

Giulia Nevi
Sapienza University of Rome
PhD researcher
Tel. +39 3934489337
email: giulia.nevi@uniroma1.it

**NFT – Non-Fungible Tokens how react the consumers?
An exploratory analysis for a future integrated acceptance model**

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Abstract

The present project aims to investigate the behavioral intention to use NFT- Non-Fungible Tokens, a new cryptographic record linked to an asset. NFTs are a very recent phenomenon and investigating right now how this new technology could open new markets is certainly interesting. If NFTs are a long-term trend or a short-term trend or a real bubble it will be interesting to study this new phenomenon. This contribution remains in line with some of the themes that characterize the International Marketing Trends Conference, namely its attention to artistic and cultural themes and the meeting between supply and demand of sectors in "a creative world". NFTs have still been relatively little investigated given the novelty of the technology. Nowadays, researchers have analyzed only the grasping link with the world of cryptocurrencies. The present study aims to understand the behavioral intention towards NFTs, based on items extracted from an integrated method of the TAM - Technology Acceptance Model. Our goal is to understand the intention and behavior of people and if their behavior is comparable to the behavior of other types of consumers. Nevertheless, this study could be interesting to managerial level and share light on many sectors, from brand strategy and loyalty programs since new revenue model. We think to royalties incorporated in NFTs but also of security in exchanges, and especially in understand consumer behavior and future market online logic, weakness and forces, because the NFT could change the monetarization of the digital content. The artistic and luxury sectors as well as fashion and gaming are still touched from the new technology using different business strategy, as report in this paper. At an academic level is important to understand the diffusion of these product, even more digital and intangible, and how its perception could vary among different persons, to confirm or deny the theory on consumer behavior and/or on investment behavior.

Keyword: NFT – Non fungible Token - Regression analysis - Consumer Behavior – Technology Acceptance Model

Introduction

Non-Fungible Tokens are a particular type of smart contracts. The Merriam Webster Dictionary defines them both as "*a unique digital identifier that cannot be copied, substituted, or subdivided, that is recorded in a blockchain, and that is used to certify authenticity and ownership (as of a specific digital asset and specific rights relating to it)*", but NFTs are also the asset that the NFT represent. The Merriam Webster Dictionary himself thought of creating an NFT of the definition of NFT and then reselling it on one of the largest marketplaces. These revenues were donated to organizations involved in the training and education of children and young people. NFTs are therefore a new phenomenon, with pros and cons that this element entails: questions; potential, but also many doubts, they will spread enough, will be useful or will be, as many think, a bubble, all it is still to be discovered. However, if these doubts and curiosities are interesting at the level of scientific research, what can be interesting to study and can be useful for marketing is certainly a first doubt. As always, there are many points of view which researchers could approach to a phenomenon. The first is certainly also understanding the technology behind it: the blockchain. As recently theorized in several studies such as in Ertemel, A.V. (2018), Harvey, C.R., (2018), in Antoniadis I., (2019) and in Stallone, V., et al., (2021) the marketing uses of this technology can be varied from more general applications to the more specific ones such as consumer brand relationships up to the tourism sector. Especially in tourism sector, NFTs are applied as strategy to empower wildlife conservation attention, Macdonald Mofokend, N.E., (2018). Nowadays, NFTs are relatively poor investigated, although their use in real-digital life is growing with contamination between different sectors, from art to fashion to sport. We think in particular of a brand like Nike and its "Crypto kicks". Nike in 2020 obtained a patent that provides for a

