Why do consumers buy sports NFTs? – decoding consumer values and needs driving purchase intention

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Abstract

Purpose – Over the past years, non-fungible tokens (NFTs) have sparked growing interest in the sport industry. NFTs are unique digital assets verified using blockchain technology. Each NFT has a distinct identifier that sets it apart from other tokens, documenting its uniqueness and ownership. NFTs promise innovative growth opportunities by generating revenue via novel products such as digital collectibles which can be owned and traded on dedicated platforms. Despite this promising outlook, it currently seems unclear how sports NFTs should be designed and which features they should offer to align with consumer values, effectively meet their needs and ultimately drive Purchase Intention. This study will therefore attempt to answer the following research question: Which consumer values and consumer needs have a positive impact on PI of sports NFTs? Based on the results, the study seeks to offer advice on concrete characteristics sports NFTs should possess in order to foster mainstream adoption.

Design/methodology/approach – To address the current gap in the literature and provide an answer to the research question, this paper uses structural equation modelling exploring the impact of consumer values and consumer needs or wants on purchase intention regarding sports NFTs.

Findings – The results of this study indicate that social needs or wants (SNW) have the strongest impact on purchase intention, as well as on experiential and functional needs or wants. NFTs should therefore possess characteristics that foster community, interaction and connection with other team or athlete supporters while enhancing the overall consumer experience. Incorporating these elements into future NFTs can help sports organizations tap into the social SNW of consumers by providing opportunities for connection, interaction and collective experiences within supporter communities.

Research limitations/implications – Due to the low response rate of Baby Boomers, the results of the study cannot be applied to this cohort. Additional research, potentially using physical in-stadium surveys and targeted specifically at the BB cohort may shed light on their particular values, needs or wants and impact on sports NFT purchase intention. Moreover, Generation Z respondents may statistically be underrepresented in the sample due to the fact that only respondents aged 18 and older were included in the study. Hence, the part of Generation Z, which was born after March 2006 and had not yet come of age at the time of this research, was explicitly excluded from the survey. Results should be applied carefully to the population of sports team or athlete supporters due to the method of data collection which was based on convenience sampling and may therefore not be representative. Since the survey was exclusively administered online, people with no Internet access are not represented in this research.

Practical implications – Sports organizations and marketers can leverage the strong impact of SNW identified in this study to position their NFT portfolio accordingly. Using athletes themselves or other influencers as product ambassadors may trigger purchase intention of consumers. Additionally, it is crucial that socializing agents, such as family, friends, colleagues and other team supporters with a strong influence on consumers own or promote NFTs. Marketers can support this adoption process by encouraging testimonials, reviews and user-generated content that showcase how NFTs have positively impacted others. Reaching a critical mass of adoption among supporters as a first step will ultimately impact consumers' desire to satisfy ENW and FNW as well. Consumers may then recognize the benefits of using NFTs to enhance their overall

consumer experience and to make their lives easier, for instance by using NFTs as season tickets or to collect loyalty points they can redeem later.

Originality/value – This study is the first attempt to determine the relationship between consumer values, consumers' needs or wants and their impact on purchase intention regarding sports NFTs.

Keywords Consumer values, Needs or wants, NFTs, Digital assets, Sports industry

Paper type Research paper

Introduction

Over the past years, non-fungible tokens (NFTs) have sparked growing interest in the sport industry. NFTs are unique digital assets verified using blockchain technology. Each NFT has a distinct identifier that sets it apart from other tokens, documenting its uniqueness and ownership. Unlike cryptocurrencies such as Bitcoin, which are "fungible" and can be exchanged on a one-to-one basis, NFTs represent individual items, including digital art, collectibles, virtual real estate and even ownership records for physical goods (Baker *et al.*, 2022; Wilson *et al.*, 2022). NFTs promise innovative growth opportunities for sports organizations by generating revenue via novel products such as digital memorabilia, player cards or video sequences which can be purchased and traded on dedicated platforms. Examples include the National Basketball Association (NBA)'s NFT trading platform Top Shot, which had more than 1 million registered users as of September 2021 and made the headlines for some spectacular NFT sales (Conti, 2023). Soccer governing body Fédération Internationale de Football Association (FIFA) introduced its NFT platform FIFA + Collect where consumers can purchase and trade soccer-related NFTs, mostly in the form of brief video clips, in late 2022 just before the FIFA World Cup in Qatar. NFT drops however, are not limited to international sports organizations or teams. In 2021, National Football League (NFL) star Rob Gronkowski released his own NFT collection (see https://gronknft.com/) featuring top Super Bowl moments (Young, 2021) and NFL peer Tom Brady co-founded Autograph (see https://autograph.io), a platform aiming to help celebrities sell NFTs to their fans ("Autograph, the NFT Platform Co-Founded by Tom Brady, Announces Iconic Talent Deals and Strategic Relationships with DraftKings and Lionsgate," 2021). Since early 2022, the NFT market has experienced a sharp decline, for instance, in terms of the average number and value of NFT sales on the Ethereum blockchain (de Best, 2023). In addition to regulatory action, notably by the US Securities and Exchange Commission, reasons for the decline may include the fact that the initial hype around digital assets was largely driven by financial speculation rather than the intrinsic value offered by NFTs (Santillana Linares, 2023). Notwithstanding the recent market downturns and setbacks, "NFTs have been embraced by sport organizations, providing them with innovative value generation opportunities" (Baker *et al.*, 2022, p. 5). Due to their unique abilities of recording ownership on the blockchain as digital identifiers that cannot be copied, substituted or falsified (Li and Chen, 2023), NFTs are expected to revolutionize economies, including the sports industry over the next years. Despite this promising outlook, it currently seems unclear how sports NFTs should be designed and which features they should offer to appeal to consumer values, effectively meet their needs and drive consumers' purchase intention (PI). This study therefore aims to provide an answer to the following research question: Which consumer values and consumer needs have a positive impact on PI of sports NFTs? Based on the results, the study seeks to offer advice on concrete features sports NFTs should possess to address identified values and needs and ultimately accelerate mainstream adoption of NFTs in the sports industry.

Theoretical concepts and framework development

Research on sports NFTs

Limited research has been conducted exploring the consumer values and consumer needs that have a positive impact on PI of sports NFTs. Some recent studies analyze features of NFTs and factors of perceived consumer value that influence the intention to purchase NFT

sports collectibles (Mereu, 2023). Baker *et al.* (2022) provide an initial answer to the question "Why is anyone willing to pay for an NFT?" (p. 5) in a sports context. Chen (2024) reviewed the reception of NFTs and fan tokens among soccer club supporters of the three English Premier League clubs Manchester City, Everton and Crystal Palace. Chen's (2024) findings reveal that the issuance of fan tokens by clubs generated mixed reactions among online supporters, including curiosity, excitement, disappointment and anger. The frustration stemmed from two main issues: a lack of crypto literacy and debates over the utility of fan tokens.

