

Unveiling Potential: Exploring Digital Art Preparedness and NFT Adoption in Developing Nations - A Case Study of Pakistan



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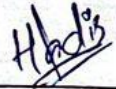
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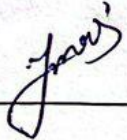
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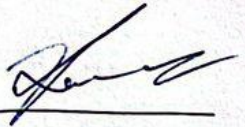
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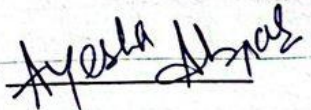
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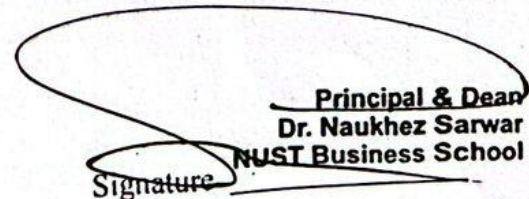
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DEDICATION

I dedicate this research to my parents, whose unwavering support and encouragement have been my foundation throughout this journey. To my father for being my pillar of strength, biggest advocate and inspiration. To my mother, for believing in my dreams.

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Thank you all for your contributions and support.

Abstract

Non-Fungible Tokens (NFTs) is an emerging phenomenon that is revolutionizing the prospects for digital art. NFTs are digital assets that operate on the blockchain technology and the transactions are made in cryptocurrencies such as Ethereum, Solana among others. The characteristic that makes NFTs a unique form of digital asset is that it provides proof-of-ownership for digital assets and every transaction that involves NFTs is recorded on the blockchain technology. Despite the rapid growth in popularity of NFTs, and the value it provides, digital artists face multiple challenges in adoption. This research aims to address this gap by identifying factors that act as barriers and facilitators in NFT adoption. The study employs a qualitative research methodology involving 25 participants from digital art entrepreneurs. Data is collected through semi-structured interviews. Thematic analysis applied to the interviews reveals major findings that crypto ban, lack of understanding of the concept, crypto volatility and social networks who act as resistance act as a barrier in NFT adoption. The digital artists who failed to adopt NFTs ignored the prospect of earning through their NFTs utilizing the freelance platforms such as Fiverr and Upwork among others where the payments are made in dollars.

Keywords:

Non-Fungible Tokens; NFTs; Blockchain Technology; Digital Art Entrepreneurs

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List of Abbreviations

NFT	Non-Fungible Token
DLT	Distributed Ledger Technology
IP	Intellectual Property
CIE	Creative Industry Entrepreneurship
DAO	Decentralized Autonomous Organizations
NFTE	NFT Enabled Entrepreneurship
UTAUT	Unified Theory of Acceptance and Use of Technology
PE	Performance Expectancy
EE	Effort Expectancy
SI	Social Influence
FC	Facilitating Conditions

Declaration

No portion of the work referred to in the dissertation has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

1. Introduction

The following section will first provide background of the concept non-fungible token and blockchain technology followed by the aim and objectives of the study, research questions and outline of the entire thesis.

1.1 Background

The introduction of the new technologies such as the foundational technology i.e., internet has enabled artists to use the same piece of art in a variety of ways (Chalmers, et al., 2021). It uses variety of softwares that turn one art form into another based on the perceived usage. A blockchain is an emerging technology that is being used in every sector due to its unique properties (Javaid, et al., 2021). A blockchain is a distributed ledger technology (DLT) that provides facilitation in recording of any information in a very secure way in a peer-to-peer network (Farahani, et al., 2021). However, due to its characteristics, blockchain is being applied in a variety of sectors such as education, health care, businesses and insurance.

Currently, market pioneers' are trying to adopt DLT particularly in the deployment of NFT related solutions (Alikhanov, 2022). NFT is unique and distinctive token that cannot be transferred for similar token (Mazur, 2021). To be specific, a digital artist can easily establish ownership for their artwork in the form of movies, pictures, event tickets and so on by leveraging NFTs as smart contracts on a blockchain which can be Ethereum, Solana amongst others (Malik, et al., 2023). Additionally, the owner of the smart contract who is the author as well can receive royalties over each sale on any marketplace (Nizamuddin, et al., 2019). Other characteristics of NFTs include promising intellectual property (IP) protection because of the traceability and deep liquidity (Bonnet & Teuteberg, 2023). NFTs are basically codes that have a certain monetary value that any buyer values because of the relative scarcity of that digital asset. This feature of scarcity inculcates value to the digital asset that makes it sell at prices that would otherwise be not achievable for non-fungible virtual assets (Kireyev & Lin, 2021).

The NFT ecosystem flourished exponentially in the year 2021, that is when the hype was created (Cho et al., 2023). The most common marketplace for NFT trading is OpenSea which is a global

platform where users can develop, sell and purchase NFTs (White, et al., 2022). Early NFT projects that created the hype of this type of art were CryptoKitties and CryptoPunks which were the images of kitties and pixelated images that were sold for million of dollars in 2017 (Delaplaine, 2022). NFTs in gaming has already reached a mature level of art and other industries such as music, fashion and sports are experimenting with this emerging technology to utilize it as per their needs (Sharma et al., 2022). NFTs of famous sports players have also been sold for hundreds of thousands of dollars. Big companies like Adidas also created their own NFTs and sold on huge profits (Bose et al., 2023). Music producers such as Grimes sold NFTs of their recordings and earned millions of dollars through the sales (Krasikov, 2022). This led to the awareness in general population that NFTs have a huge potential of selling for million dollars hence artists started shifting to NFTs to try their luck.

Historical approaches to entrepreneurship research highlight the importance of tracing the evolution of entrepreneurial activities within specific temporal framework, explaining how the historical events, cultural norms and institutional structures influence entrepreneurial behavior over the time (Wadhvani, et al., 2020). Building upon this foundation, the geographical contexts of entrepreneurship emphasize the significance of spacial factors such as geographical location, market dynamics and regional ecosystem in shaping entrepreneurial opportunities and strategies (Stam & Welter, 2020). This study contextualizes entrepreneurship within its historical and geographical setting that provides valuable insights into complex interplay of socio-economic, cultural and institutional factors driving entrepreneurial activities.

The advent of NFTs has sparked significant interest and debate over various domains including economics, security and intellectual property (Lee, 2023). As disruptive technologies continue to reshape global landscapes, developing countries are dealing with both the pros and cons posed by NFTs. As demonstrated in a case study of Indonesia (Saputra, et al., 2023), NFTs present novel challenges for law enforcement agencies, including issues related to money laundering and illicit activities. The future of intellectual property faces unprecedented challenges with rise of metaverse and NFTs. A critical examination of the taxational dimension of NFTs reveals that the complexities of regulating digital assets and ensuring fair taxation practices (Avcı, 2023). Amidst these challenges and opportunities, the NFT economy presents a compelling avenue for entrepreneurial and economic empowerment in developing countries. Drawing upon insights from Sri Lanka's management undergraduates during online learning, it becomes evident that digitalization of

assets, including academic credentials and intellectual property holds transformative potential for knowledge-based economies (Gunathilaka, et al., 2023).

NFT art has emerged as a disruptive form of art in the creative industries, offering digital art entrepreneurs monetization, ownership and self-expression. In developing countries, traditional barriers to entry are high and access to global markets is limited (AKAHYA OGLU, 2021). NFT art entrepreneurship holds promise to foster economic empowerment and inclusive innovation. By examining NFT art entrepreneurship in developing countries seek to uncover the challenges, opportunities and adaptive strategies employed by digital artists navigate the digital landscape and capitalize on emerging opportunities.

Pakistan with its rich cultural heritage, vibrant artistic community and rapidly evolving digital ecosystem, represents a compelling context for studying NFT art entrepreneurship in a developing country setting. The freelance industry in Pakistan is booming and ranked at 4th position across the globe but the research based on it is very limited (Raza, et al., 2023). NFT being a very new niche of artwork is still unexplored and it needs attention because Pakistan based artists have made some amazing sales in NFTs. The opportunities for such artists who have experienced their revenues rising are still unknown. Also, the challenges that some artists face while shifting to NFTs needs to be studied because Pakistan's freelance industry being a prominent industry needs to identify these two factors (challenges and opportunities) to guide the future artists who wish to choose this field as their career. Apart from this, Pakistan based digital artists face challenges particularly characterized by socio-economic constraints and institutional complexities (Kemal, 2023). By filling this gap, the theses aim to contribute to comprehensive understanding of contextual factors shaping digital art entrepreneurs in developing countries and offer insights for policymakers, industry stakeholders and aspiring entrepreneurs.

1.2 Gap formation and aim of the study

Adapting a disruptive technology is necessary but it needs to be done with caution (Palmié, et al., 2020). Despite the growing popularity of NFTs, research on this emerging technology is limited, and mostly focusing on the technical aspects of blockchain based applications. Unfortunately, the digital ecosystem in Pakistan has not been explored a lot and specific to NFTs there is just single research about NFT application in gaming industry (Siddique, et al., 2023). New technology adoption is very slow in Pakistan and the main reason for that is the legislator's resistance to novel

concepts (Ali, 2022). Residents of Pakistan find it difficult to adopt NFTs since they lack confidence in cryptocurrency which is the transaction method for NFTs. This is all the result of no support from the government and conflicts in the regulation of cryptocurrency (Yasir & Ahmed, 2021).

Pakistan based digital artists have been trying to adopt NFTs but there are a lot of factors that restrict them from adopting NFTs (Siddique, et al., 2023). However, the existing researches has not explicated those factors. There could be numerous technical and non-technical factors that act as barriers in NFT adoption. The existing body of literatures say little about what type of challenges Pakistan based digital artists are facing towards adopting this new kind of digital art. There are examples that reveal some digital artists were able to adopt NFTs so it will be beneficial studying the facilitating factors that help digital artists overcome the barriers in their way. Thus, this research aims to contribute to in-depth understanding of perception of NFTs in Pakistan and exploring the facilitators and barriers in NFT adoption. Digital art is such a fast-paced industry that the new concept of NFTs poses new potential aspects to literature.

1.3 Formulation of research questions and objectives

The academic literature that already lacks systematic review of the non-fungible tokens in the context of Pakistan and what factors do Pakistan based digital art entrepreneurs consider while making decision about adopting NFTs. Therefore, these limitations drove the thirst to conduct this research. This research tries to find out the facilitators and barriers that artists have to face while adopting NFTs. The objectives of this research are concluded as:

1. To explore key factors influencing the preparedness of digital artists in Pakistan for the adoption of NFT technology
2. To identify existing barriers hindering the adoption of NFTs among digital artists in Pakistan
3. To identify facilitators that could contribute to overcoming these barriers and promote the adoption of NFTs in the digital art community of Pakistan

These research questions will address the two main objectives of this study that have been defined through the gap identified in literature. The research questions aimed at filling the gap in the literature are stated:

1. What are the key factors influencing the preparedness of digital artists in Pakistan for the adoption of NFT technology?
2. What are the existing barriers hindering the adoption of NFTs among digital artists in Pakistan?
3. What facilitators could contribute to overcoming these barriers and promoting the adoption of NFTs in the digital art community of Pakistan?

1.4 Thesis structure

Chapter 2 will review the existing literature on NFTs, entrepreneurship, digital art, blockchain and cryptocurrency. Chapter 3 will elaborate on the methodology section, the research design, sampling technique and data collection criteria that has been set. Chapter 4 will describe the empirical findings of the study shedding light on the 3 main themes that emerged. Thereafter, Chapter 5 offers in-depth discussion on the themes and propositions formed from the themes, linking it to existing literature. Chapter 6 offers conclusion of the main results, major contributions of the research, practical implications, limitations and suggestions for future research.

2. Literature review

2.1 Blockchain

Blockchain can simply be understood as a decentralized, distributed and immutable ledger that consists of a chain of records connected by cryptography (Hewa, et al., 2021). The collection of records is referred to as “blocks” and the records that are being saved are termed as “transactions” or “events” (Hewa, et al., 2021). Each participant shares the decentralized ledger within the blockchain network. These exchanges add to the ledger following the process of verification and agreement between the participants using the blockchain (Agbo, Mahmoud, 2019). Blockchain is basically a “Digital Record-keeping system” that eliminates the interference of any third-party intermediaries that in normal system facilitates the transactions taking place (Chalmers, Matthews, et al., 2021). Blockchain can also convert a simple digital element into a unique asset which has more worth (Wilson, Karg, et al., 2022). Blockchains are frequently associated with volatile and generally uncontrolled financial trade. It has applications that go beyond financial transactions (Berdik, et al., 2021). These are programmable systems that allow safe digital ownership and improve trade transparency, even between strangers. There are countless possible applications for this ability to automate, incentivise, and validate global trade.

Blockchain-inspired technologies are revolutionising intellectual property (IP) development, financing, supply chain management, data management, digital product distribution, and payment (Al-Farsi, Rathore & Bakiras, 2021). Furthermore, to cope up with the problem of security breach blockchain provided a solution. It stores all the transactions using private and public keys which are basically lengthy strings of characters which a normal human cannot understand hence persons can choose to stay anonymous keeping their identities safe (Polas, et al., 2022). There are six

important features that make the blockchain technology popular 1) decentralization (information is not stored on any one system but anyone who has access to that system can access the information) 2) immutability (once transaction has been initiated on ledger it can't be changed) 3) irreversibility (when one task is executed, it can't be retraced) 4) peer to peer network (the entire load is distributed among all members who are peers and they all can operate) 5) distributed ledger (the database of all transactions are shared with all users, if one ledger gets updated, it uniformly alters data of all users) 6) Transparency (in the transaction history on blockchain technology, the dummy identity of user is represented and not the real name) (Rajasekaran, et al., 2022).

The Ethereum blockchain, created by Vitalik Buterin, takes a novel approach to decentralised apps and smart contracts (Dave & Banoth, 2022). The Ethereum blockchain is designed for unrestricted code execution on a decentralised network, in contrast to the Bitcoin blockchain, which primarily functions as a peer-to-peer electronic payment system. As a result, a variety of decentralised applications have been created, including decentralised autonomous organisations (DAOs), non-fungible token (NFT) exchanges, and decentralised finance (DeFi) platforms (DAOs) (Bellavitis, Fisch & Momtaz, 2022). Smart contracts are coded agreements that may be designed to automatically carry out preset operations, such as paying amount X to A when B occurs, further enhancing the potential of blockchain technology (Zhang, et al., 2020). Smart contracts enable organised, secure peer-to-peer transactions without the use of middlemen when combined with blockchain technology (Esmat, et al., 2021). Ether, the coin used by Ethereum, powers the network's ability to carry out transactions and smart contracts. Ethereum provides a higher level of security, openness, and effectiveness for the production, transfer, and management of digital assets (Kumar, et al., 2022).

Blockchain technology in context of Pakistan has been researched but the application of it is still in process (Hassan, et al., 2023). Taxation department in Pakistan collects and keeps the taxes imposed by the government. Pakistan is a country where the records are still maintained in registers thus maintaining the security is really hard (Butt, 2022). A research has been published that provides the solution to this problem by using blockchain technology. It provides a tax management solution with an objective to provide secure, efficient and auditable system in Pakistan environment that will prevent frauds (Vistro, et al., 2021). Based on the limitation of the central server-based data storage system for keeping the land record data in Pakistan, another

research provides a blockchain-based solution. Digitalizing the real-world land records requires a system that is robust and can withstand hacking attempts (Janbandhu, et al., 2023). Hence, the research concluded that blockchain can be used to reduce the trust on third-parties through the process of a programmed transaction recording system. The idea is to make a centralized application where all the parties involved reconcile their local databases with a centralized electronic ledger that is controlled and maintained by a trusted central party (Khalid, et al., 2022).