"system and method for providing digital assets protected by cryptography" the patent includes digital assets for footwear items, which can include both data in the form of tokens, but also connect to real shoes or even to be able to use and export them in the gaming sector. A shoe can really make the difference and if we do not think about the Cinderella phenomenon at the marketing level. The association that immediately comes to mind is the famous Michael Jordan sneakers, that in a year thanks to him accumulates record sales of 100 million dollars. Both at the marketing and managerial level, the potential of NFT can wildly vary from up-selling strategies to those of customer loyalty. Another example is Clinique, which in order to sell its NFT have launched a contest where to the three winners was offered one NFT of three editions (NFT artwork) and free products for ten years (Vogue business). The NFT phenomenon is a way to create buzz marketing and try to engage new customers. For this reason, is important to understand how NFTs are used and how Brands could use it in a revenue model. In addition to Nike and Clinique, other companies have launched campaigns involving the inclusion of NFTs, thus using them as a tool to increase the perceived value of a simple promotion or product. Among the companies that have currently launched campaigns with NFT there are Coca Cola, who launched an NFT collection on Decentraland, a virtual game, AUDI in China, Givenchy and Dolce and Gabbana launch special NFT collections. Also, Bacardi create an NFT to promote the launch of limited-edition rum. In this specific case is interesting that the firm has made available its own team that could help even those who are not experts in cryptocurrency or in NFTs, converting offers from US dollar currency into cryptocurrency. The company has launched an initiative for a different purpose: reduce gender disparity in music (PRNewswire). Other companies that launch specific marketing initiative with NFT are DKNY who launched is new logo as NFT, the strategy is in line to attract the new target of the brand: millennials and GEN-Z. But NFTs are not only for fashion, game, or luxury product, Tacobell, the famous fast-food chain, launch 25 NFT and these gone sell in only 30 minutes and from a starting point of one dollar and combining the selling with a e-gift card of 500 dollars to order from a Yum! Restaurants-owned chain, continuing, Pringles sells fifty copies of a new "flavor all digital" of the crisp, sale price the same of the analogic tube of Pringles. For a marketing understanding of the NFT phenomenon also Marvel start a partnership to create a special NFT figures of Captain American and Spiderman, but also a special comic book all in NFT and last the Company in March 202. Marvel, a content creator demonstrate as the phenomenon could be also a threat, in fact release an important report in defense of intellectual property (IP) and characters owned by DC Comics and ban all the freelance artist that use its products and characters to produce NFT of them. Also, no profit organization are launching NFT, in particular the WWF and the UNCHR. At this starting point of the business, we can see as most of the Brand strategy use the auction revenue from NFT to a charity objective (Tacobell, Bacardi, Givenchy) or sell these products in combining with other physical or digital product (Nike, Clinique, Tacobell). NFT in they different typology is interesting also in terms of patents and therefore becoming strategic resources of a company with consequent advantages towards different competitors. The NFT sector is strongly connected to the art sector, and it is seeing a lot of interest also from large auction houses such as Sotheby's and Christie's. Also, individual artists can create NFTs of their works, protecting them using NFTs, like a copyright, or even more collecting royalties from the reselling of their art. This technology is also interesting for intermediaries, because the perception of a greater security and transparency is not so real as it purposes to be. Cornelius, K., (2021) pointed out that NFTs could be affected by a potential disintermediation effect. This could be linked to the potential risk of falling into its logic, no less obscure, by NFTs marketplaces. Nowadays the diffusion of NFT is still limited. Avery Akkineni, the president of VaynerNFT, a consulting firm that help brands plan and define a NFT strategy, reported that we are at the beginning of early adopters on the diffusion of

innovation curve as theorized by Rodgers Everett. It will be very interesting understand what could happen in the chasm moment or during cyclical economical crises and if this new technology would survive or how it will survive. Technology behind NFTs is also interesting in terms of patents and therefore they are becoming strategic resources for companies with consequent advantages towards different competitors. The aim of the study is understood in what degree this technology is accepted by people, and which are the drivers of its diffusion. To achieve this goal, we performed an explorative survey based on the items of an integration of TAM model with the objective to test in future. Discover the behavioral intention toward NFT is important to define marketing strategies: understand which target is to aim for and with which product or NFT version. The present study also opens a reflection to merchandising opportunity, at academic level is interesting as to all the suggestion about property, posses and nature of product.

