



CSM RESEARCH REPORT

AI, BLOCKCHAIN, AND IMMERSIVE TECHNOLOGIES

METAVERSAL BUSINESS MODELS OF
PROFESSIONAL FOOTBALL CLUBS IN 2030

INTRODUCTION

Dear readers,

At the latest since Facebook's rebranding to Meta in October 2021, the metaverse and its underlying technologies have become prominent and captivating topics of discussion within the sports industry. An often insufficiently specified buzzword, the metaverse is best understood as a new iteration of the internet that utilizes virtual reality (VR) and augmented reality (AR) hardware, blockchain technology and avatars within a new integration of physical and virtual worlds (e.g., Lee et al., 2021; Newton, 2021). In this amalgamation of immersive technologies and experiences, non-fungible tokens (NFTs) are emerging as crucial building blocks and a revolutionary type of digital asset, which collectively ensure unequivocal and indisputable ownership in the metaverse (e.g., Weston, 2022). According to the World Economic Forum, the total addressable market for metaverse could be forecasted to reach up to 4.4 trillion USD (Armstrong, 2023; Li and White, 2023). The hype around virtual

worlds and the technologies that support them has died down considerably during spring and summer 2023, as technology companies and the marketing world have turned their attention to another foundational technology of the metaverse: generative AI (Wright, 2023). While we can reasonably assume that the metaverse is here to stay (Johnson, 2023), the prevailing uncertainty surrounding the concept of the metaverse has sparked inquiries into the dynamics of value creation within our new digital worlds (Tobaccowala, 2023). We simply don't know yet what business models will work in the future (Palmer, 2023).

As technology advances, sports brands like Adidas, Nike, or Puma embrace the metaverse and related technologies to engage with their fans in new and innovative ways. Leagues such as the German Bundesliga have secured lucrative deals through the licensing of global rights for digital stickers, digital trading cards, and NFTs (e.g., DFL, 2022). And also Eu-

ropean professional football clubs (PFCs) have actively positioned themselves and pioneered with early use cases in the metaverse economy. The spectrum of initiatives undertaken by these clubs is broad. English Premier League club Manchester City, for example, has begun building virtual replicas of its stadium to get fans from around the world to visit virtually via digital avatars (e.g., Peters, 2023). The objective of the Sky Blues' innovative development project is to utilize AI-controlled cameras to render real-time 3D broadcasts of matches, making them accessible to fans in virtual twin stadium through virtual reality (VR) gear. Other clubs, such as FC Arsenal, Juventus Turin, Paris St. Germain, and Borussia Dortmund have teamed up with crypto companies to issue fan tokens. These tokens allow fans to buy NFTs or receive exclusive admission rights, priority rights to VIP tickets, or even decision-making rights, such as choosing the color of the team bus and club slogan. AC Milan and Fiorentina have made history by cooper-



ating with Serie A to stream the first professional football match on a metaverse platform called The Nemesis Metaverse (e.g., Radnedge, 2022).

While these pioneer cases undeniably showcase the potential for PFCs to explore unique business opportunities, it remains unclear whether the metaverse and its foundational technologies could be a game changer for traditional PFCs' business models. Specifically, will the different technological building blocks of the metaverse possess the power to entirely revolutionize the business model of a PFC?

DELPHI STUDY, 12 PROJECTIONS, AND 103 EXPERTS

To answer these crucial questions, we asked 103 experts from 11 countries to envision the future of the metaverse, its foundational technologies and their potential transformative impact on the business model of PFCs by 2030. Utilizing the widely recognized Delphi approach (e.g., Beiderbeck et al., 2021a; Merkel et al., 2016; von der Gracht, 2012; von der Gracht et al., 2010), our expert panel assessed 12 projections concerning the metaverse's influence on various business model components of PFCs, consisting of value creation, value proposition, and value capturing. We used an established online platform allowing for a real-time Delphi format with immediate calculations of group statistics.

