrency space. By providing a platform with user-friendly interfaces, simple log-ins, and an understandable language, they have enabled a bigger user group to access the cryptocurrency space.

The cryptocurrency space has had its ups and downs. However, as mentioned by a crypto enthusiast, the fact that cryptocurrencies have existed for 15 years, the digital asset, has proven its value to users. The full potential of the technology is still being explored, and we cannot be too sure what the future of cryptocurrencies might look like.

When new technologies are introduced, regulatory bodies and authorities must catch up. However, technology is evolving rapidly, with new innovations and iterations introduced. To develop regulatory frameworks, on the other hand, can take years to develop. Looking at the example of Uber, entering a highly regulated taxi industry, though operating in a regulatory gray area, regulators have the difficult task of determining where these companies fit within existing laws. The same goes for cryptocurrencies, completely new regulatory frameworks must be developed. Uber is now stabilizing with new management, and with the introduction of MiCA and other regulatory frameworks, the markets in crypto assets might experience the same.

As with all technology, it must undergo several iterations for it to mature. Blockchain technology supporting cryptocurrencies is not an exception. However, the results of this analysis suggest that the technology behind cryptocurrency exchanges enabling crypto trading is shown to introduce more challenges to the industry than blockchain technology itself. More innovation and iterations within the cryptocurrency industry will likely enhance the credibility of the technology and actors building on top of it, as for any technology development cycle. Additionally, regulations will contribute to a more safe and more secure market for customers, investors, and innovators.

6. Conclusion

New technology tends to be volatile, and cryptocurrencies are no exception. In contrast to other technologies, the open market of cryptocurrencies and cryptocurrency exchanges' role in enabling this market to a bigger audience has exposed the volatility of new technologies to inexperienced investors.

Speculations have driven the hype of cryptocurrencies, and with massive capital going into the fairly unregulated space, we have experienced fraud and malicious activity. Blockchain technology has not been the main issue, but rather an incompetence on how to use it. However, as regulatory frameworks are being developed, so is the industry’s credibility. More knowledge and clearer guidelines on using and accessing cryptocurrencies might welcome more serious actors, further contributing to an inclusive and safe industry.

Limitations and further research

The aim of this explorative study was to broaden the understanding of the contributors to trust in cryptocurrencies. However, given the rapidly evolving nature of cryptocurrencies, the research findings may become outdated relatively quickly. Given the complexity and diversity of the cryptocurrency industry, it may be challenging to generalize the findings to other contexts or settings. Furthermore, as suggested, cryptocurrencies are highly speculative. One cannot know for sure what the future of cryptocurrencies looks like, and all the findings stated in this report might be outdated quickly as the technology and its possibilities still are being discovered. The results should therefore be read with caution and the time frame when this paper was written should be considered when read.

The cryptocurrency market is complex and only a small fraction was included in this analysis, both in terms of demographics and topics. However, to get a broader understanding of the underlying mechanisms driving trust and acceptance of cryptocurrencies, several aspects of contributors to trust were included in this analysis. Further research should look closer into each aspect, to get an in-depth understanding of each dimension, including decentralization and centralization, regulations, speculations and credibility.

The interview guide went through several iterations, as my understanding of the topic improved. More relevant data could be extracted from the interviews by conducting final interviews with all interviewees, to ensure that all topics included in this study were

discussed. Additionally, I was not able to ask follow-up questions during the observations. In-depth interviews with the individuals observed, is preferred for later research.

This thesis builds on primary data collected from Norwegian institutions and cryptocurrency enthusiasts. As this paper suggests, the Norwegian financial sector is relatively functioning, and investments in cryptocurrencies are usually driven by speculations or as a means of investment. Given the speculative nature of cryptocurrencies and how cryptocurrencies are perceived differently depending on the intention to use, media outlets, and social influence, it would be interesting to do further research on other use cases, such as what the attributes to trust are in regions where trust in financial institutions is low.

During the writing process of this thesis, the Silicon Valley Bank collapsed. This bank was designed to serve the needs of technology startups and several cryptocurrency companies, such as Circle. Circle had part of the deposits in SVB and when the bank collapsed, people and companies got concerned about whether they would get their funds back. However, the price of Bitcoin and Ethereum increased. An interesting topic for future research would consider a further analysis of traditional finance's influence in the cryptocurrency market.

Another contributor to the cryptocurrency crash in 2022 was the introduction of traditional finance into the cryptocurrency space (Torbjørn Bull). Traditional finance builds on complex systems in the background and is highly regulated. An interesting research topic would be to investigate banks' and financial systems' interdependency and compare this to the cryptocurrency industry.