Research question

The specific research questions are to understand if the simple TAM model or an integrated model could be best to analyze the adoption of NFT. Nowadays, the use of NFTs is a strictly personal activity for this reason we have considered to investigate even socio-demographical variables and personal income, an interest in the financial world or cryptocurrencies, as well as if they have ever invested in other investment instruments or participated in public auctions or private, variables do not present in classical models as presented in the next theoretical framework, but given the nature of NFTs, they could equally influence their purchase by people. The regression is a first preliminary step to discover if the TAM model could be effectively tested or if it needs some adjustment.

Theoretical Framework

The academic literature present on NFT has focused not only on the link with the blockchain, but also on their relationship with cryptocurrencies. On this regard, we cannot fail to mention the contributions of Dowling, M., (2021) which aim to investigate whether there is a relationship between the price of NFTs and the trend of cryptocurrencies. As mentioned, several times in different contributions, we remember that unlike cryptocurrencies which are tangible assets at the most, and this is the peculiar element that cannot be overlooked when we talk about NFT. If cryptocurrencies aim to be coins and therefore interchangeable, a bitcoin is equal to another bitcoin as well as a euro is equal to another euro. NFTs are Non-Fungible, they are created with special standards written in Solidity language and they use the blockchain protocols, one NFT cannot be easily exchanged for another because they are like record ownership and “each NFT record has a unique value relevant to the value of the asset itself”, Cornelius, K. (2021) The work of Dowling, M. (2021) demonstrates how the relationship between cryptocurrencies and NFT is not as predictable as one might think, particularly if there appears to be a co-movement between the two markets, Dowling, M. recommends studying sentiment and the uncertainties that could both, in terms of the transmission of volatility, instead their link is not strong; therefore, they are not perfectly correlated as there is a reduced spillover effect between the different NFT markets unlike other markets. This indicates that when we talk about NFT it is not so wrong reflects on the price dimension, as on the willingness to buy and exchange, and as other variables such as the types of NFT, can explained the reduced spillover effect according to Dowling M, (2021) precisely in reason of the fact that at the perception level the NFTs contain different products, as the fame of the artist, the exclusivity are all variables that could predict the price. Like many other recent innovations, a first necessary analysis to understand the evolution of the phenomenon, of its potential diffusion and application is to study the acceptance in terms of NFTs technology from people, as Cornelius, K. (2021) noted for users the most important consideration after the “*contract terms*” is especially in “*usability*”. The main methods used to measure the individual adoption of a technology are the Technology Acceptance Model -

TAM, which builds on the Theory of Reasoned Action - TRA and the Theory of Planned Behavior - TPB. The applications of the model are now confirmed in the literature and adapted to the phenomenon under study from time to time. The TAM model has been applied in a versatile way both to the diffusion of social media, Hansen, M.J. (2017), both to blockchain, Na, L. (2021) but also to issues related to e-learning, Park (2009), and to the use of technology in e-marketplaces, Mardiana, A. et al., (2020), in the end also to adoption of digital currency, Roussou, I. et al., (2019). Over the years the model has been adapted to the specific technology and innovation that was being studied, variations and adjustments also determined by frequent use that have led to refine and improve its validity and develop its variations such as TAM 2 and TAM3. For this study we only collect the different dimension to future research focused on the NFT's consumer behavior and in take in action the final integrated TAM model. In this analysis, considering that NFTs are a new technology or at least perceived as a new technology, we have developed a questionnaire developed on the items of an integrated model of TAM. Starting from the basis of the TAM, agreeing with the findings of Schachak, A., (2015): *"this simplicity makes TAM a useful tool to gauge the acceptability of new technologies in a 'quick and dirty' manner"*. The model we are considering builds on the one used by Albayati, H., et al. (2020). The model of Albayati, H., et al. (2020) aims to measure the usability of the blockchain by investigating the elements that influence the intention of customers to use it for cryptocurrency transactions on the blockchain, a technology which, as previously mentioned, is the basis on which NFTs also operate.