To contribute to this existing body of knowledge and enhance the current understanding of consumer values and consumer needs impacting their PI of sports NFTs, this paper will use the theoretical concepts of consumer values, based on the tested List of Values (LOV) methodology (Kahle and Kennedy, 1988), consumer needs (Park *et al.*, 1986) and consumers' PI (Putrevu and Lord, 1994) in the context of sports NFTs.

This study recognizes that financial motivations may also trigger the purchase of NFTs (Chen, 2024; Mekacher *et al.*, 2022). NBA Top Shot, for instance, is promoted as a platform where like-minded collectors can purchase and collect NBA "moments." Nevertheless, researchers have found that users of the platform are often motivated "by financial interests and strategic calculations" illustrating the "dichotomous nature of NBA Top Shot, where play and financial gain are intertwined" (Zaucha and Agur, 2022, p. 12). However, the focus of the present study lies on identifying how NFTs features can enhance the experience of sports consumers by addressing the concrete values and needs of individuals with a true interest in a favorite sports team or athlete rather than pure financial gain.

Sports consumers, spectators and fans

It is acknowledged that "maintaining a consistent use of" the terms "sports consumer," "spectator" and "fan" is challenging as many of them are "often used interchangeably" in the literature (Wann and James, 2019, p. 3). Particularly the distinction between "spectators" and "fans" found in the literature is relevant in this context because an individual attending a sporting event accompanying a group of friends, for instance, would be classified as a "spectator" even if this individual had no particular interest in the sport or a specific team (Wann and James, 2019). "Fans" on the other hand, tend to have a strong emotional connection to teams or athletes and feel emotionally invested in their successes and failures. They might have a long-standing history of supporting the team or athlete, purchase and wear merchandise, and they may participate in discussions or forums related to the sport (Funk *et al.*, 2016). Fans rather than spectators are therefore the focus in the context of this research. Nevertheless, fans can feel attachment to a number of sports objects besides teams or athletes, including coaches, a university, or a community (Wann and James, 2019). This study therefore uses the general term "sports consumer" and focuses on the subset of sports consumers with a favorite sports team or preferred athlete. Analogous to sports teams, professional athletes have evolved into distinct personal brands (Wann and James, 2019), employing technology as a strategic means to interact with their respective supporter bases "through various social media channels" "before, during, and after a main event, e.g. a game of basketball or a football match" (Mereu, 2024, p. 215). Research has shown that brand personality attributes highlighted by Carlson *et al.* (2009) "in a team-based context" also apply "in an athlete context" (Carlson and Donavan, 2013, p. 202). Due to their loyalty and involvement, sports consumers with a favorite team or athlete are well suited to determine the specific features sports NFTs should possess to appeal to consumers' values and satisfy their needs or wants.

Consumer values

Values are beliefs "that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence"

(Rokeach, 1973, p. 5). An understanding of values is critical in consumer research since consumer values, "explicit or implicit, function as grounds for behavioral decisions in general and consumption behaviors in particular" (Shim and Eastlick, 1998, p. 142). Vinson *et al.* (1977) observe that values are "centrally held cognitive elements which stimulate motivation for behavioral response", i.e. they influence consumer intentions, "evaluations or choices" (p. 49). The first extensively employed measurement of values method is ascribed to Rokeach (1973). However, the Rokeach Value Survey (RVS) has encountered criticism, notably by Clawson and Vinson (1978), who raised concerns about information loss resulting from rank orderings, the impracticality and arduous nature of assessing a large number of value items, and the debatable relevance of Rokeach's values to daily life. In an endeavor to surmount these limitations, an alternative and streamlined LOV was devised and subsequently subjected to empirical examination (Beatty *et al.*, 1985; Kahle and Kennedy, 1988). The LOV methodology constitutes a framework aimed at understanding the connection between individuals' values and their consumer behavior. It centers on the premise that values influence consumer preferences and subsequent purchasing decisions. Aligning product or service features with consumer values enhances their appeal and fosters a deeper connection with the target audience (Kahle and Kennedy, 1988). The formation of values is influenced by the environment individuals live in and can be regarded as "the outcome of culture and ethnicity of a society" (Kim *et al.*, 2002, p. 482). Consumers with different cultural backgrounds may therefore possess different values that may impact their needs and subsequent purchase decisions. The LOV methodology has been applied in various contexts and to different types of consumer products. For instance, Shim and Eastlick (1998) observed a relationship between consumer values and their preference towards specific shopping malls. A study by Allen (2001) suggests that "values influence product preferences directly" (Kim *et al.*, 2002, p. 482). Based on the methodology applied in previous research, the LOV will be used in the context of this study to explore the impact of consumer values on PI regarding sports NFTs.

Consumer needs or wants
In addition to their impact on PI, consumer values are theorized to influence consumer needs or wants. Homer and Kahle (1988) highlight that consumer values wield influence over behavioral and consumption decisions by shaping attitudes and Hong-Ming Yau (1993) finds that values may "affect the prioritization of needs to be met through purchase of particular consumer products" (Kim *et al.*, 2011, p. 482). This influence of consumer values is eventually manifested in the creation of desires, subsequently affecting needs or wants to be satisfied and ultimately propelling consumers towards the selection of products or services that address these needs or wants (Kim *et al.*, 2002). Even though the literature does not always make a clear distinction between "needs" and "wants" (see, e.g. Kim *et al.*, 2002), they are not identical. "Needs" often refer to the basic requirements that are essential for survival and well-being. "Needs" are sometimes "defined as relatively inelastic, meaning that demand changes less than proportionally in response to increases in price" (Norris and Williams, 2016, p. 73). "Wants" on the other hand are usually depicted as desires that go beyond basic needs. They are not essential for survival but are sought to fulfill personal preferences, tastes, or aspirations. Norris and Williams (2016) found that "there is reason to believe, however, that psychological factors play a role in the perception of" (p. 73) needs and that consumers "alleged 'needs' are impacted by various aspects including "technological innovation that has drastically improved the quality of life" (p. 79), as well as consumers "financial situation. Particularly individuals belonging to younger generations who claim that they 'need their cell phone' "do not literally mean that they cannot live without it" (p. 78), but for them, connectivity is an essential part of their lives. Additionally, consumers who are financially

well-off often consider more products and services as basic "needs". Sweeney and Soutar (2001) use the term "satisfaction" which "is universally agreed to be a post–purchase and post-use evaluation" (p. 206) irrespective whether the purchase took part to satisfy a want or a need.