2.2 Non-Fungible Tokens

NFTs are a sort of digital asset that offers proof of ownership to digital artists (Mendis, 2021). In the end of 2020, these tokens attracted a lot of attention, and by 2021, they were one of the most hotly debated subjects online. NFTs have the potential to change the creative sector, bringing advantages to both the creators themselves and authentication services (Fernandes & Morais, 2022). To take advantage of their technological advantages, NFTs can be used in a variety of contexts and offer a wide range of potential application cases. The ability to purchase digital art for the goal of creating value, resale, or speculation makes NFTs an innovative investment option as well. Unfortunately, due to the NFT industry's nascent stage, there is little basic research on its participants and the various markets that they operate in (Pawelzik & Thies, 2022).

Non-fungible Tokens (NFTs) are special digital tokens that represent ownership of particular and unique assets, such as works of art, collectibles, or even digital real estate (Wilson, et al., 2022). They are kept on a blockchain. Non-fungible assets cannot be replaced and cannot be replicated, in contrast to fungible assets, such as money, which may be traded for another of equivalent value (Bal & Ner, 2019). Each coin in NFTs is unique and is derived from Ethereum's Smart Contracts, allowing for the tracking of distinctive assets (Ali & Bagui, 2021). While being highly duplicatable, they allow for the ownership of digital goods by demonstrating ownership and authenticity. The digital world, including images, music, videos, in-game items, and more, can be tokenized using NFTs (Rehman, et al., 2021). The Ethereum blockchain is a common venue for creators and collectors to buy, sell, and exchange these distinctive digital assets because the majority of NFTs are housed there. These avatars are linked to a specific address that is connected to their storage on the Ethereum blockchain. 10,000 of these avatars were initially given away for free and afterwards sold for \$50 to \$100 each on the secondary market. (Pawelzik & Thies, 2022).

According to the validated model, the buying process for NFTs may be divided into four stages, with trust playing a crucial role in each of them. These are the four phases: 1) Buyers must now have confidence in the security and dependability of the cryptocurrency wallet they are utilising to store and manage their digital assets. 2) Buyers at this stage must have confidence that the cryptocurrency they are using to buy the NFT is a reliable and trustworthy means of payment. 3) Buyers at this level need to have faith in the legitimacy and dependability of the NFT marketplace where they are making their purchase. 4) Trust in after-sales services: At this point, purchasers must have confidence that the NFT marketplace and/or the NFT's inventor will offer sufficient assistance and customer care in the event that problems or complaints occur after the sale. (Zarifis & Castro,2022). NFTs are now being studied in a variety of domains, including computer science, economics and finance, and law (Taherdoost, 2023).

NFTs provide four types of affordances: virtual assets “digital representation of an item that has value in a specific environment” (for example, virtual arts and games); hybrid assets “ asset that generally consist of two parts, namely a real-world valuable goods/resources (off-chain) and an NFT that represents the asset on a blockchain” (for example, virtual tickets and music albums with a physical presence); physical/virtual interfaces “Virtual interfaces are assigned as sub interfaces to a physical interface and allow the physical interface to carry traffic assigned to multiple interfaces” (for example, sneakers and watches with a virtual presence); and metaverse assets “ digital assets exist as non-fungible tokens (NFTs)” (e.g., a weapon, skin, or land within the metaverse) (Chandra ,2022). On public blockchain, the market for NFTs and transferable unique digital assets got huge attention and growth in early 2021 (Ante, 2022). The NFT market saw tremendous growth and attention in 2021, which was attributed to a number of high-profile NFT sales and the beginning of numerous new initiatives (Umer, et al., 2021). For the first time artists could even monetize this digital content and users could be owners of digital world.

NFTs create digital scarcity, which broadens the application scenarios for blockchain technology by giving a new type of ownership that gives digital assets value (Wang, Wang & Chen, 2021). NFTs also establish a new economic ecology that energises content creators by allowing them to sell their work in previously unreachable markets due to high barriers to entry. It also allows them to decrease third-party participants and change smart contracts, enhancing efficiency and lowering expenses. Based on the contexts in which they are most typically utilised, NFTs are divided into

six broad categories: art, collectibles, games, metaverse, other, and utility (Nadini, Met al., 2021). Many digital things, including but not limited to GIFs, tweets, virtual trading cards, physical photographs, games, sports memorabilia, virtual real estate, and fashion accessories, have been commercialised using non-fungible tokens (NFTs) (Lee & Xie, 2023).

The concept of Non-fungible tokens (NFTs) arise from applications of blockchain which transforms the production, commoditization, exchange, storage, and authentication of content for both content producers and their fans (Chohan, Paschen, 2021). NFTs were first created in 2013, but they weren't widely known until a collage of pictures was sold as an NFT in March 2021 for \$69.3 million (Chohan, Paschen, 2021). Any digital elements, including moving pictures, brief video snippets, and even Twitter tweets, can be turned into an NFT. By releasing tickets as NFTs, venues can provide a range of perks to consumers, increasing the motivation to buy while also allowing the venues to collect royalties on secondary sales. Other firms are investigating how NFTs could be used to establish and record people's online identities and reputations. ¹

2.3 NFT art marketplace

In 2018, Yash Nelapati launched “MakersPlace” with the intention of creating a platform that supports a dynamic and sustainable future for digital creative (Pawelzik & Thies, 2022). Due to the general excitement within the NFT community and particularly as a result of the partnership with the auction house "Christies," where Digital Creator "Beeple" pseudonym of Mike Winkelmann sold the NFT: "EVERYDAYS: THE FIRST 5000 DAYS" for 69,346,250 USD, the platform has seen an increase in engagement (Jeong, 2022). MakersPlace is a desirable premium NFT art marketplace for investors as well as for buyers and collectors (Lin, et al., 2022). MakersPlace is a blockchain-based art marketplace that allows creators to publish and sell their work in a variety of formats, including digital drawings, pictures, and 3D art (Pawelzik & Thies, 2022). MakersPlace, in addition to functioning as a mediator between buyers and sellers, provides tools for creators to upload their products to the Ethereum blockchain. On Makersplace, collaboration with creators is highly valued, and creators offer an NFT that is electronically signed

¹ Kaczynski, S & Kominers, S (2021) “How NFTs create value” Published in Harvard Business Review <https://blog.sodipress.com/wp-content/uploads/2022/03/How-NFTs-Create-Value.pdf> Accessed on 19th November, 2022

by them using their public Ethereum address (Pawelzik & Thies, 2022). NFTs are created by uploading a file to an NFT auction market, where it is recorded on the blockchain as a one-of-a-kind NFT that may be purchased or sold using digital currencies (Choudhary, 2022). NFTs can also be utilised in a variety of other situations, including as gaming, virtual real estate, and other applications that create and exchange digital goods. The potential uses for NFTs are anticipated to expand as the technology advances and new use cases arise (Chohan, 2021).

2.4 NFTs Applications in Developing Countries

Non-fungible tokens present both opportunities and challenges for developing countries. Reviewing the literature, on one hand, NFTs offer a unique avenue to creators in these regions to tokenize their art, cultural heritage and intellectual property, hence, accessing global markets and securing fair compensation for their work (Duangsin, et al., 2023). This study highlights the potential for NFTs to empower local artists and artisans economically. However, challenges persist, as evidenced by the analysis of potential threats of NFTs for national security and economic resilience, particularly in countries like Indonesia (Saputra, et al., 2023). Issues such as regulatory uncertainties, intellectual property protection and taxation consideration have been explored by (Firlana & Wibowo, 2023) that poses significant hurdles to the widespread adoption of NFTs in developing countries. Additionally, factors such as limited internet access and technological literacy further complicate the integration of NFTs into these economies (Dalai, 2022). Therefore, while NFTs hold promise for economic empowerment and cultural preservation, addressing these challenges will require collaborative efforts from governments regulatory bodies, and tech companies to ensure inclusive and sustainable adoption in developing countries.

2.5 Digital Art

Art exists in multiple forms. It can be physical or digital depending upon the interest of the artist and the tools that are being used. With the rise in technology digital art using digital technology is now well recognized (Kawamura, Nemoto, 2022). Digital art can be produced simply by using a computer unlike manual painting (Twigg-Smith, et al., 2021).

During a global epidemic in the year 2021, a JPEG file, which is essentially a digital image, was sold for an incredible \$69 million (Umer & Kishan, 2021). This event occurred in the midst of

increased efforts by corporations and government to digitise their activities, giving digital assets a greater prominence than ever. Although while some contend that any digital image may be easily imitated with a straightforward screenshot, the relevant JPEG retains a special value as "the" image even in its digital form (Radermecker & Ginsburgh, 2023). A high-resolution reproduction of the Mona Lisa would grant one ownership of the work in their house, to make a comparison with conventional art. There has been increasing interest in non-fungible tokens as a solution to the problem of owning non-physical goods like digital art.

An important property of digitalized element such as an image or an online file is that it can easily be reproduced which means enormous amount of same digital art can be created which can sometimes become a threat or breach of security (Pawelzik, Thies, 2022). This problem has been catered by blockchain. Blockchain technology can be used to make digital art visible and prove who owns it as part of a larger strategy for identifying, attributing, and paying for digital work (McConaghy, et al., 2017).

2.6 Entrepreneurship

Entrepreneurship has an important role in promoting economic prosperity. (Chowdhury, et al., 2019). Entrepreneurship is distinguished by its emphasis on organisations and the persons associated with them, particularly at critical phases in the organisational life cycle. These stages include pre-start-up and early development periods, as well as moments of renewal in which individuals attempt to identify and capitalise on emerging opportunities (Chrisman, et al., 2021). Researchers have commonly used the terms "artist" and "entrepreneur" interchangeably when investigating artist entrepreneurs, failing to distinguish between those who operate in a traditional wage/salary environment and those who work as independent contractors or sole owners (Benzenberg & Tuominiemi, 2021).

Artists and businesspeople share similar features in modern times, as both tend to depart from prevailing norms and create original and unique products that hold value for the customers (Chang, et al., 2021). Schumpeter's (1942) theory of creative destruction, which emphasizes the production of new combinations that disrupt an economic market's cyclical flow, has also been applied to entrepreneurs who exhibit similar characteristics (Cao & Evans, 2022). Artists, like businesspeople, are constantly looking for new ways to produce (Robinson & Novak-Leonard,

2021). Although self-employment is not often synonymous with entrepreneurship, employees who choose self-employment do so in part to achieve the independence associated with being an entrepreneur. As a result, if we assume that artists have an innate entrepreneurial spirit, it is critical to comprehend how these individuals progress towards their ultimate aim of self-employment. (Woronkowicz & Noonan, 2019).

Entrepreneurship can be defined as formation of any new business enterprise by an individual or a small team where the entrepreneur consider himself as the major agent of change in the society by pioneering the industrial progress that ultimately leads to major cultural shifts (Kent, 1982).

Creative industry mainly represents a mutual association between knowledge-centered sectors to focus on the creation and exploitation of intellectual property (Kamiloğlu, 2022). Creative industry entrepreneurs can be defined in simple terms as both creators (for example musicians, artists, photographers, designers etc) and venture owner who deal with broader ecosystem by supporting the distribution and production process of creative goods (for example galleries of art, publishers, production companies etc) (Chalmers, et al, 2022). They create value through a cycle of creation, production and distribution, using their intellectual property as the primary source of capital (Bamakan, et al., 2022). Such entrepreneurs take advantage of the fact that intellectual capital is a source of competitive advantage (Obeidat, et al., 2021). The sectors of creative industry entrepreneurship include art, design, crafts, etc which are formed by business activities based on entrepreneur's individual creativity, skill and talent (Gouvea, et al., 2021). Furthermore, they have the potential for capital formation and job creation through the use of intellectual property (Pasara & Garidzirai, 2020). The use of NFTs was pioneered by creative industry entrepreneurs seeking new revenue streams and modes of stakeholder engagement. (Chalmers et al, 2022).

2.7 Blockchain, NFTs and Digital Art Entrepreneurship

Technology such as the internet and information and communications technology allowed for the emergence of the phenomena known as "digital entrepreneurship" (Steininger, et al., 2022). Digital entrepreneurship can generally be defined as any entrepreneurial action that converts an asset, service, or significant portion of the business into the digital realm (Modgil, Dwivedi, et al., 2022). According to (Holubčík, et al., 2021) digitalization created numerous opportunities for

entrepreneurs in various field such as healthcare, education, security etc. Development in technology and advancement in infrastructures has created different opportunities for entrepreneurs and for that digital entrepreneurship is a hot topic (Kraus, Palmer, 2018).

A digital platform is described as “A shared, common set of services and architecture that hosts complementary offers such as digital artefacts.” (Ulhøi, 2021). Digital infrastructure is defined as the tools and systems that are being used in digital technology that support innovation and entrepreneurship (Nambisan, 2017). Digital entrepreneurship is the process of creating an original business idea using just digital tools and the virtual environment. In the sphere of entrepreneurship, digital technologies emerge as three different but linked elements: digital artefacts, digital platforms, and digital infrastructure (Nambisan, 2017). In this context, a digital artefact is described as a digital component, application, or media material that is part of a new product (or service) that provides a certain functionality or value to the end-user (Elia, et al., 2020).

Smart contracts and blockchain technology development provide digital art entrepreneurs with a way to safeguard their creations against theft and unauthorized usage. The digital creative industries, particularly the digital art entrepreneurs, are likely to adopt blockchain-inspired technologies despite continued technical difficulties with regard to long-term security, sustainability, scalability, stability, and transaction speed because they are early adopters of new technology (Patrickson, 2021). These emerging technologies are already being used by businesses, governments, and the general public as instruments for digital value production and exchange. Blockchain technology proponents contend that it can increase the transparency, security, and efficiency of digital transactions, which could have important ramifications for digital creative industries like extended reality, gaming, web/interface/experience design, digital media production, and digital art (Whig, Velu, & Naddikatu, 2022). By enabling secure digital ownership and better transaction openness, even between complete strangers, blockchain technology has been hailed as a possible game-changer for the creative sector. To authenticate these ledgers, a cryptographic procedure is used to cross-check any modification or discrepancy between each ledger. Despite the potential importance of blockchain and smart contracts for the creative sector, it is necessary to approach the adoption of blockchain technology in the digital creative industries from a critical vantage point and to give ethical issues and responsible innovation practises top priority (Malik, et al., 2022).