The model of Albayati, H., et al. has the advantage of integrating the TAM with some external variables but typifying the blockchain and which for this reason could play an important role in influencing its adoption, these specifically are trust, regulatory support, social influence, design, and experience.

In figure one (fig.1) we can see the structured model to understand the adoption of blockchain. As we can see read central is the TAM Model to which they have been connected external constructs.

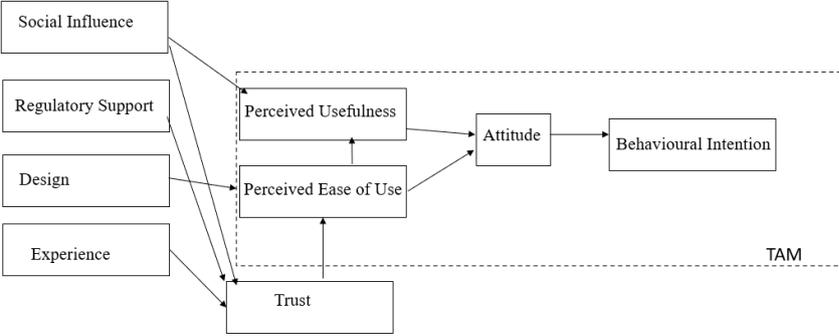


Fig. 1

In the same way we have structured the survey with the objective for future research to use the integrated model to study usability and acceptance of NFT. Consequently, here is the explanation of the different constructs. By Social Influence (SI) scholars mean what has already been theorized in Chaouali, Yahia, and Souiden, (2016), namely: *"individual's norms, roles, memberships, and values, which influence the individual's perception of what they should do"*. For NFTs, we considered the influence that primary groups have in influencing operations with NFTs. The experience of technology, E, starts from what was theorized in Hackbart, (2003) and therefore: *"the level of customers' knowledge and experience that supports his / her use of new technologies. In the case of blockchain technology adoption"* both variables, SI and E, can influence adoption and trust. However, given the nature of NFTs, we have deemed it appropriate, at least to date, to eliminate the Support of the

Authorities which, as understood by Albayati H. et al. (2015) is the “Regulatory framework & government support refers to legal frameworks that were established by the government to monitor and ensure that both service providers and consumers of technologies will fulfill their obligations and avoid violations. In the case of blockchain technology adoption, government regulation could support the adoption and increase trust. It’s the way to legalize the usage of blockchain-based applications and cryptocurrencies.”. Just as we considered it useful to investigate the influence of Subjective Norms (SN) as well, intending “the degree to which an individual perceives that most people who are important to him think he should or should not use the system” (Fishbein M. and Ajzen, I. 1975; Venkatesh, V., and Davis, FD (2000). We have modified the design-related item (D) always present in the model by Albayati, H. et al. (2015) since for NFTs it is not possible to speak of a single design or of a single element that can induce their adopt and use or non-use, this item has thus been replaced by the more useful System Accessibility (SA) already measured in Park, S.Y., (2009) in his study aimed at understanding the willingness to use e-learning systems in universities. Consequently, System Accessibility is understood as the ease of access and operation with NFT. Precisely in terms of Behavioral Intentions (BI) we have enriched the model considering the two dimensions used in the mobile commerce study by Wu, J.H., and Wang, S.C., (2005), linked to Risk, R, inserted in conjunction with the measure of the Trust (T), Albayati, H. et al. (2015), and the costs, C, in using and operating with NFT. Risk and Trust could be influenced by SI and E. Indeed, in accordance with the behavioral decision theory, the cost-benefit ratio is an important element in the adoption of a specific technology and directly influencing Behavioral Intention to use so we insert C. In the end the heart of the TAM model, consequently the Perceive Usefulness (PE) is understood as the degree to which the use of a specific technology can help to increase one’s performance or to use it to one’s advantage, while the Perceived Ease of Use is understood as the ability to use a particular technology can be used freely or effortlessly, Davis, F.D., (1989). Attitude (A) must be understood as the positive or negative feelings in the acceptance of a given technology. In recent years Attitude it has been subjected to various criticisms, some researchers consider that it has only a weak mediation factor towards BI and therefore often eliminate it from the model, however, considering the novelty of the phenomenon and the little diffusion, despite the great hype, we preferred remain faithful to the TAM model, another consideration to be made is that although Attitude may be less strong in determining behavior we agree with Park, S.Y., (2009) in his statement that while PU and PeoU are cognitive constructs, Attitude remains an affective construct to not underestimate. In terms of Behavioral Intention (BI) it indicates what each of these single variables should cause or the propensity or probability to experiment and use a particular technology. The final model represented that we not tested in this study because we confined the analysis for a first exploratory study of the regression for the different items is represent in the figure 2 (fig.2) you can see the integrated model to investigate the adoption of NFTs.