In the present study, the term "needs or wants" is henceforth used to reflect the above discussion and to pay tribute to the "basic trend" for products or services "to become necessities over time" (Norris and Williams, 2016, p. 79). Similar to devices like cell phones or computers, NFTs could evolve from being a "want" to an essential "need" for future consumers. The literature defines various categories of consumer needs or wants which are often grouped into functional needs or wants (FNW), social needs or wants (SNW) and experiential needs or wants (ENW) (Keller, 1993; Park et al., 1986; Sweeney and Soutar, 2001).

"Functional needs or wants" (FNW) are defined "as those that motivate the search for products that solve consumption-related problems" (Park et al., 1986, p. 136). These needs or wants are focused on the practical or utilitarian aspects rather than emotional or aesthetic considerations. Products and services that address consumers' FNW therefore should be designed to "solve externally generated consumption needs" (Park et al., 1986, p. 136) and effectively meet consumers' practical requirements and expectations. FNW are considered rather "low-level motivators encouraging consumers to focus on intrinsic advantages of" products or services (Kim et al., 2002, p. 486). An example is the battery life of a mobile phone which should last a reasonable amount of time or a software which is expected to work reliably without frequent crashes or malfunctions.

"Experiential needs or wants" (ENW) pertain to the desires and aspirations of individuals to seek certain experiences or emotional gratifications through their consumption activities. They focus on the desire for experiences that go beyond the functional or utilitarian aspects of products or services. ENW are about the emotional, sensory and psychological impact that consumption can offer. To address ENW, products or services need to fulfill "internally generated needs for stimulation and/or variety" (Park et al., 1986, p. 136). For instance, some consumers look for products or services that engage their senses, such as gourmet foods, luxurious fabrics, or immersive entertainment experiences like virtual reality. ENW may also include products and services in a virtual world that "satisfy more eccentric consumption desires and fantasies" which are not possible in the physical realm (Close, 2012, p. 59).

"Social needs or wants" (SNW) are rooted in the symbolic meanings, social identity and personal expression that a product or brand represents to an individual. Products and services satisfying SNW often fulfill self-expressive purposes such as the desire for self-enhancement, social status, or affiliation with certain groups (Park et al., 1986). For instance, a collector may purchase a unique painting to reinforce her "self-view as one who is different from others" (Tian et al., 2001, p. 52), to elevate her social status or to belong to an exclusive group of art collectors. Socializing is also an essential part of fandom. Team or athlete supporters bond over their common passion for the sport and their favorite team or athlete. Families are often the first socializing agent and team preferences are frequently passed down from the parents to their offspring (Funk et al., 2016). The social experience also plays a key role in the sports NFT realm. "If sport fans feel pressure to keep up with their peers, friends, or families," this may stimulate "fear of missing out (FoMo), a sentiment driven by a sense of scarcity" where FoMo is "the pervasive concern" that family, friends, colleagues or other team supporters may have "rewarding experiences from which one is absent" (Baker et al., 2022, p. 7). This FoMo can subsequently trigger the decision to purchase NFTs. Additionally, athletes or influencers who often act as role models for younger generations, are frequently used to promote products including NFTs on social media as the can "make any product reliable and attractive" simply by recommending it (Canepa, 2023, p. 173). Within the NFT marketplace, a notable trend reflecting the desire to socialize with like-minded peers is the emergence of vibrant communities. Numerous online forums and platforms cater to NFT

enthusiasts, including popular Discord channels (https://discord.com) associated with prominent NFT projects, as well as established NFT trading platforms like OpenSea (https://opensea.io). These communities serve as hubs where individuals with shared interests gather, offering NFT creators a platform to showcase their achievements and ideas to a broader audience. Participants of a recent study also "highlighted the collaborative and supportive nature of the NFT communities" where for instance, members would alert others "about any sketchy NFTs" (Sharma *et al.*, 2022, p. 21).

Based on the theoretical concepts discussed above, this study will assess the relationship between consumer values and different needs or wants, resulting in the following research hypotheses:

H1a. Consumer values will have a significant impact on social needs or wants.

H1b. Consumer values will have a significant impact on experiential needs or wants.

H1c. Consumer values will have a significant impact on functional needs or wants.

Considering the key role social experience plays in the sport industry (Funk *et al.*, 2016; Wann and James, 2019) and in the context of sports NFTs in particular (Sharma *et al.*, 2022), the study will also evaluate the impact of SNW on FNW and on ENW, leading to the research hypotheses below:

H3a. Social needs or wants will have a significant impact on functional needs or wants.

H3b. Social needs or wants will have a significant impact on experiential needs or wants.

Purchase intention

Intention is considered "as one immediate antecedent of actual behavior" (Ajzen and Driver, 1992, p. 209). PI refers to a consumer's plan or willingness to buy a particular product or service within a specified period. It reflects the likelihood or probability that an individual will make a purchase based on various factors such as needs, preferences, attitudes and external influences. Several studies have established that PI is impacted positively by the perceived value of products and services (Chang and Wildt, 1994). While "value perceptions may be formed independently of participation in a transaction," "purchase intentions are formed under the assumption of a pending transaction and, consequently, often are considered an important indicator of actual purchase" (Chang and Wildt, 1994, p. 20). Previous research found that PI is influenced by consumer values and by their needs or wants (Homer and Kahle, 1988; Kim *et al.*, 2002; Shim and Eastlick, 1998).

To assess the impact of consumer values and of needs or wants on PI in the context of sports NFTs, the following research hypothesis will be tested in this study:

H1d. Consumer values will have a significant impact on purchase intention.

H1e. Consumer values will have a significant indirect impact on purchase intention through consumers' social needs or wants.

H1f. Consumer values will have a significant indirect impact on purchase intention through consumers' experiential needs or wants.

H1g. Consumer values will have a significant indirect impact on purchase intention through consumers' functional needs or wants.

H2a. Social needs or wants will have a significant impact on purchase intention.

H2b. Experiential needs or wants will have a significant impact on purchase intention.

H2c. Functional needs or wants will have a significant impact on purchase intention.

Figure 1 summarizes the theoretical concepts applied in this study:

Table 1 offers an overview of the hypotheses developed based on the theoretical concepts highlighted above.