The art market has already been impacted by the usage of Ethereum for the creation and trade of Non-Fungible Tokens (NFTs), which allows artists to sell their digital artwork as distinctive, one-of-a-kind assets. Recent research has shown that NFT is an external enabler of entrepreneurship (Aberkane, 2022) which encourages individuals and groups to be creative and imaginative to seek out new forms of entrepreneurial action that leverage and transform NFT (Müller, 2022). This concept has been referred as NFT enabled entrepreneurship or (NFTE) (Chandra, 2022). A more formal definition of NFTE is “entrepreneurial activities that leverage non-fungible token technologies as a key enabler” (Chandra, 2022). The NFT, which originally began as an art/game experiment, has given rise to a new type of virtual world enterprise with a ton of potential and affordances (Chandra, 2022). NFT provides CIEs with qualitatively different (and sometimes better) opportunities for new venture ideas, such as those based on services for the protection, verification, or security assurance of creative outputs, which may be relevant in contexts such as gaming, trading, or collecting rarities (Chalmers et al, 2022). Not only does establishing business in the NFT realm involve almost little cash, but it also provides a worldwide virtual market where ordinary people may create, explore, and be discovered (Chandra, 2022).

NFT also poses some challenges to entrepreneurs from different regions and this study will aim to find out if Pakistani art entrepreneurs face the same challenges or not and how are they different. Some of the challenges that have been identified through research are 1) Usability (“measure that maps users' effectiveness, efficiency, and satisfaction when analyzing a specific product/design.”) (Bano, et al., 2019); 2) Privacy (because data stored is inaccessible) (Uribe & Waters, 2020); 3) Governance (due to legal issues that are imposed on cryptocurrency) (Fairfield, 2022); 4) Security (spoofing and tampering the identity of a user to get the royalties leads to vulnerability) (Garay, 2017); 5) Extensibility (questions if the system is compatible with other ecosystems and ability of NFT to update when current version becomes obsolete) (Garnett & Neuburger, 2021); 6) Environmental (is this technology sustainable enough to rely on it) (Chen, 2020); 7) Intellectual property (reproduction of art have been minted on different exchanges when the art is not protected by the real owner) (Ali, et al., 2023). This research conducted by (Ali, et al., 2023) identified common challenges in NFT adoption however this research will explore challenges in the context of developing countries with a focus on Pakistan. The unique socio-economic, cultural or regulatory factors have yet not been studied which adds novelty to this research. It will also highlight if the challenges in NFT adoption differ or amplified in this context.

2.8 Theoretical model

The Unified Theory of Acceptance and Use of Technology (UTAUT) is the most suitable theoretical framework for finding and examining the factors that influence an individual's intentions to accept the new technology and benefit from the latest digital tools (Andrews, et al., 2021). This particular model has been chosen for the fact that it outperformed other acceptance models such as Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB) etc. by explaining as much as 70 percent of variance in intention forming and 50 percent in technology use (Akinuwesi, et al., 2022). It advanced in including other elements that influence technology adoption and usage (Alshammari & Rosli, 2020). The four fundamental constructs in UTAUT that serve as direct determinants of technology acceptance and usage behavior of users are Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC) (Altalhi, 2021). These constructs are hypothesized to drive technological intention, which in turn influences actual usage behavior. Performance expectancy describes the degree of belief that the individual has that the use of this particular technology will help him/her in improving job performance (Gunasinghe & Nanayakkara, 2021). Effort expectancy describes the degree of ease linked with the use of the technology (Ayaz & Yanartaş, 2020)). Social influence defines the extent of trust or importance perceived by the individual on the belief of other people for him/her to try out the new technology (Albayati, et al., 2020). Facilitating condition describes the degree of belief of an individual that the existence of organizational or technical infrastructure would support the use of technology (Ambarwati, et al., 2020).

UTAUT has been applied to a range of technologies, including mobile apps, social media platforms, and e-commerce websites, and it may also be beneficial in identifying the elements that impact NFT uptake and usage (Mahalil, et al., 2020). Performance expectancy refers to the perceived benefits that digital art entrepreneurs associate with using NFTs to tokenize their digital artwork. The financial gains, increased exposure in terms of community engagement and creative freedom that artists were offered comes under the performance expectancy. NFT adopters and non-adopters both were aware of these perceived benefits, but the decision-making process differs. Social influence acted as an enabler for NFT adopters since some of them joined under the influence of famous digital artists who shared their success stories on social media platforms. Meanwhile, the same factor acted as a disabler for NFT non-adopters because their peers thought NFTs is not easy and blockchain technology is not reliable. Effort expectancy is also related to the

social networks in this research where social networks mainly discouraged the art entrepreneurs not to go for NFTs as it is a complex form of art and not worth the effort. Facilitating conditions were another factor that acted as enabler for some artists while disabler for other. Some of the digital artists consider upgraded hardware and easy access to community engagement as facilitating factors during their NFT adoption process. On the other hand, hardware limitations such as high-end hardware absence led to non-adoption of NFTs since they believed that NFTs cannot be digitally created on low-end computers. Government regulation regarding cryptocurrency ban was a disabler for most of the digital artists. However, some of the artists realized that NFTs can be sold via freelancing websites that pays in dollars hence, no requirement to interact with cryptocurrency.

UTAUT has been widely applied to the study of disruptive technologies (Andrews, 2021; Abbad, 2021) because it provides valuable insights into factors that influence adoption and usage (Hu, et al., 2020). By examining users' perceptions of the benefits and challenges associated with these innovations as well as the impact of social networks and facilitating conditions on NFT adoption, UTAUT offers a holistic approach to analyze the adoption process of disruptive technologies. Its flexibility allows researchers to adapt the framework to suit the unique characteristics and challenges of NFT adoption in developing countries like Pakistan ensuring its suitability for diverse contexts.

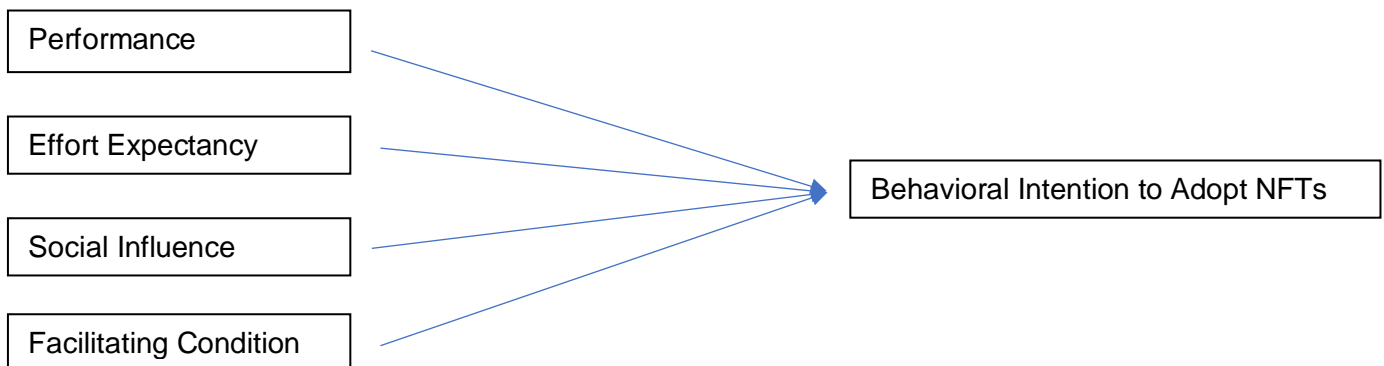


Figure 1: Model of UTAUT Framework

3. Methodology

3.1 Philosophical Positioning

3.1.1 Ontology

The philosophical study of the nature of reality or the possibility for knowing the universe is called ontology (Dalai, 2022). It is primarily concerned with the existence and relationships of diverse players in society, cultural and social conceptions, and their interaction with various parts of metaphysics (Debele, 2019). This study falls into the boundary of subjectivism where behaviors are interpreted, and more than a single reality exists. The subjectivist reality naturally leads towards qualitative research. The data could not be put into numbers because the description of data which will be the type of challenges and opportunities that can't be numbered. Traits or attributes need non-numerical data to be interpreted and hence a subjective approach needs to be used to understand the phenomena of NFTs.

Ontology pertains to the philosophical exploration of the nature of reality and the possibilities of comprehending the world (Al-Ababneh, 2020). In the context of this research, which is related to blockchain technology and its application NFT, it is crucial to position the study in the appropriate domain. Subjectivism best describes the ontology of this research since the respondents of this study have varying perspectives regarding the phenomena of NFTs. It could be perceived positively and negatively both as the situation surrounding each individual is unique.

3.1.2 Epistemology

Epistemology refers to the study of what parts of knowledge are considered acceptable (Dalai, 2022). Many elements can influence the formation of meanings, including "one's prior experience and knowledge, political and social status, gender, colour, class, sexual orientation, nationality, personal and cultural beliefs." (Kamal, 2019). Because social realities are difficult to investigate objectively, interpretivism employs the strategy of using the circumstances in which the events occur (Al-Ababneh, 2020). This study has its roots in the interpretivist philosophy because ontology is subjective, and the focus of this research is to understand individual digital art entrepreneurs and the challenges and opportunities they get exposed to. Interpretivism employs the process of interpretation to comprehend them. Challenges and opportunities can be very specific to an individual. This research also aims to identify (non) technological barriers due to

which entrepreneurs could not adopt NFTs and that cannot be quantified because every individual faces it in a different way depending upon what resources and experience, they have.

With blockchain technology becoming more widely used and cryptocurrencies such as Bitcoin becoming more popular, it is critical for individuals to comprehend the underlying ideas. This study takes a philosophical approach to identifying human behavior, which is especially appropriate for areas with no preceding research or theory. This study tries to unearth new knowledge and insight in the field of NFT by prioritizing the opinions and beliefs of digital artists of Pakistan participating in the research.

3.2 Choice of Qualitative Research

This research contributes to the literature around which very little research has been carried out. Research can be found on NFTs but in context of Pakistani digital artists there exist no article that could educate about different challenges and opportunities that they face. There are no such developments and for that reason qualitative research is the most suitable choice to conduct this research. Qualitative research is a type of analysis that offers in-depth understanding of any issue that exists in the real world (Tomaszewski, et al., 2020). Unlike quantitative research, which focuses on collecting numerical data to test hypotheses or measure variables, qualitative research is concerned with gathering rich, detailed data from participants through methods such as interviews, focus groups, or observations (Mohajan, 2020).

It gathers the experiences, perceptions and behaviors of respondents and try to interpret it. Qualitative research uses the analysis technique of semi structured open-ended interviews. The strength of qualitative research is that it explains the processes and patterns of human behavior that are hard to understand else (Leeming, 2018). Qualitative research is the most suitable for this research since it deeply understands the contextual insights into the specific challenges and facilitators faced by digital art entrepreneurs. It helps to uncover the unique circumstances, perspectives and experiences of artists involved in this domain. Qualitative research mainly enabled this research to gather rich and in-depth data through using the technique of open ended interviews.

A qualitative approach is well-suited in exploring the motivations, beliefs, and experiences of digital art entrepreneurs who have accepted NFTs and those who have not. By conducting semi-structured interviews with Pakistan based digital artists, this research provides deeper

understanding of the concept of NFTs, their reasons for accepting or rejecting them, and the impact NFTs have had on their lives and work. By conducting interviews with Pakistan based digital artists, this research gains a deep understanding of the challenges they face in the art world, as well as the potential benefits that NFTs may offer.

In conclusion, by exploring the experiences and perspectives of Pakistani digital artists regarding NFTs, this qualitative research will provide new insights into an unexplored area of the art world. This will not only benefit Pakistani digital artists but also contribute to the broader discourse on NFTs and their impact on the global art market.

3.3 Sampling

A qualitative study has many sampling techniques out of which some are more preferred. (Farrugia, 2019) made a point that sampling approaches that are conceptually driven are more preferred. It mainly consists of two types which are theoretical and purposive sampling (Chun Tie, et al., 2019). Purposive sampling has been chosen for this research. It entails the researcher actively and carefully choosing the sample they feel will be most useful in addressing the research issue (Farrugia, 2019). In purposive sampling this research will follow criterion sampling. The fundamental idea behind criterion sampling is to include pertinent circumstances in accordance with predefined criteria (Karademir, 2020). The technique to find sample for this research would be snowball technique. It is the technique of choosing certain study participants through the recommendations of other participants who share similar traits and have relevant information (Fernando, et al., 2019).

Digital art entrepreneurs who fulfill the criteria of this research would be made part of the sample. In digital art graphic design artists have been chosen who have been selling their art for a minimum of 3 years. They sell their work independently since they are freelancers. Sample has been collected from freelancing websites such as Upwork, Fiverr and social media platforms like LinkedIn. They need to be Pakistan based earning from national or international clients but the ultimate effect of their earning would be in the Pakistani society and market. There is no restriction of gender or revenue limit.

The sample for this study consists of two sets of respondents i.e. adopters and non-adopters of NFT(Non-fungible token). Out of the 25 respondents, 13 respondents were non-adopters and 12 of them were adopters of NFTs. The reason that goes behind choosing two sets was to do a

comparative analysis to identify patterns, differences and similarities between the two group that provided richer insights about the factors acting as enablers and disablers for NFT adoption. Adopters shared insights on what motivated them to adopt NFTs and how did they overcome the challenges during the process. Meanwhile, NFT non-adopters provided reasons for their reluctance to adopt NFTs even though they had the knowledge of perks associated with NFT adoption. Studying the two sets parallel to each other added diversity of perspectives that enhanced the depth of this research.

Respondent code	Total experience (Years)	Current designation	Digital art expertise	Gender
R1	5	Program Manager/Graphic designer	Graphic design	F
R2	3	Graphic designer	Graphic design	M
R3	6	Student/NFT art entrepreneur	NFT art	M
R4	3	Crypto trader	NFT art	M
R5	3	Student/Graphic designer	Graphic design	M
R6	3	Graphic designer	Graphic design	F
R7	6	Graphic designer/Animations	Graphic design	M
R8	6	Student/Graphic designer	Graphic design	M
R9	3	Supply chain assistant/Graphic designer	Graphic design	M
R10	3	Graphic designer/NFT artist	NFT art	M
R11	4	Data engineer/Graphic designer	Graphic design	M
R12	5	Student/Graphic designer	Graphic design	M

R13	3	Mechanical engineer/Graphic designer	Graphic design	M
R14	5	Crpto trader/NFT artist	NFT art	M
R15	4	Student/NFT artist	NFT art	F
R16	5	Student/Graphic designer	Graphic design	M
R17	6	NFT artrist	NFT art	F
R18	3	Graphic designer	Graphic design	M
R19	3	Student/NFT artist	NFT art	F
R20	4	Student/Graphic designer	Graphic design	M
R21	7	Game designer/NFT artist	NFT art	M
R22	3	Student/NFT artist	NFT art	M
R23	6	Design engineer/NFT artist	NFT art	M
R24	4	Student/NFT artist	NFT art	M
R25	5	3D modelling designer/NFT artist	NFT art	M

Figure 2: Table of respondents

3.4 Data Collection Tools

The research methodology employed in this study involves the use of semi-structured interviews as the preferred data collection method. Semi-structured interviews are defined as exploratory interviews by (Ruslin, et al., 2022). They further explain that semi-structured interviews are generally based on a guide that is focused around the main topic which generally sets the pattern of the interview. These interviews provide ample opportunity for spontaneity, enabling the researcher to gather descriptive data (Biasutti, & Habe, 2021). Conducting the interviews in real-time, with a conversational approach, allows for greater expressiveness on the part of participants, and an opportunity to bring their ideas and perspectives to the fore (Börner, et al., 2023). It further explains that the viewpoints of the interviewees are expressed in a relatively openly structured situation that provides them freedom to tell a lot about the main topic. While the structured interviews are formal with a limited set of questions, the semi-structured interviews are more

flexible, allowing new questions to be brought forward as a consequence of what the interviewee has replied (Hwang, et al., 2023)

In a semi-structured interview, the interviewer generally has a set framework of themes that need to be explored. Good interview usually consist of a balance between the main questions, follow-up questions and probes (Jiménez, et al., 2021). Many researchers believe that it is beneficial for the interviewer to have prepared an interview guide before conducting interviews (Bihu, 2020). An interview guide has an informal group of topics and questions that have to be asked from different interviewees. The guide helps the interviewer to stay focused on a topics without constraining them to a standard format (Knott, et al., 2022). It also helps to tailor the questions as per the situational context. This technique has been applied to this research for the fact that NFTs is an emerging topic and researchers do not have expertise about the topic, hence, the need for in-depth interviews arised (Parrales & Batbayar, 2022). In-depth knowledge of respondent's perceptions and experiences was necessary hence, semi-structured interviews provided the liberty to probe the interviewees and ask questions in that context. The semi-structure interviewees encourage active participation and interaction with the participants that allowed them to share their feelings which helped the interviewer to capture authentic insights that might have not emerged through a rigid interview approach (Ruslin, et al., 2022). Audio recordings of the interviews were taken as raw data and kept saved in Microsoft Teams. Usually, the audio recordings have to be transcribed to convert the audio to written transcripts (Knott, 2022). Microsoft Teams has an in-built function of transcription that was turned on during all the interviews. In most of the cases, the medium of interviews was English. However, it was shifted to Urdu on some participant's request. The audio recordings in English were automatically transcribed but since intelligent verbatim was used, the repetitions and other noises were deleted from the Word document of each transcript. Also, it was AI generated transcript, so it was edited in case of wrong spellings and translation. The audio interviews in Urdu medium were manually transcribed by the interviewer without any biases. The translation from Urdu to English was done as per the recorded audio. Transcription has various advantages, including making data analysis easier and empirical findings more accessible (Linneberg & Korsgaard, 2019). Furthermore, transcribing allows the researcher to code the data, highlight key sections, and identify main themes and categories of the study.