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Appendices

Appendix 1

Table showing Literature from litterature review

Study	Purpose	Sample	Theoretical Lense	Method	Key insights
Marella, Upreti, Merikivi & Tuunainen, 2020 (Springer)	Investigate attributes that contribute to trust in cryptocurrencies	1.97 million discussion posts related to Bitcoin	Technology acceptance theory	Collection and semantic vector analysis of forum posts on biggest bitcoin forum	Attributes that impact the trust in cryptocurrencies are immutability (data can not be changed or manipulated) and openness (transparency)
Micu & Dumitrescu, 2022 (Sciendo)	Assess volatility of main cryptocurrencies	> 1000 GARCH models	N/A	GARCH model analysis of the 5 biggest cryptocurrencies relative to their market capitalization	Cryptocurrencies present extreme volatility, looking at their intra-daily prices.
Caporale & Zekokh, 2019, (Elsevier)	Model volatility of cryptocurrencies	97 GARCH models	N/A	GARCH model analysis of the 4 most popular cryptocurrencies to estimate a one-step ahead prediction of Value-at-Risk (CaR) and Expected shortfall (ES)	Using standard GARCH models may yield incorrect VaR and ES predictions, and hence result in ineffective risk-management, portfolio optimisation, pricing of derivative securities etc.
Mendoza-Tello, Mora, Pujol-López & Lytras, 2019 (Springer)	TO what extent are cryptocurrencies perceived as trustworthy in C2C e-commerce?	186 participants divided into age groups, professions and levels of educational background	Technology acceptance theory complemented with economical, social and technical topics	Quantitative - survey PLS-SEM with a sample size of 186 surveyees.	Perceived trust, perceived risk, and perceived ease of use are not strong predictors of the intention to use cryptocurrencies and the strength of their effects on the intention to use is determined by the perceived usefulness of adopting the mentioned disruptive innovation.
Andreessen Horowitz, 2021	Evaluate the Web3 Landscape, by outlining the main use cases for	N/A	Descriptive	Literature review	Blockchain technology allows for the quick transfer of data, safely and

	blockchain, the current status quo and future potentials.				transparently. It has the potential to offer financial services to a bigger audience, by lowering managerial costs. Furthermore, decentralization allows for network user ownership and new business models within various industries, such as creative and financial.
Gurguc & Knottenbelt, 2018	How can cryptocurrencies transition into mainstream use and become globally accepted?	N/A	Descriptive	Literature review	Cryptocurrencies can become units of account only if there is a friendly and conducive regulatory environment.
Reiff, Anderson & Li, 2022	Why is Bitcoin so volatile?	N/A	Descriptive	Literature review	Bitcoins volatility is affected by supply and demand, speculations and public appearances.
Aril, Esch, Bakpayev & Laurence, 2020	What are the main drivers leading to consumers' trust in cryptocurrencies?	451 MTurk workers	Technology acceptance theory	Cross-sectional online study with cryptocurrencies serving as the focal product category.	The participants in the online survey were not overly anxious about investing, whereas trust in the government and speed of transactions leads to trust in cryptocurrencies.
Sagheer et al., 2022	Investigate the intentions to use cryptocurrencies	Meta-analyzed 42 samples from multiple theoretical approaches	Technology adoption	A regression model to explain the intention to use cryptocurrency, and relative importance analysis determined the weight of each variable in predicting cryptocurrency use intention	The findings suggest that attitude toward the behavior, performance expectancy, and price value are the most relevant variables, explaining a significant portion of the intention to use cryptocurrency. The study also indicates that external conditions and situational factors have minor influences, suggesting that the models presented in the study can be widely applied across different markets.
Norisnita & Indriati, 2022	Investigate intention to use cryptocurrencies	N/A	Theory of Planned	Literature review	The study of cryptocurrencies has shown that attitude towards the use of

			Behavior		cryptocurrencies has a strong impact on the intention to adopt them. People who have a positive attitude towards cryptocurrencies are more likely to use them. Subjective norms have an impact on the intention to use cryptocurrencies, but this impact can vary based on cultural and societal factors. Self-efficacy has also been found to influence the adoption of cryptocurrencies as a form of investment. However, the impact of self-efficacy on investment intentions is not consistent across all studies.
Marchant, 2011	Suggest approaches and options to make the law more dynamic and responsive to accelerating technologies	N/A	Descriptive	Literature review	Technology is evolving rapidly and law and regulations are not keeping up. To close this gap, new legal tools, approaches and mechanisms will be needed.