Methodology

The procedure followed in this study involved the following steps:

1. Item generation through literature research and developing the survey construct

2. Conducting a pilot survey

3. Revising the survey construct

4. Conducting the revised survey

5. Exploratory factor analysis (EFA) to identify underlying factor structure

6. Confirmatory factor analysis (CFA) to assess goodness of fit and measurement invariance

7. Assessing relationships between variables using the structural model

8. Concluding whether or not the different research hypotheses were supported

Developing the survey construct

This study is the first attempt to determine the relationship between consumer values, consumers' needs or wants and their impact on PI regarding sports NFTs. Therefore, a new survey construct needed to be developed based on the theoretical concepts discussed above. The survey construct was drafted based on extensive literature research and focused on examining the preferences of a specific target group: sports consumers with a favorite sports team or a favorite athlete. Previous studies have shown that individuals who follow a particular sport are not necessarily identical with supporters developing a preference for a specific sports team (Branscombe and Wann, 1991; Funk *et al.*, 2016; Wann and James, 2019)
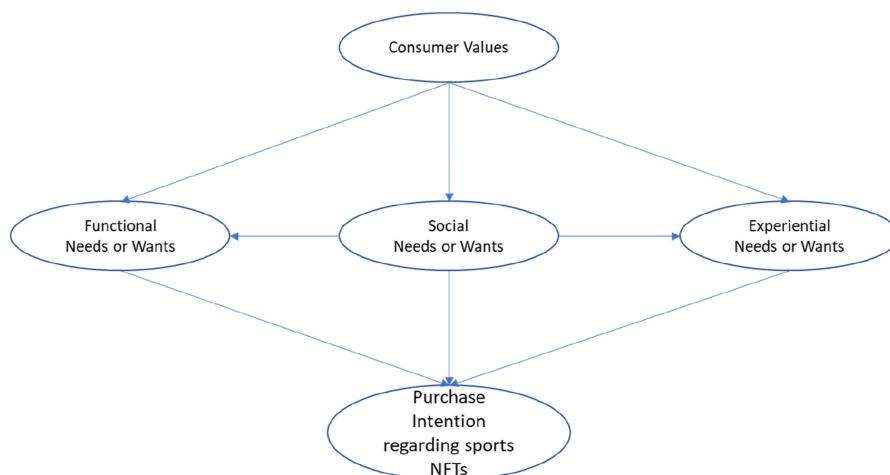
Figure 1.
Overview of theoretical concepts

Source(s): Created by the authors

Research hypotheses		
H1a	Consumer values will have a significant impact on social needs or wants	CV → SNW
H1b	Consumer values will have a significant impact on experiential needs or wants	CV → ENW
H1c	Consumer values will have a significant impact on functional needs or wants	CV → FNW
H1d	Consumer values will have a significant impact on purchase intention	CV → PI
H1e	Consumer values will have a significant indirect impact on purchase intention through consumers' social needs or wants	CV → SNW → PI
H1f	Consumer values will have a significant indirect impact on purchase intention through consumers' experiential needs or wants	CV → ENW → PI
H1g	Consumer values will have a significant indirect impact on purchase intention through consumers' functional needs or wants	CV → FNW → PI
H2a	Social needs or wants will have a significant impact on purchase intention	SNW → PI
H2b	Experiential needs or wants will have a significant impact on purchase intention	ENW → PI
H2c	Functional needs or wants will have a significant impact on purchase intention	FNW → PI
H3a	Social needs or wants will have a significant impact on functional needs or wants	SNW → FNW
H3b	Social needs or wants will have a significant impact on experiential needs or wants	SNW → ENW
Source(s): Created by the authors		

Table 1.
Overview of research
hypotheses

or an athlete (Carlson and Donavan, 2013). However, it is theorized that supporters with a preference for a sports team or an athlete are most likely to purchase products or services associated with these teams or athletes as "their influence" on supporters "can extend beyond their athletic performance" and "they often have significant impact on their fans' lifestyle choices, product preferences, and even societal views" (Mereu, 2024, p. 216). The survey therefore included a screening question ("Do you have a favorite sports team or athlete?") to exclude respondents without team or athlete preference. The following Sections 1 and 2 contained questions using a seven-point Likert scale where 1 = strongly disagree and 7 = strongly agree.

The survey objectives, methodology and content were reviewed and approved by the Ethics Committee of the university.

Pilot survey
Section 1 of the pilot survey aimed to assess consumer values and used the original items of the LOV methodology (Kahle and Kennedy, 1988). The nine LOV items where converted into statements and a seven-point Likert scale was adopted in line with the remainder of the survey. Section 2 of the survey was designed to assess consumers' needs or wants. Section 3 of the survey intended to index the dependent variable, PI, using items previously tested by Putrevu and Lord (1994) and adapted to the context of sports NFTs for the purpose of this study.

Survey participants were presented with a summary of the intentions and scope of the project. After providing informed consent, they had to answer the screening question, and participants who indicated that they did not have a favorite sports team or athlete were thanked and disqualified from the survey (10% of respondents). A link to the self-administered questionnaire of the pilot study was first shared via LinkedIn and 198 complete responses were collected between 18 December 2023 and 31 January 2024. Additionally, the pilot survey was published on the platform Clickworker (clickworker.com) [1], where 700 complete answers were obtained bringing the total number of completed responses to 898. After removing the respondents who did not answer correctly to the attention check question, a total number of 822 responses was retained in the pilot dataset. An EFA was conducted with 50% of cases randomly selected from this dataset (n = 411) to test the survey construct and verify if the proposed items were loading correctly on the latent variables (Yong and

Pearce, 2013). However, the EFA using principal component analysis and Varimax rotation revealed several issues with the survey construct. Firstly, the nine LOV items did not load strongly onto different factors as suggested by previous studies (Kim *et al.*, 2002; Kurpis *et al.*, 2010). Instead, only one factor with strong loadings was extracted (labeled "self-directed values") and a second factor with weak loadings from only a few items (labeled "outwards-directed values"). Further tests using the other randomly selected 50% of the dataset (n = 411) for a CFA confirmed that particularly the relationships between the observed variables and the corresponding latent factor labeled outwards-directed values was rather weak. Based on the findings of the pilot study, a decision was made to modify the consumer values in Section 1 of the survey construct by including additional items from the RVS. The selection of additional RVS items was based on previous studies which have compared the LOV with the RVS. They found that some original items of the RVS, which had been summarized in the LOV, may add additional insights as they showed weak correlations with the nine LOV items (Beatty *et al.*, 1985). Additionally, one item was added addressing the physical wellbeing which may have been an "oversight in the development of the" RVS, "particularly given the representation of values associated with mental health" (Braithwaite and Law, 1985). The consumer value items included in the revised survey are presented in Table 2.

Revised survey
The revised survey was published on social media and on the platform Clickworker (clickworker.com) [2] in March 2024 and 1,042 answers were obtained [3]. After removing the respondents who did not answer correctly to the attention check question, a total number of 856 responses was kept in the dataset for further analysis using SPSS and AMOS 29.