3.5 Interview Process and Transcriptions

To ensure that the interviews remained focused and aligned with the research objectives, an interview guide was developed in advance. This guide included a set of questions and key points to be covered during the interview, as per the research questions and problematisation identified in the literature review. The conversation is conducted in English and Urdu. The medium was decided by the interviewee. As per qualitative interviewing best practices, the interviewer maintains a neutral stance, allowing the respondents to freely express their thoughts and perspectives. Tangential questions and conversations that were not part of the interview guide were also encouraged, as they provided valuable insights and further enriched the data collected.

Between June-August of 2023, a total of 25 people were interviewed. The interviews lasted between 30 and 60 minutes, with the longest interview reaching 120 minutes. Because of the participants' diverse geographical locations, the interviews were performed remotely via Microsoft Teams. Due to time zone variations, several interviews had to be rescheduled. Two of the research participants were on vacations (out of country) and three of the respondents had recently moved out of the country to pursue higher education. It caused a slight issue but was eventually workable. Throughout the course of the interviews, a consistent pattern of questioning was followed, with some minor variations. After each interview, the transcripts were thoroughly reviewed, and certain nuances were emphasized differently to extract answers that could be of relevance to the research. The direction of the conversations evolved organically, with specific twists and turns adapted based on the nature of the discussions, allowing the researcher to gain in-depth insights into specific and relevant areas of inquiry. It is worth mentioning that some questions during the interviews were designed not to generalize findings, but rather to capture diverse perspectives from the respondents. For instance, if Person 1 expressed a certain viewpoint, Person 2 would be asked a similar question to gather different opinions on the same situation.

3.6 Data Analysis Technique

Thematic analysis is chosen as the primary strategy for this study due to its suitability in exploring the rational complexity of the research topic from a sociological perspective (Samudra, 2022). Inductive thematic analysis was deemed appropriate as it allows for an evaluation that is grounded in the data itself, rather than being solely guided by existing theories and concepts (Delic, et al.,

2022). This approach aims to derive meaning from the data without imposing any bias, although it acknowledges that pure induction may not be entirely feasible in most qualitative research, as the researcher's theoretical assumptions, experience, and ideas inevitably shape the study to some extent (Clarke et al., 2015). The first step of this process begins with coding, which involves the recognition of important moments and encoding it prior to the process of interpretation (Braun & Clarke, 2022). Gupta (2024) defines a “good code” as “the code that captures the qualitative richness of the phenomenon”. Encoding the information completely helps organize the data to further develop themes from them. Themes generated from codes are basically “a pattern in the information that at minimum describes and organizes the possible observations and at maximum interprets aspects of the phenomenon” (Xu & Zammit, 2020). The process involves the identification of themes through very careful reading and re-reading of the data. It is a form of recognizing patterns within the data, where emerging themes are finally turned into categories that describe the data systematically (Alam, 2021). Thematic analysis due to its inductive nature, allowed for the emergence of new data throughout the research. The flexibility of the approach was especially beneficial for the study, enabling the researcher to change questions as necessary (Delic, et al., 2022).

The researcher began by identifying interesting parts of speech in the interview transcripts and assigning them codes. A code is often a small word, or phrase representing the raw data (Linneberg & Korsgaard, 2019). Throughout this process, the interview guide and research questions were kept in mind but were not strictly adhered to. The coding was done manually on Microsoft Word. The coding process facilitated recognition of patterns in data, and was aimed at establishing a framework by labeling the data and linking it back to the research questions (Chun Tie, et al., 2019). Quoting examples from the data collected, a digital artist(NFT non-adopter) said in the interview that “So as I mentioned that I face swaped my brother so I keep doing stuff like that as well and I do have an Instagram page where I post stuff that I made for fun and not for the clients” which was coded as “ Creating art for fun (R13)”, where “R13” stands for respondent number 13. Another respondent shared “And in university you come to know about people they know about you it's all about networking when they find out work that's related to you they approach you and you do it for them” that was coded as “Networking helps in seizing opportunities (R12)”. Once the initial codes were assigned, the next step was to formulate themes. Clustering codes was the next step where codes that generated similar meaning were grouped together to form themes.

For example, the codes from NFT non-adopters were clustered as:

Barrier for new entrants in NFT trading: Gas fee (R7)
Barrier to adopt NFTs: Gas fee (R13)
Gas fee: Huge barrier for not adopting NFTs (R13)
Major reason for not adopting NFTs: Gas fee (R9)

And they were put under the theme: “Gas fee: Huge barrier for not adopting NFTs”

Two files were created on Excel sheets (one for NFT adopters and other for non-adopters). All the codes and themes were put together in Excel sheets so that the process of categorization becomes easier. The last step was to group related themes into categories that could describe different aspects of that category. Categorization in qualitative data analysis involves grouping together similar patterns or clusters (Saldaña, 2017). Taking example from the data, a set of themes were grouped together under 1 major category “Perceived benefits of NFT adoption”

NFT hype persuaded artists to shift to NFTs
NFT has the potential to be sustainable
Financial prospects of NFTs: Major reason for artist's shift
Proof of ownership in NFTs: Major reason for artist's shift
Access to NFT community: Reason for artist's shift

3.7 Establishing trustworthiness of the data

The framework of trustworthiness that has been applied to this research was from Lincoln and Guba (1985). The framework has four constructs which are 1) Credibility; 2) Dependability; 3) Confirmability and 4) Transferability (Kyngäs, et al., 2020). It helped to ensure that the findings of this research were reliable and valid, thereby enhancing the quality of research outcomes. Credibility describes the confidence and trust on the findings of the research (Haq, et al., 2023). Dependability refers to the replicability and confirm if the findings are consistent (Enworo, 2023). Confirmability defines the degree of neutrality in the findings, in other words, the extent to which the results reflect the respondent’s opinions and experiences rather than the researcher’s biases and

motivation (Amin, et al., 2020). Transferability of a research describes if the findings are also applicable to other contexts or not (Hays & McKibben, 2021)

3.8 Ethical Consideration

Due to in-depth nature of qualitative study, ethical consideration is of prime importance. Respect is mandatory during interviews so the participants don't feel stressed while sharing their feelings and thoughts (Arifin, 2018).

3.8.1 Before data collection

Informed consent signing:

The researcher will make the consent forms signed by the participants. Consent is voluntary. Participants should feel free to decline to participate or withdraw their consent at any time, without fear of any negative consequences. The subject understands what is being asked by the researcher and should be competent enough to consent. Participants of that sample must be adequately informed about the research so they could easily comprehend the information and have the freedom of choice to participate or decline the questions (Borovecki, et al., 2018). Participants were requested to complete a consent form before to the interviews, which highlighted the ethical considerations and nature of the interview process. This form provided permission to capture audio during the interview for data transcription purposes. It is important to explain to them the purpose of the study, the types of questions they will be asked, and how their responses will be used. This can help them make an informed decision about whether or not they want to participate.

In the case of Pakistani digital artists and their experiences with NFTs, it is important to also consider any cultural or language barriers that may impact the participants' ability to understand the information provided.

3.8.2 During data collection

Anonymity and confidentiality

The confidentiality and anonymity of the participants is preserved by not revealing the name or identity of the participant in the data collected or any further analysis. The data collected during the interview is only used for this particular research. Identity would not be revealed in any case. Privacy will be managed carefully during the telephonic interviews (Surmiak, 2018).

Participants may be sharing information about their digital artwork and their experiences with NFTs. It is important to explain to participants how their data will be used and the potential implications of sharing this information. Another important ethical consideration is to ensure that participants are not coerced or influenced in any way during the interview. It is also important to ensure that participants are not pressured into sharing information that they are not comfortable with. Finally, it is important to respect the cultural context of the participants. As this research is focused on Pakistani digital artists, it is important to be sensitive to the cultural norms and expectations of the participants. This may include ensuring that the language and tone of the interview are appropriate and respectful, and being mindful of any potential power dynamics that may exist between interviewer and the participants.

To maintain privacy during the telephonic interviews, interview is conducted in a private location where the participant is not at risk of being overheard or interrupted. Additionally, it was helpful to remind participants at the beginning of the interview that the conversation is confidential and will not be shared with anyone outside of the research team.

3.8.3 After interviews

Disposal of interview recording:

After the research has been carried out and after the analysis of the information all the interviews that were recorded were destroyed forever. All the files in any of the devices or email etc. are loyally discarded. One important consideration was to ensure that the participants' digital artwork is not used without their consent. As this research studies experiences of Pakistani digital artists, it was important to recognize that their artwork is their intellectual property and will never be used without their permission.

4. Findings and Analysis

The respondents are bifurcated in adopters and non-adopters of NFT (Non-fungible token). The qualitative findings, after the application of thematic coding resulted in three major themes for both the adopters and non-adopters of NFT (Non-fungible token). The three main categories are the preparedness process of digital art, juggling between the pull and push factors of the freelance journey, the suggestions to improve the digital ecosystem and the decision-making process to opt for NFTs. The first part of the research was conducted by NFT adopters to understand how their freelance journey looks like, and how did they overcome the challenges in NFT adoption to make this freelance niche work for themselves. The second part of research was conducted by digital artists who had knowledge of the benefits that NFT adoption brings but they were not able to overcome the challenges of NFT adoption, hence they stuck to graphic designing.

4.1 The influence of UTAUT constructs on the preparedness process of digital art

This category will be explored with the help of four themes which have been developed through analysis of the interviews from NFT adopters. The four themes are: *a) prior knowledge and knowledge priorities; b) developing skill acquisition strategies; c) diving into idea generation process and d) nurturing through networks.*

The preparedness process of NFT adopters begins with forming intention and extends to actualization of the digital art journey. This multifaceted process is underpinned by several interconnected steps. The primary factor that contributes to the journey is prior knowledge of digital art followed by the knowledge priorities. Once the knowledge priority has been set to the digital art categories, which in this case is graphic designing, freelancers tend to shift to next stage to acquire all the necessary skill to keep up with the freelance journey.

Acquiring necessary digital art skills requires different set of strategies based on the prior knowledge and knowledge priorities. The acquisition and enhancement of technical digital skills provides freelancers to capitalize on the opportunities that the digital ecosystem provides them.

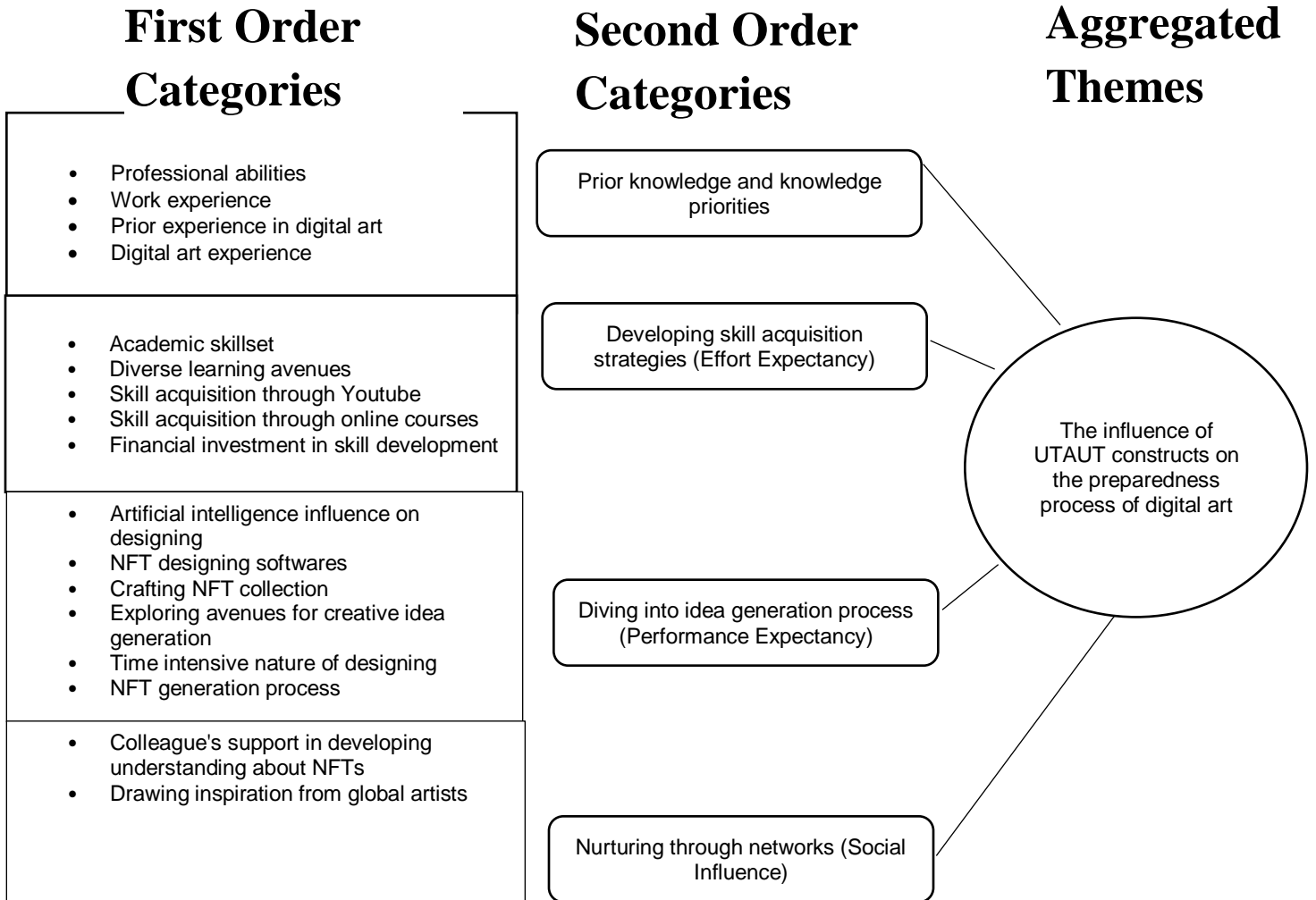


Figure 3: Data Structure of Theme no:1 for NFT Adopters and Non-Adopters

4.1.1 (a) Prior knowledge and knowledge priorities

The first theme is concerned with the initial journey of NFT adopters which begins with freelancers choosing their path based on prior knowledge they have and priorities that emerge through that knowledge. There are multiple resources that research participants have shared, through which it is safe to say that their digital journey started because they had prior knowledge of digital art hence that knowledge turned into prioritizing digital art as a niche they targeted. For some research participants the prior knowledge of digital art was derived from their academic degrees.