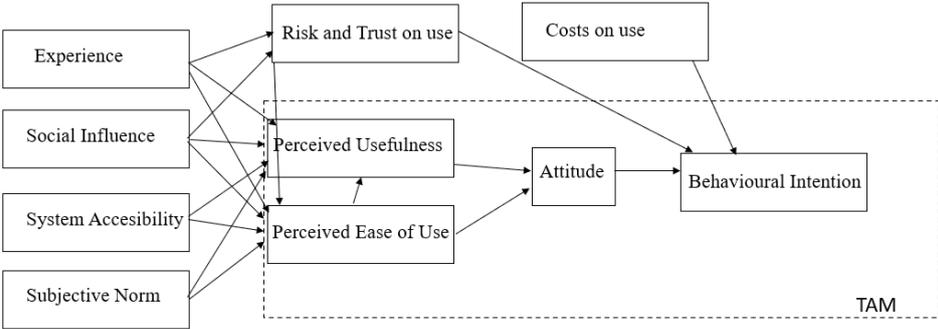


Fig. 2

We decide to opt to a first exploratory analysis because from the data could emerge greater priorities able to redefine the questions and the next steps of the research.

Research Methodology

The model thus structured was consequently structured in the form of a questionnaire in order to test the influence of each individual variable and which will be administered online through Amazon's Mechanical Turk (MTurk) a platform commonly used to investigate and test hypotheses through different analysis methodologies, Paolacci, G., and Chandler, J., (2014) we selected a number of workers based in USA. Each of the following elements structured in 34 questions will be investigated using a 7-point Likert scale, where the lower support, 1, indicates strongly disagree and the upper support, 7, indicates complete agreement. To these are added 8 questions to indagate socio-demographic variable (age – gender – study level – work status) and questions aimed at investigating a sensitivity to the issues of cryptocurrencies or art, a question aimed at understanding the economic availability, these in fact could, as mentioned, moderate or influence the use of NFTs, the participation to auction, public, private or both or none. Collected data will be analyzed by using IBM SPSS Statistics.

Findings

Results

This is an exploratory study and is more of a proof of concept that the integrated TAM model as formulated could be interesting to explore and test.

This is the current value for the Cronbach alpha, Table 1, in total 487 complete responses were collected.

Table 1

Alpha di Cronbach	N. di elementi
.955	42

Evidence is that the interest for the themes is a valid predictor of the behavioural intention, in contrast there is a quite opinion regarding risk and trust of this technology, but if the trust is perceived it could drive the BI to use. From the analyzes conducted, the risk is not significant compared to BI, while the Trust, in particular T2, I think use / have NFT is secure, is significant with R of 32.4% and adjusted R of 10.3%, similar results may indicate a possible still uncertain attitude regarding the instrument, a higher perceived risk does not lead to the adoption of a technology, however if it were to be perceived as safe, as evidenced by the adjusted R framework, the adoption would increase significantly. Second step of the analysis was to study the influence on PU of the different variables PEoU and SN and SI, to reach the reasonableness or otherwise of testing the diffusion of NFTs with our integration of the TAM model. All the analysis demonstrated the influence of PEoU and the different SN and SI on the PU, confirm that if you want to test the TAM model integrated with the significant variables that emerged in the Albayati model could be found interesting results and an influence of the hypothesized variables significant.