Profile of survey respondents
The majority of survey respondents originate from the US (44%), followed by Germany (31%), the United Kingdom (16%) and Austria (3%). The geographic segmentation is an important consideration in this study, since consumer values may significantly differ between cultures. With over 90% of respondents coming from the US and Western European countries, it can be assumed that the majority of survey respondents share similar cultural values and survey responses are therefore comparable from a cultural perspective. In terms of gender, the study is well-balanced with 46% female and 52% male respondents. Missing percentages self-identified as either "non-binary" or preferred not to indicate their gender.

Exploratory factor analysis
EFA was conducted using principal component analysis and Varimax rotation with approximately 50% of cases randomly selected from this dataset (n = 391). The minimum factor loading was set to 0.50. The communality of the scale indicating the amount of variance in each factor was also assessed and showed that communalities were above 0.50. The factor structure was then evaluated in various iterations based on the failure to load, items loading and observed cross loadings. The five remaining consumer value items after the final EFA iteration loaded on a single factor and it was therefore decided to proceed with one factor for consumer values, which was labeled "Consumer Values" (CV). The three extracted factors relating directly to consumers' needs or wants were labeled "Social Needs or Wants" (SNW), "Experiential Needs or Wants" (ENW) and "Functional Needs or Wants" (FNW). The fifth extracted factor was labeled "Purchase Intention" (PI). Table 3 offers an overview of extracted factors and loadings. The final iteration of the EFA resulted in a Kaiser-Mayer-Olkin measure of sampling adequacy of 0.96 indicating that the strength of the partial correlation between

Item	Sources	Additional item	Rationale for including the item
Warm relationships with others	Homer and Kahle (1988)	Yes	This item summarized the original RVS items "Mature love" and "true friendship." However, "Warm relationships with others" has a comparable low correlation with "Mature love" (Braithwaite and Law, 1985). "Mature love" was therefore included in this study as a separate item
Mature love (sexual and spiritual intimacy)	Rokeach (1973)	Yes	Added based on the rationale above
Equality (brotherhood, equal opportunity for all)	Rokeach (1973)	Yes	Item was not included in LOV. However, it showed low correlation with LOV items (Braithwaite and Law, 1985) and was thus included in this study as a separate item
A comfortable life (a prosperous life)	Rokeach (1973)	Yes	Item was not included in LOV. However, it showed low correlation with LOV items (Braithwaite and Law, 1985) and was thus included in this study as a separate item
Physical well-being	Braithwaite and Law (1985)	Yes	Physical well-being may have been overseen by Rokeach but seems to be an important item, considering that mental health items have been taken into account by the RVS (Braithwaite and Law, 1985)
An exciting life (a stimulating active life)	Rokeach (1973)	No	Item is called "excitement" in LOV but the researchers decided to use the original RVS item
Being well-respected	Homer and Kahle (1988)	No	Included in the LOV
Security	Homer and Kahle (1988)	No	Included in the LOV
Self-fulfilment	Homer and Kahle (1988)	No	Included in the LOV
Sense of accomplishment	Homer and Kahle (1988), Rokeach (1973)	No	Included in the LOV
Sense of belonging	Homer and Kahle (1988)	No	Included in the LOV
Self-respect	Homer and Kahle (1988), Rokeach (1973)	No	Included in the LOV

Table 2.
Consumer value survey items included in the revised survey

Source(s): Created by the authors

the variables is suitable for factor analysis. The items explained 69.27% of the variance in the five-factor solution. Results of Bartlett's test of sphericity were significant, $x^2 = 9346.69$ ($p < 0.001$), which suggests that the observed variables in the dataset are sufficiently correlated to justify conducting a factor analysis (Yong and Pearce, 2013).

Four out of the five items loading on Factor 1 – CV originate from the LOV methodology. The fifth item addresses physical wellbeing which had not been included in the LOV scale but was added to the construct in this study based on the findings of Braithwaite and Law (1985).

Items and factors extracted	Factor loading	Eigenvalue	Percent of variance explained	Alpha
Factor 1 – Consumer values (CV)		1.05	3.37%	0.77
Physical wellbeing	0.72			
Security	0.64			
Self-fulfilment	0.74			
Sense of accomplishment	0.66			
Self-respect	0.79			
Factor 2 – Social needs or wants (SNW)		14.83	47.82%	0.93
I want an NFT/digital item if my friends or family own NFTs/digital items	0.80			
I want an NFT/digital item if other supporters of my favorite team or athlete expect me to own an NFT/digital item	0.82			
I want an NFT/digital item if my colleagues own NFTs/digital items	0.83			
I want an NFT/digital item if my role model owns NFTs/digital items	0.80			
I want an NFT/digital item if it allows me to belong to a group of like-minded people	0.67			
I want an NFT/digital item if I can display my collection publicly	0.63			
Factor 3 – Experiential needs or wants (ENW)		2.81	9.05%	0.94
I want an NFT/digital item if it is unique (e.g. part of a limited edition)	0.51			
I want an NFT/digital item out of curiosity	0.66			
I want an NFT/digital item if it challenges my way of thinking	0.69			
I want an NFT/digital item if it allows me to express my creativity	0.65			
I want an NFT/digital item to try something new	0.66			
I want an NFT/digital item if it is visually appealing	0.53			
I want an NFT/digital item if it makes me feel good	0.68			
I want an NFT/digital item if it creates an immersive experience	0.65			
I want an NFT/digital item if it creates an exciting experience	0.70			
Factor 4 – Functional needs or wants (FNW)		1.68	5.41%	0.88
I want an NFT/digital item if cannot be falsified or duplicated	0.56			
I want an NFT/digital item if reselling it is quick and easy (direct transactions without intermediary)	0.73			
I want an NFT/digital item if it helps me solve a problem	0.70			
I want an NFT/digital item if it makes my life easier (e.g. digital ticket to enter a stadium)	0.73			
I want an NFT/digital item if it enables me to collect loyalty points I can redeem later	0.52			
I want an NFT/digital item if it increases my financial investment	0.70			
Factor 5 – Purchase intention (PI)		1.12	3.61%	0.94
It is very likely that I will buy an NFT/digital item from my favorite sports team or athlete	0.67			

Table 3.
Extracted factors and loadings

Items and factors extracted	Factor loading	Eigenvalue	Percent of variance explained	Alpha
I will purchase an NFT/digital item from my favorite sports team or athlete the next time I have the chance to	0.67			
I will definitely buy an NFT/digital item from my favorite sports team or athlete	0.70			
I want an NFT/digital item if it allows me to show my affiliation with a team or athlete	0.52			
Source(s): Created by the authors				

Table 3.