Respondent 11 shows that the digital art expertise comes from their educational background in Mechanical engineering because engineering students are taught softwares during their degree that enables them to easily get started with other digital art softwares.

“I started 3D modelling because I am a mechanical engineer, so I know how to do it” (R11)

Some respondents shared that professional expertise help them gain experience in different softwares that could be successfully utilized in expanding their freelance journey. Respondent 29 was proficient at game esthetic which opened opportunity to be digital art entrepreneur apart from his job.

“So basically I try to improve the esthetics of the games. And that is my job as well” (R29)

Similarly, other participants also confirmed that they had some professional expertise already that prepared them for being digital art entrepreneurs. Participants had varying work experience but it lead them all to the adoption of digital art entrepreneurship.

“I started off working as a design engineer for a robotics firm” (R27)

“I work as a game designer and an illustrator for past 8 years” (R25)

The NFT non-adopters also had some digital background. It becomes easier for them to prioritize that skill and upscale it. Some digital artists mentioned how their prior knowledge was linked to their academic degrees.

“I’ve done bachelor’s in Computer Science from SEECs, NUST. We learn different softwares throughout the degree so it’s easy to shift to other skills” (R12)

Another respondent shared how they shifted to graphic designing after they have been working for around 6 years. It is how prior knowledge was developed about designing because the respondent had the job of a designer and was responsible for animation.

“I am working in the field of design and animation for 5-6 years” (R7)

Sometimes it happens that a hobby of a person gets converted to professional expertise.

“So, as I mentioned that I face swapped my brother so I keep doing stuff like that as well and I do have an Instagram page where I post stuff that I made for fun and not for the clients” (R13)

4.1.1 (b) Developing skill acquisition strategies

This theme underscores the strategies digital artists equip themselves with to ensure that they are competent enough to survive the shifting trends in digital ecosystem. The process of developing skill acquisition strategies could be diverse, while some digital artists prefer online ways of acquiring skills, some find face to face methods more helpful. From the accessibility of a major resource platform like YouTube which offers artists countless tutorials and complete free online courses to academies teaching digital skills and providing mentorship, digital artists have diverse pathways at their disposal.

Some respondents shared significant Pakistan based Youtubers and YouTube channel names who are providing incredible mentorship to digital artists and are a great source of motivation as well. These mentors make the journey of digital artists quite easy.

“Mostly I learned from YouTube from GFX Mentor. There are like 30 plus videos of graphic designing on GFX mentor channel, so I went through them thoroughly and with full focus. So, it was pretty easy for me to learn the graphic designing” (R28)

Apart from online free resources, another respondent shared offline avenue to learn digital skills. This platform offer offline courses to teach digital skills to artists.

“I did a one-year course from Arena Multimedia. I watched YouTube tutorials” (R29)

The NFT non-adopters utilized the same avenues for acquiring digital skills. Major avenue was found out to be YouTube since it has a huge variety of tutorials and all of them are free. Pakistani youtubers are very famous amongst digital artists and they look up to them for inspiration.

“YouTube, I have watched so many tutorials to be good at digital art. A youtuber named as Ebad Amin is a Pakistani youtuber who makes 2d and 3d art. He builds characters by taking inspiration from movies such as lord of rings, and since I love that kind of art, I follow him.” (R9)

Some respondents shared other helpful resources that they utilized to enroll in free courses and learnt all the digital tools and techniques. The most popular online platforms were found out to be E-rozgaar, Udemy and Digi Skills. These platforms have a wide range of courses to offer.

“Then I did research on the internet and found out about e-rozgaar. I did my first free course from e-rozgar on graphic designing” (R6)

The second part of this theme is related to gaining experience by working at different institutes to get a strong grip of the skills and techniques that have been learnt. It means implementing the prior knowledge and skills developed into practical projects and getting hands on experience.

“Then I worked with National Incubation Centre, Peshawar as a graphic designing intern. That was the point when my passion for graphic designing triggered” (R24)

4.1.1 (c) Diving into idea generation process

This theme entails the significant details of a creative process where digital artists go through certain steps to achieve reality from imaginative process. The preparedness process of a digital artist to sustain in the fast-track digital ecosystem is not easy hence requires deep understanding of idea generation process. The process begins with setting the mood board of the art influenced by artificial intelligence in some cases, applying different tools and softwares to create it digitally. Every digital artist has their own unique way of diving into the creative thinking process. They do share some similar avenues for idea inspiration that they could turn as per their imaginative powers. These resources are completely free, available on the internet. These websites also keep up with the fast pace of trending art styles. The most common resources used for idea inspiration are found to be Pinterest, Behance, Art Station, Google and Youtube.

“And then I take some inspiration from Pinterest and try to build a story around it.” (R25)

“I used to watch, take inspiration from Pinterest and Behance” (R3)

Two respondents shared that setting a mood board gives out more clarity on what must be drawn. Clients also participate in the process and share any requirements or suggestion they have in mind to be taken care of and digital artists work accordingly then.

“So, we set a mood board. Like what the color scheme would be, how the aesthetics would be, the client confirms and revises or asks for some changes if he wants and then we start creating” (R21)

The idea generation process is also highly influenced by artificial intelligence and provides an easy way out to the digital artists to simply just use the right prompt and get the art they want. These tools do not require deep understanding so anyone can create art even if they are not artists.

“Nowadays the only thing that's going around is like mid journey AI tool. That's what people are using to create digital art and I have seen some projects that have created like 10K NFTs that are only generated by mid journey” (R3)

This theme involves digital artists getting inspiration from various sources for generating ideas. Just as some respondents shared how keenly they observe the world around them and transforming

these observations into unique artistic concepts. The observations are not limited to any particular field of interest, but it could be whatever seems worth capturing to the artist.

“Observation basically. I observe my current surrounding like both physical and virtual so I get content from there. I just randomly take ideas from profile pictures on WhatsApp of my friends. I Draw Something out of them. Sometimes paying attention to country's current situation for latest ideas” (R1)

Artists do not operate in isolation. They draw inspiration from a diverse array of global creators which influences their creative process. It is because they set the trends and in digital ecosystem, success comes by following the trends.

“One of the ways to generate ideas is to see the work of other artists. You might see it as a cheat way to do but it works” (R9)

The ability to explore diverse avenues for learning and getting inspiration is essential for idea generation. Artists benefit from a wide range of learning platforms from online courses and tutorials to art communities and workshops. Most famous platforms amongst artists were found out to be Behance, Art Station, Pinterest, Freepic, Upwork, Fiverr, Facebook and YouTube.

4.1.1 (d) Nurturing through networks

The preparedness process of digital artists is supported and nurtured through networks. The experiences from networks act as the guiding light to make their freelance journey favorable and help them take better decisions and negotiate better with clients. Inspiration was drawn from colleagues on the basis that they were actually doing something productive with their lives and colleagues adopting digital art showed that anyone could do it needed they are actually determined.

“And I got inspired from my friend because he was earning and studying at the same time, and he was bearing all his expenses on his own. So that really motivated me to think that I should do that as well. And GFX mentor was also suggested to me by him. My friend really helped me in learning the digital art skills, mainly the graphic designing” (R28)

Networks helps further in developing understanding of the underlying concept of NFTs and related technology like blockchain, cryptocurrency etc.

“Since Daniel is a very good friend of mine, so basically Daniel taught me everything about blockchain and crypto in three hours, he taught me how to buy and sell NFTs.” (R21)

Once the artists begin their freelance journey, they face a lot of challenges but the journey becomes easier when they have support from their networks.

“I worked with my colleagues like Waseem bhai who guided me a lot and I worked for him on different marketplaces because he was very successful. I had people around me who were in the graphic designing field, so I had their support and guidance in learning the skills” (R2)

Individuals tend to start trusting their networks and blindly follow their instructions because they have a reason to trust their networks. Networks help them stay focused, so they don't lose sense of direction. A respondent who didn't adopt NFTs but had knowledge of cryptocurrencies shared how they blindly followed the instructions of their colleagues who was making profit.

“I know about cryptocurrency; my friend is into it. About blockchain my friend is a blockchain developer. He tells us about the charts of crypto. I have basic knowledge of how it flows in the market, so I just follow him blindly. He does the analysis, so we do whatever he says. His analysis is good, and he benefited from crypto a lot.” (R22)

Now, we discuss the role of mentorship serving as a guiding light for emerging artists. Experienced mentors share their knowledge, provide feedback and offer valuable insights which ultimately accelerates the learning curve for beginners.

“When I was in NIC I found out who are the good trainers and how can I manage designing. In one word my network really helped me a lot.” (R24)

4.2 Juggling between the push and pull factors during freelance journey and suggestions to improve digital ecosystem

This category of push and pull factors revolves around the motivations, challenges, and opportunities within the NFT freelance journey. It involves balancing the facilitating “pull” factors and the challenging “push” factors. Pull factors are the opportunities that attract the attention of digital artists who are not necessarily looking out for them. Push factors are the situational factors that leave no other option for the digital artist than to opt for freelance journey. The digital art entrepreneurs identified the critical elements that led them to the successful adoption of NFTs. This includes not only technical skills but an understanding of market trends, effective marketing strategies and commitment to quality and originality. NFT adopters also mentioned some recommendations that could contribute to improving the artist's life.

First Order Categories

Second Order Categories

Aggregated Themes

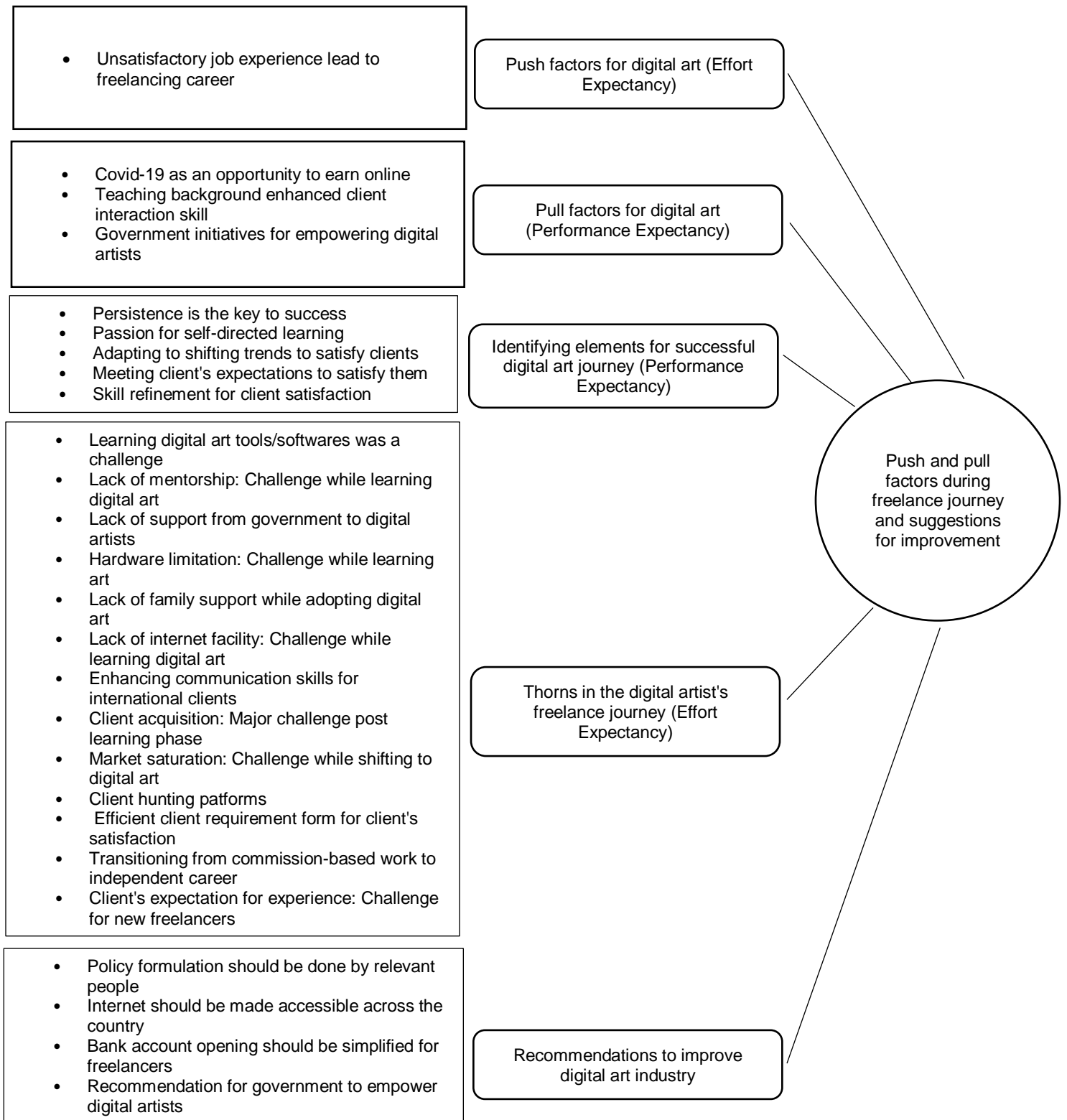


Figure 4: Data Structure of Theme no:2 for NFT Adopters and Non-Adopters

4.2.1 (a) Pull factors for NFT adoption

This theme revolves around the compelling motivating factors that entice digital art entrepreneurs to explore and embrace the NFT space. NFTs were mainly adopted by the digital artists during Covid-19 pandemic. This global situation was considered as a blessing in disguise because a lot of companies globally laid off their employees which provided artists the opportunity to earn online.

“COVID hit and everything went online. All the businesses shifted online, all the stores, everything shifted to online basically, so I had to find a way to earn online as well” (R28)

Another major pull factor was when digital art entrepreneurs receive their first order on freelancing platforms. These early orders often act as a catalyst inspiring individuals to dive deep into the digital world. The sense of fulfillment and validation from the first order becomes a magnetic pull towards further exploration.