In detail the regression analysis highlights a significance of PEoU on PU3 as “I think operate with NFT would enhance my opportunities” especially for the age class of 56-60 years old, instead the PeoU2, “I believe it would be easy to get NFT to accomplish what I want to do” and PeoU4, “I find easy to operate with NFT” are significant more for women with a R square of 80%, compared to men, R square 36%. Consequently, the simplicity of use increases the utility perceived more for women than for men. The PeoU2, influences the age groups to a greater extent from 25 years upwards, while it is not significant for the very young it became very significant for the 56-60 age group, R squared adjusted, 74,7%. This variable, the possibility would be easy to get NFT to accomplish what they want to do, is also important

for a person in unemployment status to perceive that NFT would be useful for their performance, PU1 "I think use/trade NFT would be useful for my performance", R adjusted of 70,8%.

From the multiple regression analysis emerges that the PU is significant expressed assuming the influence of the various SNs, adjusted R of 66.8%, and especially for the lower income, less than \$ 15,000, R-adj=67.9%, or among those employed, R-adj=66.5%. The SN is significant for the PU also among those with a degree ranging between Bachelor, R-adj= 65.8%, and Master, R-adj=71.2%. The SI is always significant for all the stratification in determining the perceived usefulness of NFTs, is significant the influence of friends and the influence of colleagues or competitors, both have a strong weight. All the analysis demonstrated the influence of PEOU and the different SN and SI on the PU, confirm that if you want to test the TAM model integrated with the significant variables that emerged in the Albayati model could be found interesting results and an influence of the hypothesized variables significant.

Next step of the study would be to conduct the same regression analysis on the BI of use NFT, and the influence of auction behavior and investment assets possess after in decide if conduct the SEM in the integrated model or more interesting analysis, for preliminary analysis the age is a power driver. Final step of the study could be testing the model.

Limitation

Limitations of the study is that is an exploratory study and, in the sample, restricted to USA, and not well representative for this reason we recommend conducting cross cultural analysis with representative sample and asking if they use or not NFT especially for the confirmative study and the application of the TAM Model.

Future research

Given the recent nature of NFTs and of an interest in marketing there are several interesting options for future research first following the research of Dowling, M., (2021) to the influence in pricing models or in the revenue model. At the level of small or large companies NFT could be used for different strategies to exploit them to create value for brand itself and for their customers as previously reported the strategy model could be different. It could be as in the Abel Model a new technology that could open a new business. At the level of individual person is interesting as a new way to monetize the personal content creation, we could think, in this case, to the art sector and the potential disintermediation in favor of new realities and the unification of artists' personal brands. Today there is no model that investigate NFTs from customers and user side so it could be very interesting both an academic than a managerial level: do they know what buying NFT means, what do they expect and why do they do it? Discover the drivers of this diffusion could be very interesting both for marketing strategy and for academics. Future research will be aimed to definitively test the TAM model and understanding the potential influence of the items in the diffusion and acceptance of the NFT, on the base of the results we could aspect that most of these are not important and maybe other monetary items are better predictor of the NFT consumer, for these reason it will be interesting for future research following ever with an exploratory research approach, in cause of the nature of the technology, through either focus groups, interviews or large surveys maybe testing the collectors or art item applicating to NFT thus to understand the different items to be tested with an approach more descriptive. Confining the study to the consumer or potential user future research must be also involved in understand the difference from who already possess NFT and who not. In the end, future investigation could compare the NFT with other digital technology as QRcode o similar and the academic to understand if the past theory is adapted to also test a new form of business. To an academic level the study is important to discover what drive the intention to use in a new product technology not well

defined as NFT and to better define the contemporary phenomenon of the change in the relationships between consumers and goods as indagated in Morewedge, C.K., et al. (2021).

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