This suggests that the LOV scale developed by Homer and Kahle (1988), which summarizes Rokeach's proposed items into a more condensed scale, may suffice when measuring consumer values and that most items added to the construct in this study based on findings of Beatty *et al.* (1985) may not provide additional information. The item "Physical wellbeing" however seems to complement the LOV scale and may be worth considering in future research. Another interesting finding in the context of this study is that only items which had been summarized as "self-directed values" in previous studies (see, e.g. Kim *et al.*, 2002; Shim and Eastlick, 1998) loaded on Factor 1 – CV. This suggests that the target group of this study, sports consumers with a favorite team or athlete, are more driven by self-directed values such as "Self-fulfillment" or "Self-respect" rather than values directed towards others, like "Being well-respected" or a "Sense of belonging". This finding is in line with previous studies, for instance, by Kim *et al.* (2002) who observed that "only self-directed values were significantly related to types of needs to be satisfied by apparel products for Chinese and Korean female customers" (p. 497). Previous work by Shim and Eastlick (1998), however, concluded that self-directed values and values directed at others were both "significant predictors of favorable attitudes" (p. 154). The relevant value dimensions (i.e. self-directed values versus values directed at others) therefore seem to depend on the industry, product and context of the study.

Measurement model
CFA was conducted using AMOS 29.0 and the remaining 50% of the sample (n = 465) to test the measurement model. The measures used to assess the overall goodness of fit indicated that most values were within the common acceptance levels (Hair *et al.*, 2010; Hooper *et al.*, 2008; Hu and Bentler, 1999). Table 4 provides an overview of the obtained values.

While the computed Chi-square statistic (CMIN = 1099.94) is outside the suggested threshold ($p < 0.001$), measures like RMSEA, SRMS, TLI and CFI indicate a good model fit. The model is therefore accepted particularly based on recent research indicating that the Chi-Square statistic is "in essence a statistical significance test" that is "sensitive to sample size which means that the CMIN statistic nearly always rejects the model when large samples are used" (Hooper *et al.*, 2008, p. 54). The CMIN is thus no longer relied upon as a basis for acceptance or rejection. For RMSEA the suggested cutoff value close to 0.06 was chosen which may "result in lower Type II error rates" (Hu and Bentler, 1999, p. 27). Hu and Bentler (1999) also suggest a "two-index presentation strategy" by combining thresholds of RMSEA <0.06 with SRMR <0.09 to assess model fit (Hooper *et al.*, 2008). The present model falls well within these combined thresholds.

Composite reliabilities (CR) of the constructs ranged from 0.78 to 0.94, all above the recommended 0.70 benchmark (Hair *et al.*, 2010). CR was therefore established for each

Fit indices	Recommended value	Sources	Obtained value
CMIN/df	3–5 ($p > 0.05$)	Hooper *et al.* (2008)	1099.94 ($p < 0.001$)
Goodness-of-fit statistic (GFI)	>0.90	Hair *et al.* (2010)	0.87
Comparative fit index (CFI)	>0.90	Hooper *et al.* (2008)	0.94
Tucker–Lewis index (TLI)	>0.90	Hooper *et al.* (2008)	0.93
Standardized root mean square residual (SRMR)	<0.08	Hooper *et al.* (2008), Hu and Bentler (1999)	0.06
Root mean square error of approximation (RMSEA)	<0.06	Hu and Bentler (1999)	0.059
Source(s): Created by the authors			

Table 4.
Overview of model-fit measures

construct in the study. Convergent validity of the scale items was estimated using Average Variance Extracted (AVE). The AVE values were above the recommended threshold value of 0.50 (Fornell and Larcker, 1981) and the scales used for the study consequently possess the required convergent validity. An exception was the "Consumer Values" construct whose AVE was slightly below the suggested threshold value. According to Fornell and Larcker (1981), however, the AVE may be a more conservative estimate of the validity of the measurement model, and on the basis of composite reliability, "the researcher may conclude that the convergent validity of the construct is adequate, even though more than 50% of the variance is due to error" (p. 46). Table 5 illustrates composite reliability and convergent validity of each construct.

Discriminant validity of the model was assessed using the Heterotrait-Monotrait (HTMT) Ratios (Henseler *et al.*, 2015) which were less than the suggested threshold of 0.90 and discriminant validity was consequently established. The results are presented in Table 6.

Structural model
A structural equation model (SEM) using AMOS was subsequently generated (n = 856) to test the relationships between CV, SNW, ENW, FNW and PI in order to assess the research hypotheses. A SEM allows researchers to go beyond simple correlations and explore the underlying structure of relationships in a more comprehensive and sophisticated manner by estimating "complex relationships among multiple dependent and independent variables" (Hair *et al.*, 2021, p. 4). The structural model is illustrated in Figure 2:

Results
The research hypotheses were evaluated based on the structural model with the results highlighted in Table 7.

| Construct	Composite reliability	Convergent validity (AVE)
Consumer values (CV)	0.78	0.42
Social needs or wants (SNW)	0.93	0.65
Experiential needs or wants (ENW)	0.86	0.51
Functional needs or wants (FNW)	0.94	0.63
Purchase intention (PI)	0.94	0.79
Source(s): Created by the authors		

Table 5.
Construct composite reliability and convergent validity

The structural model indicates a significant impact of CV on consumer needs or wants (SNW, FNW, ENW) supporting H1a, H1b and H1c. CV shows the strongest impact on FNW (0.32) followed by CV's impact on ENW (0.26) and CV's impact on SNW (0.10).