“First, I just used to sit with my friends. I do party and etcetera. Then there came the day when I received my first order. It was a logo design, and it was just a \$5 project. And I completed and delivered that project in four to five days. That was a time when I realized that I don't want to stop and I want to continue doing digital art” (R26)

NFT non-adopters shared how the support from the government during the freelance journey is a significant pull factor. The initiatives that the government took such as freelance learning platforms, laptop scheme etc. facilitates the growth of freelancers. Respondents shared how regulatory framework motivated and pushed them towards earning online.

“Yes, government is supporting digital artists. I'm from KPK and I can say that the government has collaborated with many software houses and promotes digital art. In my university (UET) a program was launched called NFTP (National Freelancing Training Program). They had provided courses of 1 year related to content creation, digital art, graphic designing and so many people benefited from it.” (R2)

These pull factors provided freelancers a chance to learn and earn online during the pandemic and throughout the freelance journey, the artists explored the elements that could lead them to a successful journey of freelancing.

4.2.1 (b) Push factors for digital art

Push factors often result from dissatisfaction from traditional job setting or financial circumstances. This sentiment is relatable to some individuals, despite of them searching for degree-related jobs, they might end up getting disappointed by the available opportunities. Some even take on positions that seem promising but at the end it falls short in satisfaction they crave.

“Also, I did look for jobs related to my degree, but they were not very satisfactory. I did some jobs as well, but I didn’t enjoy or feel satisfied” (R14)

Covid-19 also played a huge role in pushing artists to start hunting jobs online and since the job opening were also very limited, they were left with no choice but to go for freelancing since it requires just a smooth internet connection.

“Covid took away my job and I was running my home. My dad died and mother remains sick most of the time. Since I was the oldest son, so I had to make covid work for me and I saw people around me talking about freelancing, I started doing that as well” (R13)

The freelance journey is a composite of push and pull factors because where some artists are in the process of dealing with challenges, some artists are blessed with potential opportunities that they intend to avail.

4.2.1 (c) Identifying elements for successful NFT adoption

One of the foundational elements for successful NFT adoption is learning through mistakes and growing. NFT designing is a complex process and the artists keep experimenting with their designs until they come up with the perfect one that eventually satisfies their client. Embracing mistakes allows NFT designers to refine their strategies.

“Another interesting thing that happened was after creating layers while designing we tried to get over some project, but we failed because we couldn’t make images out of those layers as it was our first project, so something was wrong in those layers. Then we had to redeploy it” (R4)

The drive for self-directed learning states the importance of continuous learning. Artists who take the initiative to expand their knowledge and skills independently thrive in NFT space. Self-motivated learning ensures innovation through various techniques. Another factor that freelancers need to acknowledge to be successful in NFT world is that NFTs are susceptible to global dynamics and trends. Factors like economic trends in United States of America greatly affect NFT space across the globe. The US has major NFT holders who can turn around the fate of NFT projects.

“Pakistan has a lot of crypto traders, but it has a very less number of NFT artists or NFT traders. So basically, NFT is US focus. But if something is happening in the US market, that will affect NFT in real” (R29)

The critical role of marketing cannot be understated. Successful NFT projects require strategic marketing efforts to reach a broader and potential audience who will be willing to buy NFTs. Investing in marketing is usually a determining factor in defining project success.

“To sell NFTs it is not necessary just to simply showcase NFTs on Open Sea you should have a complete collection of NFTs, and a proper team of marketing. In NFT all the major budget is defined only for marketing because you need a lot of, like thousands of people to sell your work and make that worth it and without proper marketing you cannot ensure your work will sell” (R11)

NFT non-adopters identified the elements that are the building blocks of a prosperous freelance career. Persistence is the key to success in freelancing because the freelancer works as an entrepreneur with no boss.

“Also, I started on a PC that was i5 second generation 8GB RAM no graphic card like worst thing possible for a designer but then it was my motivation that even if it is taking 1 hour to move from one point to other, I will sit down and wait for it but I will get it done. I stayed consistent” (R13)

Another factor that leads to successful freelance journey of digital art is adapting to shifting trends to stay in the market and satisfy clients. Successful digital art entrepreneurs embrace change and are flexible enough to adjust their creative approach as per the latest market.

“We live in a modern era and art trends are being changed at a fast pace, so following the trends is the solution to stay relevant. If you don’t follow the trends, you will fall behind other competitors.” (R2)

These factors collectively shape and strengthen the foundation upon which artists build their freelance career and ensures client satisfaction. The freelance journey of digital art entrepreneurs is not a path free of hurdles and they face many challenges in order to achieve and sustain their freelance career.

4.2.1 (d) Thorns in NFT artist's freelance journey

This theme explores the obstacles that NFT artists have to deal with throughout their freelance career. These challenges can significantly impact their work, business, and overall experience. The difficulties begin with the government taking action against cryptocurrencies, hence banning crypto. Since without crypto, NFTs are half complete so dealing with crypto ban is the first step.

“If you ban crypto, then of course you can't take the second step directly and without crypto NFTs are not possible and you can't access web three without crypto. So crypto is the first step and then come NFTs and web three and then you can explore” (R3)

The NFT market is very volatile. After a period of heightened attention and excitement, the NFT space is experiencing periods of reduced interest. Artists who plan to shift to NFT now might not be profitable because the NFT hype is gone.

“If you are trying to find some new ways to for earning, I think the time is gone from NFT perspective. But if you have extraordinary skills, like if you can design in 3D, if you can design in pixelation. If you can design in 2D, 2.5D, then the space has good opportunities work for you because there are some good projects” (R3)

Hardware limitation is yet another challenge in the way of freelancing. Good designing needs good equipment and not every artist can afford to update their hardware system which poses problems in designing.

“Also, you need to have good gadgets to design good NFTs when your work is increasing” (R23)

The first challenge for NFT non-adopters was usually the learning of digital art tools or software. Insufficient hardware can limit the creative potential of digital artists. For producing high quality digital art, adequate tools and equipment are essential.

“Then I didn't have the right system because I had that Prime Minister scheme laptop which does not support good designing.” (R24)

The absence of mentorship is also a significant challenge for those aspiring to be digital artists. One can get valuable guidance and support, feedback, a sense of direction to seize all the opportunities that come their way. Once the artist has made their way and learnt all the resources, the challenge that almost every freelancer faces is that of client acquisition. There are numerous platforms where an artist can showcase their portfolio or hunt for clients, yet a proper strategy has to be followed which most of the freelancers are unaware of at the beginning of their journey.

“Yes, the major challenge that I faced was after learning graphic designing, I did not know how to find clients so finding clients was a big issue.” (R2)

The government also failed in providing any facilitation in opening their freelance bank accounts. All the banks ask for unnecessary details and if they do not fulfil the specified criteria, they have to withdraw their application of account. It is a major setback for freelancers who want to open their personal accounts for their income generated through freelancing.

“But there are many hurdles for freelancers to get their income like if you are opening an account a freelancer account in any bank for example Meezan bank, a person who wanted to open his freelancer account and they asked him to provide an IT degree or certification to open an account.” (R1)

4.2.1 (e) Recommendations to improve digital ecosystem

NFT artists shared some suggestions and insights on how NFT art entrepreneur’s freelancing journey be improved. It emphasizes the need to streamline and simplify the bank account opening process for freelancers. All banks should support and cater to the needs of freelancers, making it easier for them to open accounts and conduct financial transactions.

“The bank opening should be made simpler, like not just one or two banks. All the banks should support freelancers. Accept and promote freelancers. (R21)

NFT art entrepreneurs demand legal protection from the government. Instead of cryptocurrency ban artists recommend regulatory framework to facilitate crypto transaction within defined legal boundaries and strong measures should be taken against scammers.

“Every freelancer and artist should be protected by law. There should be no crypto ban. All the transactions should be allowed. But if someone tries to do any kind of crime with cryptocurrency there should be a very deadly punishment for the scammers and the people who trying to use it for the wrong purposes” (R21)

The freelance journey of NFT artists was critically examined exploring the motivating and demotivating factors. The freelance journey might have a lot of obstacles that artists had to face yet they were able to overcome any difficulties that stand in the way of them becoming successful NFT adopters.

The first suggestion by NFT non-adopters was to make the foundation technology i.e., internet, accessible across the country. Reliable internet access empowers artists to connect with global audience, accessing online learning resources and collaborating with clients effectively.

“In a lawless place there is nothing ethical or unethical so first policies should be made regarding internet access and then they can work on digital art.” (R8)

The next suggestion emphasizes the importance of policy formation by relevant people. For policies to efficiently support digital art industry, they should be formed in consultation with artists, creators, freelancers and industry experts who can look deep into the problems.

“Find better people who are well versed in the field who can make policies about this they should find some young people who are actually into the space and knows how it works.” (R1)

The third suggestion addresses the issue of bank account opening as a freelancer. Streamlining the process and facilitating the payment transaction encourages freelancers to operate with formal financial system.

“They should make policies for digital artists to accommodate them especially while bank opening and spread awareness that what freelancing is and provide some benefits to freelancers.” (R22)

Once the digital art entrepreneur has set their freelance journey utilizing all the given resources, they tend to decide if they want to continue with the market trend or with their own expertise. Now comes the decision-making process of digital artists on why they not opted for NFTs even after knowing the benefits of this digital art adoption.

4.3 To go or not to go: The influence of UTAUT factors in NFT space

This category encompasses the decision-making process digital art entrepreneurs undergo while contemplating whether to enter the NFT space. It reflects the careful consideration and exploration involved in the decision. The process acknowledges the multifaceted challenges that artists go through while trying to develop understanding of the concept and the NFT space overall.

4.3.1 NFT Adopters

The understanding of NFT space illustrates the process of transitioning from a broader knowledge of cryptocurrencies to a more specialized niche called NFTs for which the knowledge of blockchain is also developed during the process. Eventually, the digital art entrepreneurs after diving deep into the NFT space get motivated by the potential for creativity, ownership and financial rewards that NFT offers and decide to opt for NFTs. The three themes under this category are *a) Navigating the complexities in NFT adoption; b) Understanding the concept: From the sea of crypto to waves of NFTs and c) Unlocking NFT potential*

First Order Categories

Second Order Categories

Aggregated Themes

- Networking in NFT space is critical
- Huge gas fee: Major challenge in NFT marketplaces
- Intense competition in NFT market
- Lack of presence of art items/space was a challenge to shift to digital art
- Role of mentorship is critical in learning digital art
- Understanding NFT space was a challenge
- Addressing myths about NFTs
- Crucial role of thorough NFT research

- Crypto adoption is the pre-requisite of NFT adoption
- Venturing into cryptocurrency business
- Navigating from cryptocurrency to NFTs
- Developing understanding of cryptocurrency and blockchain through diverse pathways
- Influence of crypto price on NFT market dynamics

- Earning royalty on every NFT sale
- Use of NFTs in fundraising activities
- Popular brands/artists embracing the NFT space
- NFTs are a sustainable way of revenue generation
- Enhanced project opportunities following NFT adoption
- Usecase of blockchain technology to combat corruption
- Crypto wallets: Proof of NFT ownership and identity
- NFT adoption's financial impact
- NFT community engagement: A vital catalyst for artistic success

Navigating complexities in NFT adoption (Effort Expectancy)

Understanding the concept: From the sea of crypto to waves of NFTs (Performance Expectancy)

Unlocking NFT potential

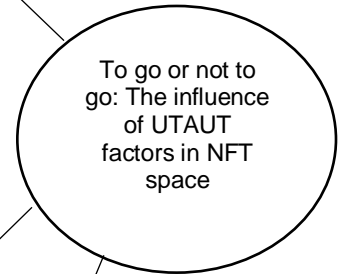


Figure 5: Data Structure of Theme no:3 for NFT Adopters

4.3.1 (a) Navigating the complexities in NFT adoption

This theme explores the intricate challenges faced by the digital art entrepreneur in the journey of NFT adoption. It reflects the effort required to navigate these complexities to enter the NFT space successfully. Grasping the concept of NFTs and the value it provides is one of the major challenges. Networking in the NFT space is crucial. Building connections is important since it provides opportunities for collaboration, exposure, and knowledge sharing. It is important to be an active participant of the community, hence taking part in the discussions.

“But it's not that you only have to share the link of your NFTs, come and stay for a while and then leave. You must stay there, be a valuable asset to that community, take part in the discussions, interact with the community.” (R29)

Nurturing professional relationships help in exposing yourself and showing your audience how capable you are. Artists have to market themselves to get attention and get recognition in order to make realistic sales. Most of the time the artist matters more than the art.

“The most straightforward way is to work on your personal branding. A lot of are sold just because of the marketing and hype around it. There was also some art that was sold because of the person creating it, like beeples for example. He sold I think the most expensive NFT. I think one of his NFTs was sold for \$60 million. He is famous, worked with great companies like Marvel Studios.” (R27)

High gas fee is a significant obstacle in NFT adoption. Gas fee is the amount that the artists have to pay to put their NFT on any platform for a sale or if they want to transfer it to another crypto wallet in case of a sale.

“Also, when you transfer one NFT from one place to another, a huge gas fee has to be paid and it deducts a lot of amount.” (R21)

As the NFT gained popularity, it also attracted fraudulent seeking to exploit artists. It is not that only fresh artists are being scammed but artists who did verify the buyers were also caught by the same situation. The artists must be extremely cautious before reaching an agreement with the client. It is a threat in a way that there are no policies for cryptocurrencies because it is decentralized system and no government owns or controls it. This leaves no power to government to hold anyone accountable.

4.3.1 (b) Understanding the concept: From the sea of crypto to waves of NFTs

NFT adopters realized that foundational knowledge of cryptocurrency is necessary to navigate this transition effectively. It will reflect how crypto adoption is a pre-requisite of NFT adoption. Experience and understanding of cryptocurrency is important for venturing into NFTs.

“According to me crypto adoption is a must. Only then we can adopt NFTs, then we can buy and sell easily. Because NFT is complex. So, I think for NFT mass adoption you need crypto mass adoption first. Only then people will understand the value of crypto. Awareness and knowledge sharing on crypto will help a lot.” (R29)

Price of NFTs is directly linked to the cryptocurrency so change in crypto price influences NFT market dynamics. This signifies how crypto price fluctuations can impact NFT trends and activities. When crypto falls, price of NFTs automatically reduces.

“Then lot of people came to me that convert our art into NFTs and we'll give you free NFTs. I accepted that at first but then Ethereum was not stable, so I stopped doing that.” (R21)

Another interesting fact that NFT adopters shared was how blockchain being a secure technology can help in eliminating crime from the society. Since, no government or individual owns it, therefore no one has the power to alter any records on blockchain which makes it a good solution for money related crimes.

“Political leaders can put a stop to corruption. Because every transaction can be recorded, and it can be verifiable via blockchain. I can see that transaction on over the Internet any time of day, so it can be done and corruption can be wiped out totally.” (R4)

4.3.1 (c) Unlocking NFT potential

This theme highlights the potential that NFTs have got, from the benefits to the range of opportunities that can be unlocked through NFT adoption. Earning royalty on every NFT sale depicts the financial incentive for artists as they earn a portion of the sale every time NFT is resold.

“When any purchase is done on open sea 10 percent royalty is given to original owner who launched that NFT” (R11)

It has wider financial implications as well. The freelancers who chose to enter the NFT space have witnessed a huge shift in their revenue generation. It has increased for all the respondents who actively designed NFTs.