Appendix 2

Tabel supplementary Literature Provided by Interviewees

Paper	Link	Given by	Published by	Key insight
Innlegg: Kven kontrollerer bitcoin?	https://www.dn.no/innlegg/innlegg-kven-kontrollerer-bitcoin/2-1-1074957	BE1	Dagens Næringsliv	Decentralization and dynamic distribution of power in Bitcoin is difficult to understand and achieve
Middelaldrande mann rasar mot bitcoin	https://www.dn.no/innlegg/bitcoin/kryptovaluta/blokkjedeteknologi/middelaldrande-mann-rasar-mot-bitcoin/2-1-1376362	BE1	Dagens Næringsliv	Bitcoin's revolutionary aspect lies in the integration of money and technology in a decentralized system, rather than just the blockchain technology itself.
Bitcoin Uses Lots of Energy—And That's Okay	https://www.discoursemagazine.com/economics/2022/07/07/bitcoin-uses-lots-of-energy-and-thats-okay/	BE1	Discourse Magazine	Bitcoin's mining process uses a significant amount of electricity, but this is also what gives Bitcoin its core security
Finansiell Stabilitet rapport 2022	https://www.norges-bank.no/aktuelt/nyheter-og-hendelser/Publikasjoner/Finansiell-stabilitet---rapport/2022-finansiell-stabilitet/innhold/	FE2	Norges Bank	Norges Bank makes a statement about crypto-assets in relation to financial stability (pp. 26-28 have some arguments and sources we mentioned in the conversation, including MiCA, data from the Swedish Tax Agency, definitions etc.)
Chainalysis om crypto i verden	https://blog.chainalysis.com/reports/2022-global-crypto-adoption-index/	FE2		Trends on global cryptocurrency adaptation.

Paper	Link	Given by	Published by	Key insight
FTX CEO Sam Bankman-Fried - once dubbed 'the next Warren Buffet' before his downfall - rubbed shoulders with Tony Blair, Bill Clinton, Orlando Bloom and Katy Perry at $3,000-a-head Bahamas crypto festival (but now his famous friends have gone dark)	https://www.dailymail.co.uk/news/article-11426949/Inside-Bahamas-crypto-festival-FTX-CEO-Bankman-Fried-welcomed-Bill-Clinton-Katy-Perry.html	FE2	Daily Mail Online	Bankman-Fried hosted an exclusive event attended by A-list celebrities and former world leaders, which later wondering if they were deceived after the collapse of FTX.
From Math Camp to Handcuffs: FTX's Downfall Was an Arc of Brotherhood and Betrayal SBF and Crypto Are Going Through Some Things A 30-Year-Old Crypto Billionaire Wants to Give His Fortune Away	https://www.bloomberg.com/news/features/2023-02-16/sam-bankman-fried-s-old-friend-co-founder-gary-wang-is-key-to-case-against-ftx#xj4y7vzkg https://www.bloomberg.com/opinion/articles/2022-12-26/sam-bankman-fried-crypto-face-reckoning-after-ftx-failure-lc4t4jaf#xj4y7vzkg https://www.bloomberg.com/news/features/2022-04-03/sam-bankman-fried-ftx-s-crypto-billionaire-who-wants-to-give-his-fortune-away#xj4y7vzkg	FE2	Bloomberg	Several articles first written about the success story from both a organizational and personal level to a scam
Norms, Institutions and Digital Veils of Ignorance – Do Network Protocols Need Trust Anyway?	https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3956873	FE1		In large human groups, social rules help people feel more certain about what they can and can't do
Trust in Context: The Impact of	https://papers.ssrn.com/sol3/papers	FE1		While blockchain technology

Paper	Link	Given by	Published by	Key insight
Regulation on Blockchain and DeFi	.cfm?abstract_id=4051842			provides security, trust in DeFi still relies on traditional trust-enhancing mechanisms such as as code management and regulation.