Bootstrapping was used to estimate the indirect effects of CV on PI through the mediators SNW, ENW and FNW (5,000 iterations). The indirect impact of CV through SNW and ENW is significant in support of H1e and H1f. The 95% confidence interval (bias corrected and adjusted) for the indirect effect of CV on PI does not include zero, indicating that the mediated relationship is significant at the $p < 0.05$ level. These results suggest that both, SNW and ENW partially mediate the relationship between CV and PI, with CV exerting a significant indirect effect on PI through both mediators. The indirect impact of CV on PI through FNW however is not significant (H1g *not supported*). The model also reveals that the direct impact of CV on PI is not significant (H1d *not supported*). This finding underlines results of previous

	CV	SNW	FNW	ENW	PI
CV					
SNW	0.06				
FNW	0.34	0.73			
ENW	0.25	0.79	0.88		
PI	0.12	0.86	0.71	0.80	

Source(s): Created by the authors

Table 6.
Overview of
Heterotrait-Monotrait
(HTMT) ratios
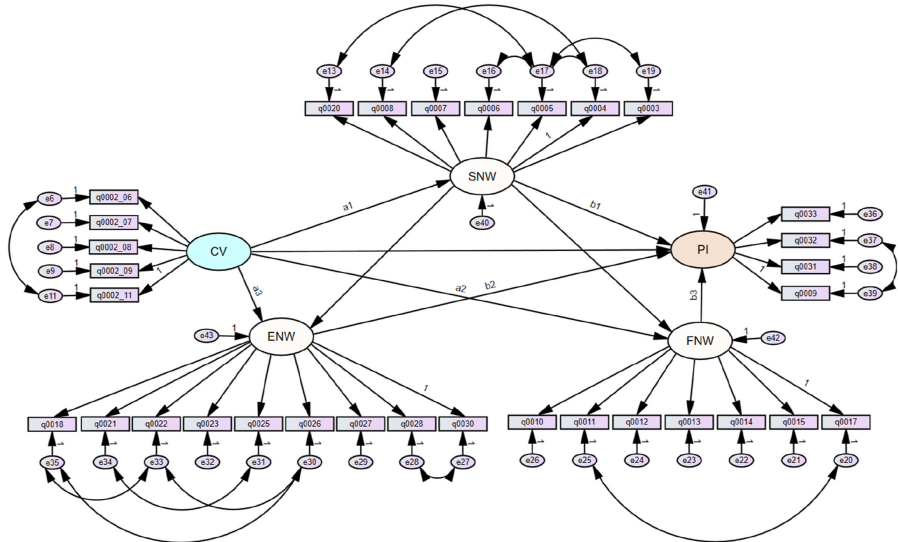
Note(s): Fit indices: $\chi^2 = 4556.81$, $p < 0.001$, GFI = 0.85, CFI = 0.93, TLI = 0.92, RMSEA = 0.03, SRMR = 0.056

CV = Consumer Values, SNW = Social Needs or Wants, ENW Experiential Needs or Wants, FNW = Functional Needs or Wants, PI = Purchase intention

$n = 856$

Source(s): Created by the authors

Figure 2.
Overview
structural model

Hypothesized relationship		Standardized estimates	p-value	Result
H1a	CV → SNW	0.10	$p < 0.001$	Supported
H1b	CV → ENW	0.26	$p < 0.001$	Supported
H1c	CV → FNW	0.32	$p < 0.001$	Supported
H1d	CV → PI	0.02	$p = 0.554$	Not supported
H1e	CV → SNW → PI	0.16	$p = 0.003$	Supported
H1f	CV → ENW → PI	0.16	$p < 0.001$	Supported
H1g	CV → FNW → PI	−0.002	$p = 0.960$	Not supported
H2a	SNW → PI	0.65	$p < 0.001$	Supported
H2b	ENW → PI	0.27	$p < 0.001$	Supported
H2c	FNW → PI	−0.003	$p = 0.936$	Not supported
H3a	SNW → FNW	0.75	$p < 0.001$	Supported
H3b	SNW → ENW	0.80	$p < 0.001$	Supported

Source(s): Created by the authors

Table 7.
Hypothesis testing and
results

research which has established a hierarchical relationship between values, needs and their impact on PI. Studies by Homer and Kahle (1988) and by Shim and Eastlick (1998), for example, found that "the influence flows from abstract value to mid-range attitudes and to specific behaviors, and that values have only an indirect effect on consumer behavior through domain-specific attitudes" (Shim and Eastlick, 1998, p. 142).

SNW as well as ENW have a significant impact on PI in support of H2a and H2b. FNW however, do not show any significant impact on PI in this study (H2c *not supported*). This observation is in line with results of previous research which was "unable to establish a significant association between functional value (price utility and functional quality) and purchase intention" (Kim *et al.*, 2011).

Additionally, SNW have a significant and strong impact on ENW (0.80) and on FNW (0.75). This emphasizes the importance of SNW from the perspective of sports consumers and may indicate that catering to SNW may be a first step for sports organizations to stimulate consumers' ENW and FNW as well.

Discussion
This study explored the impact of consumer values and consumer needs or wants on their PI regarding NFTs associated with their favorite sports team or athlete.

The results indicate that "self-directed values" seem to be the driving values for sports consumers with a favorite team or athlete. Since values have only an indirect effect on consumer behavior (Shim and Eastlick, 1998), this finding does not seem at odds with the second key observations of this study: the strong impact of SNW on consumers' PI as well as the strong impact of SNW on ENW and FNW. While individuals driven by self-directed values may prioritize their own internal beliefs and goals, satisfying their SNW, particularly in a sports context, remains important.

Impact of consumer needs or wants on PI
In a general context, products satisfying SNW often fulfill the desire for self-enhancement, social status, or affiliation with certain groups (Park *et al.*, 1986). Sports consumers in particular highly value group affiliation (Wann and James, 2019). The strong impact of SNW on PI observed in this study implies that sports consumers may be triggered to purchase NFTs offered by their favorite sports team or athlete to fulfill an internally generated desire to affiliate themselves with a certain group, for instance with family members, friends or

colleagues who may also own sports NFTs associated with their favorite team. Other purchase triggers may include role models such as an athlete or another person with influence over the consumer who own or promote NFTs. Additionally, social influences like expectations from other supporters, or the opportunity to display an NFT collection publicly may influence consumers' PI. The evident importance of the 'social aspects' of NFTs in particular (Yilmaz *et al.*, 2023) has been highlighted by previous studies including Mereu (2023), Sharma *et al.* (2022) and Zaucha and Agur (2022). Ruangkanjanases and Wutthisith (2018) have found that social components impact PI if a digital item allows consumers to strengthen social relationships. For instance, if family, friends, colleagues or role models stress the functional utility of NFTs, this may in turn create the FoMo discussed above and may positively impact consumers' FNW. Friends may also praise NFTs because they create and exciting and immersive new experience for them which may stimulate consumers' ENW.

Despite the possibility to use technical properties of NFTs to enhance the consumer experience discussed in previous research (see, for example, Baker *et al.*, 2022; Mereu, 2023; Zaucha and Agur, 2022), the results of this study suggest that sports consumers may not yet regard functional utility of NFTs on its own as an important factor triggering their PI, similar to the observations by Kim *et al.* (2011). This may be due to the fact that consumers have limited experience with NFTs and cannot yet fully gasp the benefits they may provide. Previous studies have illustrated that particularly regarding Web3 technologies, consumers' experience plays a key role and may impact their interest (Schlimm and Breuer, 2023). The fact that NFTs may help solve "consumption-related problems" (Park *et al.*, 1986, p. 136) making consumers' lives easier or that NFTs may provide concrete benefits such as collecting loyalty points, does not seem to be sufficient at this point in time to significantly impact PI. Even the prospective of increasing financial investments seem less important for sports consumers with a favorite team or athlete as their focus lies on satisfying SNW.