“I guess my earnings increased like 300 to 500% on Fiverr alone. I guess if I had joined Upwork earlier, I would have increased my earnings like up to 1000%. So NFT space was quite booming at that time when I joined, so I think I got that lucky.” (R3)

Another factor is that popular brands and artists have embraced NFT space. Their participation brings mainstream attention and credibility to the NFT ecosystem.

“If we talk about Adidas, it has also bought one of the NFTs from the board ape and for some time their Twitter account had the display picture of that NFT. Big superstars like Snoop Dogg and Eminem have also bought NFTs that are even shown in their music videos.” (R25)

It explored the diverse opportunities and advantages associated with NFT adoption. Each of these elements contributes to the comprehensive understanding of the potential unlocked through NFTs both for NFT designers and NFT project owners.

4.3.2 NFT Adopters

The third category of the analysis section is based on how digital artists develop understanding of the concept of NFTs and what factors convince them not to opt NFTs. The decision-making process will be discussed in this section and how they weigh the positives and negatives of NFT adoption. Legal and regulatory aspects are also discussed and how it affected the decision-making process. The latter part of this category explores potential benefits and incentives that artists perceive to achieve by adopting NFTs. Financial opportunities and other opportunities that NFT adoption provides shall also be discussed. The two themes discussed in this section are: *a) Navigating complexities in NFT adoption and b) Navigating rewards in NFT adoption*

First Order Categories

Second Order Categories

Aggregated Themes

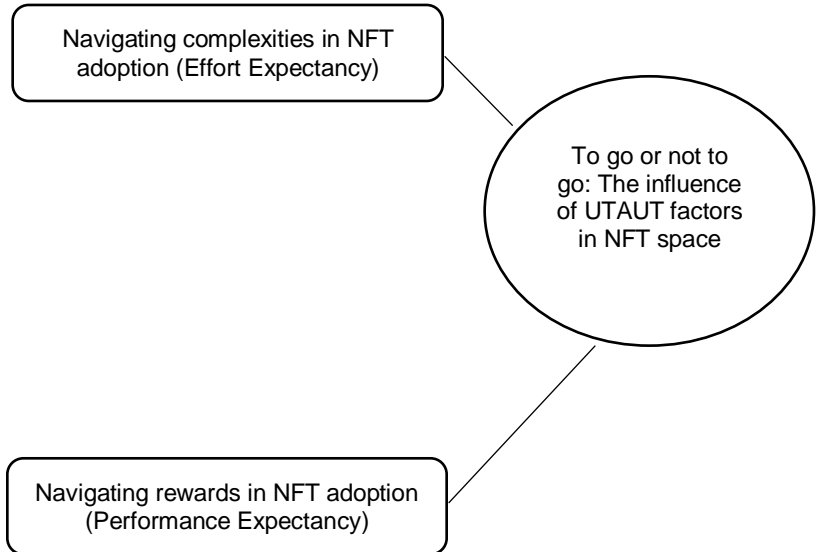
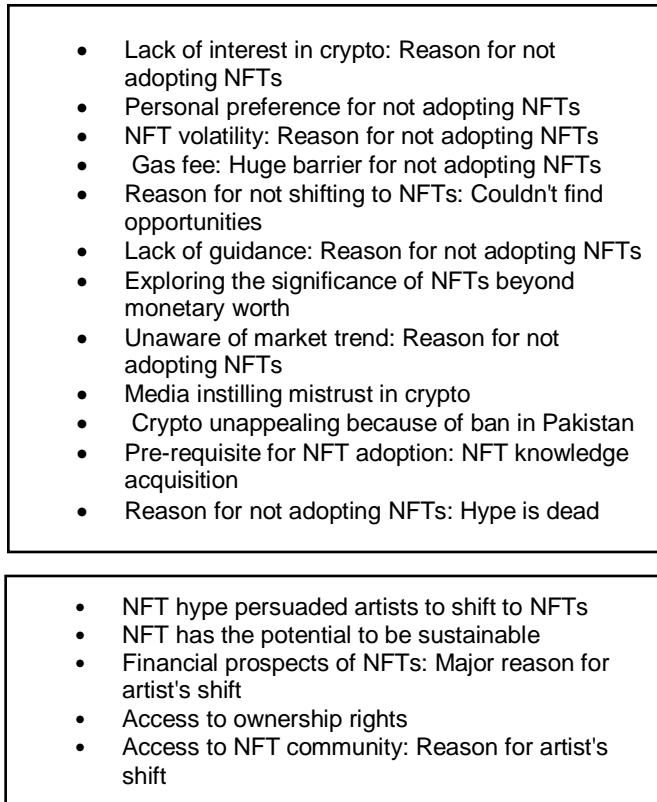


Figure 6: Data Structure of Theme no:3 for NFT Non-Adopters

4.3.2 (a) Navigating complexities in NFT adoption

This theme sheds light on the challenges digital artists faced in the NFT space overall. It encompasses a range of factors that influenced the decision-making process. Some respondents expressed the reluctance to adopt NFTs due to general disinterest in crypto.

“I have studied crypto and blockchain but I have no interest. And I don’t have interest in NFTs also” (R24)

The crypto characteristic that makes NFT adoption unappealing is the regulatory constraint that discourages NFT adoption. The artists are always looking for options that are sustainable and not too much risk involving in it. Since NFT transactions are also made in cryptocurrencies so crypto ban directly affects NFT adoption process.

“I don’t believe in crypto being a citizen of Pakistan because one day it gets banned and other day it is un-banned and crypto is not a stable currency in Pakistan.” (R8)

NFTs exist on blockchain and are traded using different platforms. Each blockchain has its own platform where the buying and selling of NFTs takes place. High gas fee on blockchain networks serve as a significant hindrance to NFT adoption hence they drop the idea to get started with NFTs.

“There is a trading fees which is known as gas fees and till 2021 the gas fees were so high that new artist couldn’t enter. People paid \$1000-\$2000 just in gas fee. If you make any transaction on Ethereum it takes some fees” (R7)

Some artists were unable to seize any opportunities in NFT space because they are too invested in working in their own niche and decisions can often be influenced by individual preferences and creative approaches. Then there are some concerning myths about NFTs that prevent artists from adoption of NFTs. Misconception about NFTs is a major reason why artists do not do their own research and rather believe in what people say who are not even in the NFT space.

“Yeah, I heard many things, like NFTs, are dangerous, and they’re like it’s a scam and they don’t usually benefit. They are for bigger people who invest in these NFT and who has experience will do this, not a new person can do NFT stuff. So, I have heard many things about it.” (R20)

4.3.2 (b) Navigating rewards in NFT adoption

Digital art entrepreneurs shared their understanding of NFTs and how NFT adoption could be beneficial in financial and non-financial terms. It recognizes the belief that NFTs offer a sustainable platform to NFT designers mainly. The designers of NFTs are always profitable

because when hired on any freelance platform, no matter how successful or unsuccessful the NFT project goes, NFT designers are always paid for the task.

“If someone designs NFTs now, it is very sustainable in designing.” (R5)

Access to ownership rights could be another benefit of NFT adoption. NFTs are registered on blockchain and blockchain being decentralized and secure, grants artists verifiable ownership of their digital assets reducing the risk of unauthorized plagiarism.

“And your artwork is protected. It's one original copy of your artwork and someone will buy it, it will probably still be yours. Because you're the owner of this.” (R9)

The owner of each NFT art is also awarded royalty which is a certain amount that the creator gets when their NFT is sold to another client. The cycle goes on and the owner keeps receiving the royalty.

“Yeah, the owner will get the royalty of it every time it's sold over and over again.” (R9)

Access to the NFT community is another significant benefit of NFT adoption. Engaging with their community is an option available to the adopters only. It provides a sense of belonging, networking opportunities and support in the NFT space.

“Possibly community building, community access because it's a very big community. It gives you exposure to good art and good artists.” (R1)

These were the perceived benefits that artists developed after understanding and exploring the NFT space. Though they were not convinced and missed out on important elements, like adopting crypto first but it led to their overall perspective of NFT space.

Summary

Several key factors shape an individual's readiness to enter the digital ecosystem but the certainty that leads the digital artist to get started with freelance journey is through acquiring the skills that help artist to take imaginary picture out of the mind and convert it into a piece of art. Offline or online, digital artists have invested into developing skill that could help them escalate their freelance journey. Once the skill set has been developed, the next stage is to finally start working on the idea and usage of all the tools and softwares learnt. The preparedness process starts from prior knowledge to acquiring necessary skills to idea generation process but the whole process is being supported and guided by formal and informal social networks in one way or another because freelancing is a community where digital artists work together. Some artists become freelancers

because they get the opportunity, and they feel no hesitation in taking advantage of it but at the same time some digital artists have no choice but to be a freelancer due to some unfavorable and unavoidable situations.

Entering the freelance journey, digital artists learn to survive in the competitive system by learning some helpful techniques that can help them in successful adoption of NFTs which ultimately leads them to sustain their career. Even after careful inspection of the factors that help freelancers achieve success in NFT journey, the path is not free from obstacles. They still have to face some challenges during the journey, overcome them in order to keep going in the same direction. Each of these elements play a significant role in the decision-making process and journey of NFT adoption yet the digital art entrepreneurs won against all the odds and made their way towards adoption of NFTs by exploring the NFT space. Since NFTs are deeply linked to blockchain and cryptocurrency so they developed understanding of these concepts to make their NFT adoption process smooth and successful.

Developing understanding of cryptocurrency and blockchain enables the digital artists to adopt NFTs and after adoption artists realized about the potential opportunities that it provides them. Understanding crypto presented the vital groundwork needed for successful transition to NFT space. Meanwhile for the NFT non-adopters, multiple reasons hindered them from stepping into the space and even though they were very well aware of the opportunities and rewards. Perceived benefits that artists developed after understanding and exploring the NFT space were overshadowed by the uncertain and complex nature of NFTs.

5. Discussion

The preparedness process of digital artists begins initially with intention formation to the ultimate actualization. The key players in this process are prior knowledge and the establishment of knowledge priorities in the realm of digital art (Martínez-Peláez, 2023). The source of this prior knowledge can certainly be connected to an established knowledge domain (Von Rueden, et al., 2021). Research respondents highlighted establishing their knowledge domains under the influence of professional abilities, work experience and academic skill sets that ultimately shaped their approach to digital art. The process is facilitated by the strategic development of skill acquisition (Woods, 2020). From seizing opportunities rooted in related experiences to engaging in unpaid work and internships, respondents exhibited a dynamic approach to skill acquisition. Online platforms such as Youtube has multiple structured online courses and is a key source of gathering information and learning digital transmedia skills (KOSKIMAA & KERTTULA, 2021). Digital artists usually get started by imitating the work of experienced artists and learning by teaching via any online mentor are considered as the main strategies to learn new skills (Masanet, et al., 2019).

The next stage is to dive into the idea generation process now that digital artists feel equipped with all the necessary tools. The exploration of idea generation process revealed that there exists a rich tapestry of influences, both online and offline that digital art entrepreneurs utilize to their full potential. Research respondents drew inspiration from global artists, actively observed their surroundings and accumulated a repository of digital art samples for references to be used in future. This is in-line with previous studies. Burt's (2017) research emphasizes the significance of social networks in the field of entrepreneurship. It sheds light on how entrepreneurs strategically position themselves within networks to acquire a wide range of perspectives, stimulate innovation, and improve their learning capabilities. Uzzi and Lancaster (2018) also argued the same that entrepreneurs can effectively utilize their networks to acquire valuable resources, receive mentorship, and obtain market intelligence. The findings from this study also reveals that digital art entrepreneurs use references to create trending art also helps satisfy the clients. Networking was identified as a powerful catalyst in the preparedness process (Anwar & Ali Shah, 2020). Beyond providing opportunities, social networks play the role of mentors, guiding artists and

providing fertile ground for the exchange of ideas and creative support (Maspul & Almalki, 2023). Peer support acts as a bridge that enables digital artists to learn and get successful (Boswell, 2020). Networking and mentorship play important role in shaping artist's trajectories and provide them opportunities which links to the social influence in UTAUT that this type of influence motivates individuals to accept and use the new technology. To sum up the discussion on the preparedness process of digital art entrepreneurs, the researcher here by concludes the discussion with this proposition:

P1: Digital art readiness thrives on the fusion of prior knowledge and intentional skill acquisition, where professional abilities lay the foundation for strategic development. Idea generation fueled by global influences and mentorship, complements this preparation, while social networks serve dual roles by providing opportunities and shaping the trajectory of digital art adoption.

The freelance journey of digital artists is shaped by a complex interplay of push and pull factors that facilitates or discourages the whole process (Wu & Huang, 2024). Push factors, that leave no choice for individuals but to opt for freelance journey include unsatisfactory job experiences, the impact of the COVID-19 pandemic, and the challenges associated with acquiring potential clients and market saturation, drive artists towards the autonomy of freelancing. On the flip side, pull factors such as passion for self-directed learning, persistence, and adapting to shifting trends attract artists to the world of freelance digital art (Berg, 2022).

The research respondents acknowledged the potential financial benefits, importance of ownership rights and community access of NFT adoption yet they expressed hesitation due to the perception that the hype surrounding NFTs has diminished. In the NFT ecosystem, NFT creators who have been the early adopters were rewarded with high priced projects and more impact in their communities whereas latecomers within the NFT market faced issues selling their artwork due to oversupply of NFT inventory (Michi, & Nobbe, 2022). The artists see NFT adoption as a way to reach a wider audience and potentially increased revenue through primary sales and royalties which aligns with the concept of performance expectancy in UTAUT, that suggests the individuals will adopt the technology if they believe that adoption can help them perform their tasks more efficiently or provide specific benefits. Even though the respondents believed in the intellectual property (IP) but yet they had lack of trust in securing the IP rights lead to reluctance of the technology (Ali, et al., 2023). Despite the evident benefits and opportunities provided by the digital world especially in art forms like NFTs, artists face formidable challenges hindering their

widespread adoption. One of the primary hurdles is the technical barrier artists encounter in NFT adoption is lack of interest or understanding of crypto space, with artists citing crypto's volatility and presence of high transaction fees (gas fees) as major deterrents (Ali, et al., 2023). Moreover, artists face barriers related to limited internet facilities, hardware limitations, and difficulties in opening bank accounts, adding layers of complexity to their adoption journey. These challenges in NFT adoption reflect the concept of effort expectancy in UTAUT, which sheds light on the perceived ease of use linked with adopting and using new technology. Hence, some of the artists were hesitant to adopt NFTs because their perception about the technology was difficult to understand. Artists shared that these facilitating factors if provided, can help foster the adoption rate of NFTs in Pakistan. The need for NFT knowledge acquisition majorly depends on understanding of cryptocurrency which is the transaction basis for a blockchain technology (MONTANARI, 2022). Digital artists express reluctance to adopt NFTs due to perceived risks and mistrust associated with the crypto space. Media coverage instills mistrust in crypto by highlighting the ban in Pakistan which further contributes to the artist's reservations.