Appendix 3

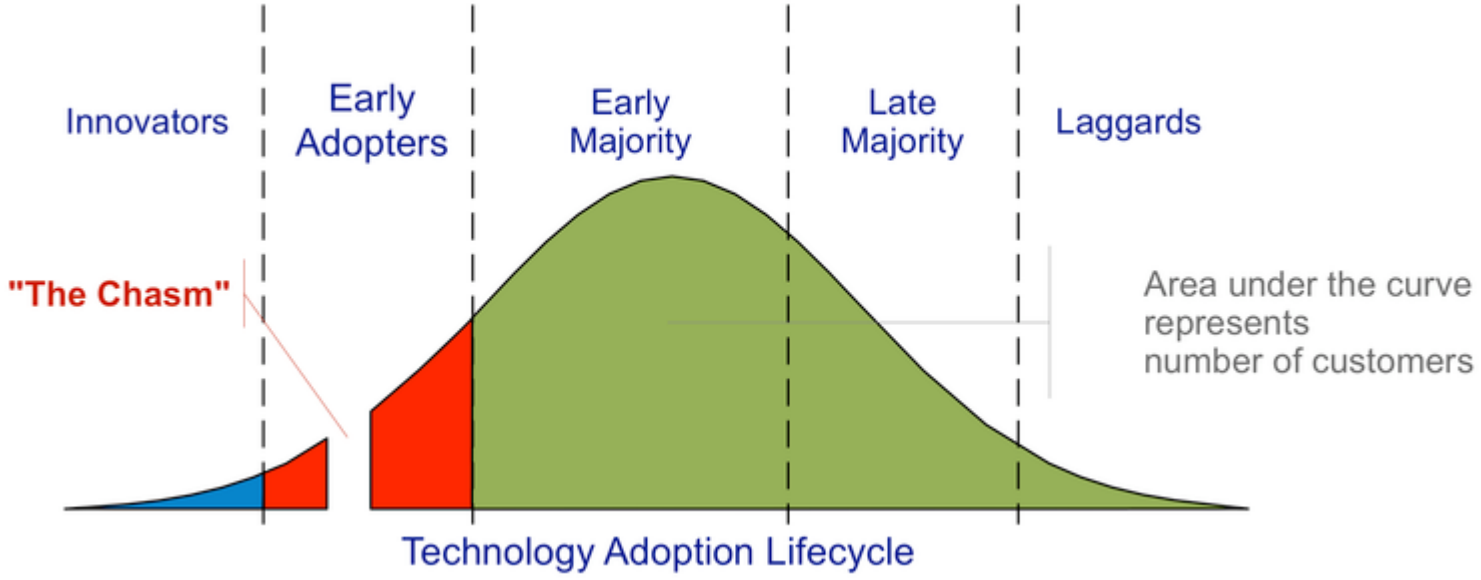
Initial Interview Guide

Introduction ● Begin by introducing yourself and explaining the purpose of the interview. ● Request the participant's consent to record the interview, if applicable. ● Assure the participant that their responses will be kept confidential.
Background and Experience: ● Can you tell me about yourself and your role in your current position? ● Can you tell me about your experience or involvement in the cryptocurrency industry? ● How familiar are you with cryptocurrencies and their role in the financial system? ● Have you encountered any specific challenges or opportunities related to cryptocurrencies?
Perceptions of Cryptocurrencies ● From your perspective, what are the main benefits and risks associated with cryptocurrencies? ● How do you perceive the involvement of financial institutions in fintech development? ● In your opinion, what are the main challenges and opportunities in the fintech industry? ● What is your perspective on the trust and credibility of cryptocurrencies and the role of regulations in building trust?
Cryptocurrency Regulations ● What are your views on the regulatory frameworks, such as MiCA, and their potential impact on the fintech industry? ● How do you perceive the current regulatory environment for cryptocurrency companies, especially in Norway? ● Are there any specific regulatory challenges or gaps that you have encountered or observed?
Cryptocurrencies and Financial System: ● Can you explain your understanding of the relationship between cryptocurrencies and the traditional centralized financial system? ● What potential use cases do you see for cryptocurrencies and a digital central bank currency?

● How do you assess the level of trust in blockchain technology versus trust in cryptocurrencies themselves?
Outlook and Innovation: ● How do you foresee the future of cryptocurrencies and their coexistence with the traditional financial system? ● Are there any specific technological or regulatory advancements you believe are needed to enhance the cryptocurrency industry? ● What do you think the future of cryptocurrencies will look like?
Conclusion: ● Is there any additional information or perspective you would like to share on the topics discussed? ● Thank the participant for their time and participation in the interview.

Appendix 4

Figure Showing Technology Adoption Lifecycle



Note. Technology Adoption Life Cycle is used to describe the general tendency of a population to adopt or accept a new product or innovation, according to the demographic and psychological characteristics of defined adopter groups. From Diffusion of Innovations (4th edition ed.) by Everett M. Rogers, Rogers, E. M.,1995, New York: Free Press.