Differences between generational cohorts

Different generational cohorts often have distinct values and needs. Particularly over the last decades, consumption preferences have been influenced by technological developments (Fietkiewicz *et al.*, 2016). Comparing the data for different generational cohorts, however, there seems to be no considerable difference among the age groups regarding the impact of needs or wants on PI. Even though SNW showed the strongest impact on PI and on ENW and FNW for Generation Z respondents, the differences between cohorts were marginal. This suggests that Generation Z does not seem more inclined *per se* to purchase sports NFTs compared to their older peers. This observation is in line with previous work by the authors which illustrated that the combined interest in various Web3 activations, including NFTs, does not significantly differ between generational cohorts (Schlimm and Breuer, 2023). Rather than focusing their marketing campaigns on certain age groups, sport organizations should therefore target consumers' SNW and aim to foster a widespread adoption of their NFTs among supporter groups.

Why do consumers buy sports NFTs? – practical implications

Sports organizations and marketers can leverage the strong impact of SNW to position their NFT portfolio accordingly. Using athletes themselves or other influencers as product ambassadors may trigger PI of consumers. Additionally, it is crucial that socializing agents, such as family, friends, colleagues and other team supporters with a strong influence on consumers (Wann and James, 2019) own or promote NFTs. Marketers can support this adoption process by encouraging testimonials, reviews and user-generated content that showcase how NFTs have positively impacted others. Reaching a critical mass of adoption among supporters as a first step will ultimately impact consumers' desire to satisfy ENW and

FNW as well. Consumers may eventually recognize the benefits of using NFTs to enhance their overall consumer experience and to make their lives easier, for instance by using NFTs as season tickets or to collect loyalty points they can redeem later.

Based on the results of this study, consumers would purchase sports NFTs if they foster a feeling of community, interaction and connection with other team or athlete supporters while enhancing the overall consumer experience. Some key features that could make NFTs appealing in this context include:

(1) Shared experiences: NFTs representing memorable moments or milestones of a sports team or athlete can serve as conversation starters and catalysts for shared experiences among sports consumers.

(2) Engagement opportunities: NFTs should offer opportunities for engagement beyond passive ownership. This could involve interactive features such as voting on future NFT releases, participating in fan polls or surveys, or contributing to community-driven initiatives. At some point, sports organizations could even consider letting NFT owners jointly participate in more crucial decisions such as player substitutes, transfers or other major investments.

(3) Recognition and rewards: Recognizing and rewarding active participation and contributions from sports consumers within the NFT community can strengthen social bonds and encourage continued engagement. This could include special badges, rewards, or shout-outs for top contributors, for instance, during halftime breaks at soccer matches. NFT ownership could also unlock rewards such as discounts on physical merchandise, or priority access to match tickets.

(4) Content and collaborations: Sports organizations can involve their supporters in the creation of new NFT collections by soliciting supporter-generated content or collaborating with artists and creators from the community. This could involve holding supporter contests for designing NFTs or commissioning artwork inspired by memorable moments in team history. Examples include the Swiss Football Association which launched an NFT collection of female national players together with a local artist in support of women's football in the country ("SFV lanciert eine NFT-Kunstkollektion", 2023). By empowering supporters to contribute to the NFT ecosystem, sports organizations can strengthen ties with their community and showcase supporter creativity.

(5) Exclusive events: NFT ownership could grant access to exclusive virtual or live events, social meet-and-greets with athletes, or behind-the-scenes experiences related to sports teams and organizations. Buyers of the Swiss Football Association's NFT collection, for example, were also given additional benefits such as a physical meet-and greet with the players.

Incorporating these elements into future NFTs can help sports organizations tap into the SNW of consumers by providing opportunities for connection, interaction and collective experiences within supporter communities. In addition to these NFT features, marketers should also consider creating a supporting infrastructure facilitating interaction and networking among supporters. This includes forums, chat rooms, or social media integration where supporters can discuss their favorite teams, athletes and NFTs.

Relevance of findings – theoretical implications
The findings of this study have several significant theoretical implications. First, the results contribute to the existing body of knowledge by decoding consumer values and needs driving

PI expanding the initial work on sports NFTs by Baker *et al.* (2022), Chen (2024) and Mereu (2023). The study has also re-validated the LOV scale in a sports context illustrating the suitability of the LOV items used to assess consumer values and proposing to add an additional item called "Physical wellbeing" which may complement the LOV scale. Additionally, the theoretical framework and survey constructs developed and tested during the study may be adopted by researchers to assess the impact of consumer values and needs or wants on PI for other product categories. In conclusion, this study not only reinforces and expands upon existing theoretical frameworks but also provides a foundation for future research to build upon.

Limitations and directions for future research

Due to the low response rate of Baby Boomers, the results of the study cannot be applied to this cohort. Additional research, potentially using physical in-stadium surveys and targeted specifically at the BB cohort may shed light on their particular values, needs or wants and the impact on PI regarding sports NFTs. Moreover, Generation Z respondents may statistically be underrepresented in the sample due to the fact that only respondents aged 18 and older were included in the study. Hence, the part of Generation Z, which was born after March 2006 and had not yet come of age at the time of this research, was explicitly excluded from the survey.

Results should be applied carefully to the population of sports team or athlete supporters due to the method of data collection which was based on convenience sampling and may therefore not be representative. Since the survey was exclusively administered online, people with no Internet access are not represented in this research. Additionally, a general discussion persists regarding the obstacles encountered by web-based surveys, primarily due to the uncertainty surrounding the selection mechanism for non-probability samples. Arguably, "non-probability samples can yield strongly biased estimates since the selection mechanism is typically unknown" (Tutz, 2022, p. 424). Future research should aim to draw more representative samples by including a broader range of demographics, income levels and geographic locations. This would ensure that findings are generalizable across different segments of the population. In addition, future studies could examine how the impact of consumer values and consumer needs or wants on PI regarding sports NFTs differs between supporters of various sports.

Notes

1. Total cost for 700 complete responses incl. VAT: EUR 980, paid for by the researchers. Each respondent via Clickworker was compensated with one Euro for their participation in the survey while respondents who participated via LinkedIn were not compensated.

2. Total cost for 700 complete responses incl. VAT: EUR 980, paid for by the researchers.

3. Total cost for 800 complete responses incl. VAT: EUR 1,165 paid for by the researchers.

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