Digital artists who failed to adopt NFTs also recommended some suggestions addressing these challenges that could improve the NFT adoption process. It includes simplifying the process of opening bank accounts for freelancers, ensuring widespread adoption of the foundation of all the technologies i.e., Internet and formulating policies that empower digital artists. Moreover, efforts to enhance awareness, education, and guidance on NFTs are essential to demystify the complexities associated with this emerging digital landscape. This discussion leads to a definite proposition which states that:

Despite acknowledging the potential benefits of NFT adoption, digital artists face formidable challenges, including technical barriers, perceived risks, and crypto market uncertainties. Enhancing accessibility, fostering education, and demystifying the crypto landscape are pivotal in facilitating a sustainable transition for artists into the NFT space.

The analysis of freelance journeys of digital artists who are engaged with NFTs has resulted in a significant revelation that none of the adopters embraced this digital ecosystem due to inevitable or compelling circumstances. Instead, their decisions were driven by a deliberate and informed choice, reflecting thorough understanding of NFTs. Whereas the pull factors that provided opportunity to opt for NFTs include COVID-19 pandemic (Bourron, 2021), artists getting orders on their gigs of selling NFT art. Research participants shared how during pandemic NFT artwork

orders were on peak and when some of them started getting orders on different freelancing platforms, they tried making NFTs and kept improving their designs. Amidst the complexities of the evolving digital landscape, artists encountered diverse challenges in the adoption of NFTs which range from technical barriers like high gas fees and hardware limitations to socioeconomic factors such as family support and awareness gaps in the NFT space.

NFT adopters were resilient in overcoming the technical challenges. Despite initial struggles with learning digital art tools and the complexities of crypto adoption, they leveraged diverse pathways to develop robust understanding of cryptocurrency and blockchain (Karim, et al., 2022). Thorough NFT research, mentorship, and engagement with the NFT community emerged as critical strategies, allowing artists to navigate the intricate dynamics of the NFT market. A notable finding is the recognition of the need for a business mindset in the NFT space (Parrales & Batbayar, 2022). Some of the respondents strategically pivoted from cryptocurrency to NFTs, capitalizing on the potential financial impact and revenue generation sustainability offered by NFT adoption. NFTs allow the artists to reach a huge audience and get paid from both primary sales and the royalty fees on each sale (Jeong, 2022). In the face of challenges like market instability, scams, and a lack of regulatory frameworks, artists strategically adopt NFTs by developing marketing skills crucial for project success. They defy the decline in NFT hype by understanding the subjective value of owning NFTs. Now, digital artists can possess the ability to own a piece of digital art that has been converted to NFTs which is recorded on blockchain and there is a clear way of distinguishing the original creator and owner from all the people who have the copies of that art (Pramniya, 2023). The narrative of digital artists adopting NFTs depicts adaptability and strategic navigation. Overcoming technical, socio-economic, and market-related challenges, these artists not only embrace NFTs as a medium for self-expression but also actively contribute to shape the evolving landscape of the NFT market. To sum up the discussion on the facilitating factors of NFT adoption, the researcher here by states the proposition:

Digital artists exhibit resilience by strategically navigating challenges in NFT adoption in the face of technical complexities and market uncertainties. Their proactive engagement in learning about crypto space, the skill of networking, engaging in NFT communities, and evolving business mindset, highlights their ability to turn challenges into an opportunity.

5.1 Cross-comparison between NFT adopters and non-adopters

This section will discuss the cross-comparison between digital artists who easily adopted NFTs and those who faced challenges and could not overcome them. For this, it is essential to discuss their preparedness process of digital art. Both the groups typically undergo a similar journey of readiness that begins with acquiring prior knowledge about digital art, understanding their potential, developing skill acquisition strategies to create digital art and ultimately diving into the idea generation process. This preparedness process is usually supported by the social networks within the digital art community.

Push and pull factors play a crucial role in determining the challenges and facilitators digital artists faced initially during their digital art journey. NFT non-adopters often encountered unsatisfactory job experience that led to freelancing while in case of NFT adopters, no push factors have been identified which proves that the adopters chose the field on their own, as per their choice with a good knowledge of digital art industry. Covid-19 was a pull factor mainly because it provided option to explore digital art industry in the days of lockdown. Artists rushed to different freelance platforms to grab opportunities that the current situation offered. Government initiatives such as Prime Minister Laptop Scheme, provision of free internet and introducing digital courses online pulled the interested individual to get started with it. It facilitated their overall journey, but some digital artists have a point of view that not all provinces had this opportunity and they consider role of government as a barrier in their digital art journey. Lack of mentorship, hardware limitation, lack of family support were other barriers during the journey of artists in becoming a digital art entrepreneur and it was similar for both the categories.

The decision-making process of NFT adoption depends on multiple factors. Non-adopters often encountered barriers such as high gas fee, market volatility, lack of guidance, lack of understanding of crypto, huge scamming potential in NFTs and lack of cryptocurrency to be a reason for not adopting NFTs and sticking to services that they were already offering. They also mentioned that they knew what NFTs are, and the perks associated with it which include financial prospects, access to NFT community to showcase your talent, access to owner rights yet they remain hesitant or unable to overcome these challenges, hindering their entry into the NFT space.

Conversely, NFT adopters are passionate about overcoming any challenges that they face in following market trends and staying relevant. They recognize the financial prospects and community benefits associated with NFTs motivating them to persevere despite these obstacles.

Understanding the concept of transitioning from cryptocurrency to NFTs is integral for adopters. Embracing crypto as a prerequisite, they navigate the dynamics between crypto prices and NFT markets, recognizing the potential synergies between the two. By analyzing these factors, this research provides insights into the varied experiences of digital artists in adopting NFTs, highlighting the complexities and challenges inherent in navigating this emerging landscape.

5.2 Proposed theoretical framework

Based on the findings and discussion on the topic, a theoretical framework has been proposed that clearly defines the challenges and opportunities for both NFT adopters and non-adopters.

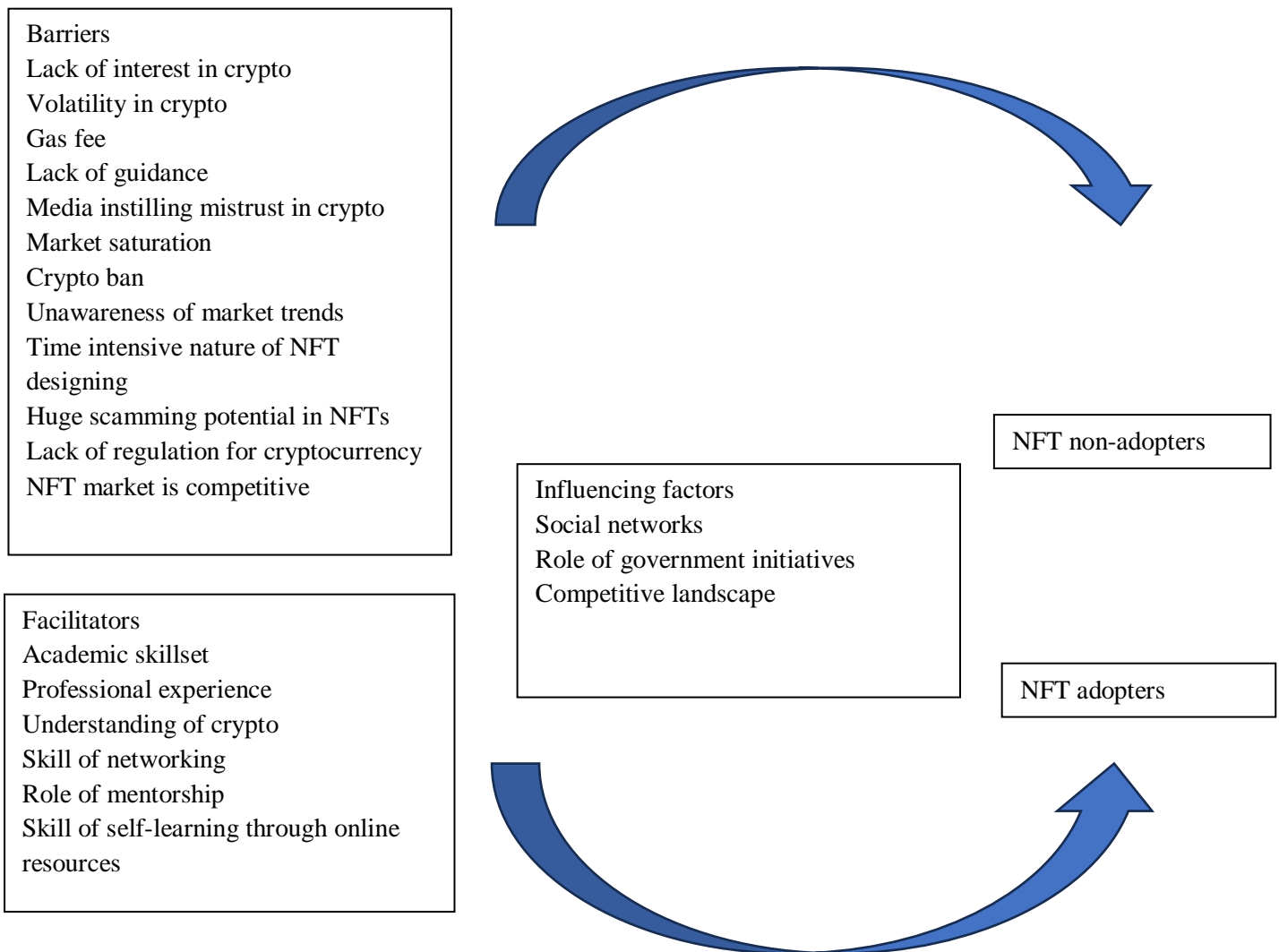


Figure 7: Proposed theoretical framework

6. Conclusion

6.1 Introduction

In this conclusion chapter, a comprehensive overview of the findings based on the three propositions that are derived from the exploration of challenges and opportunities faced by the digital artists in Pakistan during NFT adoption are presented. The aim of the study was to understand the readiness process of freelancers dealing in digital art, that sheds light on the dynamics of the environment due to which they chose to be art entrepreneurs. This study tries to evaluate the facilitating factors and the barriers that any artists must overcome to make the informed decision about opting for a new kind of digital art i.e., NFTs. Delving into the conclusion, the primary contributions of this research, practical implications, limitations, and future directions for further exploration of this study will be thoroughly discussed.

6.2 Aim and findings of the study

The first proposition underscores the significance of digital art readiness, emphasizing the fusion of prior knowledge and intentional skill acquisition. The major players during this preparedness process were found out to be the role of global influencers, right mentorship and the social networking that shapes the artist's trajectories and makes their adoption process easier. The importance of social networking be it formal or informal is a main aspect of freelancing in Pakistan. Its importance lies in the fact that social networks can play a huge role in the decision-making process of artists. Their support can encourage them to pursue freelancing as a full-time work and sometimes bad word of mouth related to poor experiences of one artist can discourage the other artist to take initiative and become financially independent.

The second proposition explores the challenges that digital artists face in embracing NFTs. It particularly highlights the technical challenges, perceived risk and the uncertainty that has been associated with the crypto market. As mentioned earlier, digital artists believe everything that they hear which ultimately stops them from doing their own research and evaluating the pros and cons of any intended action. Pakistani media also plays a negative role in highlighting the ban on cryptocurrency ignoring the positive outcomes of this technology. NFT being the application of the blockchain technology and transactions being made in cryptocurrency, artists don't try to find

out possible usage of this art that can help them earn without actually diving into the foundational technology and earning through freelancing platforms.

Finally, the third proposition showcases the resilience of the digital art entrepreneurs who fought back with all the challenges in their digital art journey and adopted NFTs. It unveils their strategic navigation through all the technical complexities and market uncertainties. It was the knowledge and understanding of crypto and power of doing your own research that helped them adopt the advanced form of digital art. These artists did face almost similar challenges, but they chose to research the true facts and the possible alternatives through which NFTs can be adopted. Most of them worked on freelancing websites and were directly hired by the clients and were always paid for the designs and characters they created no matter if the crypto was banned because they were being paid in dollars and not cryptocurrency.

6.3 Significance

Multiple researches have been carried on the topic of NFTs and its applications . NFTs can be applied across multiple sectors that include education, fashion, digital art, sports etc (Rehman, et al., 2021). In context of Pakistan, there exists just one research paper that explores NFTs' application in games (Siddique, et al., 2023). The other sectors where NFTs can be applied remain unexplored. The digital art sector of NFTs has been chosen for the reason that Pakistan based digital artists were getting limelight for contributing to NFTs but no proper research has been carried out yet. Multiple newspaper have shared the eye-opening contributions that Pakistan based digital artists have made in the field of NFTs yet the adoption of blockchain and NFTs is in the infancy stage (Rehman, et al., 2021). The major contributions that Pakistani artists made in the NFT field were the sale of “Friendship ended with Mudassir” meme art that was sold was \$49,866.0 (20.00 ETH) (<https://tribune.com.pk/story/2313662/pakistani-meme-friendship-ended-with-mudasir-sold-for-49866-as-NFT>). It made rounds on the internet for huge revenue generation.

6.4 Major contributions

This study contributes to the theoretical knowledge that already exists by framing digital art readiness as a dynamic interplay between prior knowledge, intentional skill acquisition, global influences and social networks. It extends the literature findings by incorporating unique context

of Pakistan-based digital artists. This study reveals how the role of social networks play a crucial role in the decision-making process of artists who believe in their networks more than doing their own research. In a broader context, this research enriches the overall understanding of NFT adoption related challenges and facilitators by providing specific insights about Pakistani digital art community that was unexplored until now. A theoretical framework has also been proposed that highlights the barriers that play significant role in stopping digital artists to adopt NFTs, facilitators that support digital artists to adopt NFTs and influencing factors that act sometimes as facilitators and sometimes as barriers. This is the major contribution of this research.

6.5 Practical implications

Digital artists shared an interesting viewpoint on NFTs which could be categorized as the practical implications of the concept NFTs which would be beneficial for the creators and celebrities who look forward to work in the welfare sector. Creative industry artists can make their NFTs to contribute to any social cause and their supporters can purchase them in order to donate. This could be a new form of collecting donations through selling digital art as NFTs. Furthermore, policymakers can leverage these insights to tailor educational initiatives that spread awareness about crypto and NFT landscape that foster accessibility and nurture a conducive environment for artistic innovations. One of the most important technological contributions that this study provides is clear definition of NFTs as art which means a painting that gets displayed on a marketplace and has a story. It usually gets mixed with the concept of NFTs as collectibles which have multiple use cases such as access to exclusive events or real life perks that a brand promises to its NFT buyers.

6.6 Limitations

While this research offers valuable insights, certain limitations should also be acknowledged. The first limitations comes under the data collection process as all the participants have been chosen from different parts of Pakistan through snowball technique which might not guarantee complete representativeness of all the regions. Hence, regional differences could have been ignored during data analysis. Secondly, the research focuses on digital artists who create art while the NFT ecosystem has other stakeholders as well such as investors and collectors who might have different opinions and could add valuable suggestions to the research (Sharma et al., 2022).

6.7 Future research

While NFTs have gained popularity in the art and collectibles, there are many other potential use cases of NFTs in other sectors apart from digital art such as healthcare, education, sports etc. to represent ownership or access to the unique assets or experiences. The technology behind NFTs and their future uses may be further explored if their scope of application is broadened. Another direction could be incorporating regulatory framework expert's interviews and taking on board different stakeholders and policy makers to address challenges and come up with solutions that could actually spread awareness about NFTs that would ultimately improve NFT adoption rate.

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