To ensure a holistic view, we have assembled an interdisciplinary panel of experts. Naturally, our sample contains the perspective of professionals from the football industry such as managers of PFCs, representatives from football leagues or associations, as well as sports adjacent professionals such as sports IP holders, broadcasters, and agencies. To broaden our perspective, we also invited experts from academia and individuals specializing in the metaverse or digital domain, such as digital agencies, professionals from metaverse building companies, and digital entrepreneurs.

Our research team, comprising members from the Center for Sports and Management at WHU – Otto Beisheim School of Management and the School of Interna-

tional Business and Entrepreneurship at Steinbeis University has independently conducted this study between February and April 2023. Each of the 103 experts determined the expected probability of a given projection, the desirability of its occurrence, and the potential impact in case of occurrence. We extend our sincere gratitude and appreciation to all experts, who volunteered to participate in this study and made valuable contributions to our research and this report. In addition to the quantitative assessments of the 12 Delphi projections, they provided 590 written text answers, which is an indication of their commitment and contribution to the high quality of the conducted Delphi study.

THE METAVERSE WILL SIGNIFICANTLY CHANGE PFCs' BUSINESS MODEL BY 2030

Overall, our panel of 103 experts unanimously agrees that the metaverse will impact a PFC's business model by 2030. Especially immersive technology hardware and metaverse partnerships will transform value creation in PFCs. So, our expert panel consensually expects a change of how value is created by PFCs in 2030. This change primarily emerges through the utilization of immersive technology hardware, such as AR headsets, and VR glasses, as an integral part of PFCs' entertainment product of the future (projection #02, 76% probability) with a high potential for enhanced stadium experience both at home and at the venue, elevated levels of engagement, and innovative revenue streams in the metaverse realm. To leverage their expertise and to chart the appropriate path in the emerging metaverse, the panel also expects PFCs to likely form multiple new commercial partnerships with metaverse building or service companies (#04, 70%). On the other hand, the experts remain undecided, but it appears possible to them, that PFCs might create a new dedicated position to internalize relevant metaverse knowledge and capabilities and thus emphasize the significance of the metaverse for the future business model (#01, 68%). As for the reorganization of internal processes and structures through metaverse underlying technologies, such as using blockchain-based smart contracts as a standard to manage licensed

player teams (#04, 51%), the experts, generally assign a relatively low probability to this projection. There is skepticism about the tangible efficiency benefits of such an approach, with some experts going as far as labeling it a "technical solution looking for a problem."

WEB3 APPLICATIONS AND ITS APPEAL TO NEW CUSTOMER SEGMENTS WILL INNOVATE PFCs' VALUE PROPOSITION

In the future, the value proposition of a PFC is expected to undergo changes in the metaverse, incorporating new ways of customer and fan interaction. Web3 applications, like digital trading cards and pay-to-win transactions, are likely to be integrated into daily business by 2030 (#08, 72%), with a particular focus on engaging the tech-savvy younger generation and dispersed international fans. According to our experts this interactive approach could also lead to the attraction of new customer segments, contributing to a significant B2C customer growth by 2030 (#06, 66%). When looking at the future product offering of PFCs in the metaverse, i.e., virtual goods and services, and its impact on the overall revenue structure, our experts believe that a significant change is possible without showing strong support (#05, 60%). This is in line with our Delphi panel's anticipation that the expected probability of PFCs taking a cross-industrial market leader position in owning multiple metaverse presences will not be extensively high (projection #07, 59%), mainly due to a high level of managerial reservation to make such substantial investments.

ARTIFICIAL INTELLIGENCE (AI) AND NEW REVENUE MODELS IN THE METAVERSE WILL IMPROVE PFCs' VALUE CAPTURING

Our experts consensually expect that the utilization of AI in the metaverse will have a high impact on the future marketing cost of PFCs and will significantly reduce advertising expenses by 2030 (#12, 75%). It must be added, though, that some experts explicitly see the revolutionary power of transformation through AI even without the contextual application in the metaverse. The concept



of fan supported decentralized autonomous organizations (DAOs), on the other hand, is not expected to have a significant impact on improving PFCs' cost structures by introducing beneficial financing conditions (#11, 50%). While the metaverse shows potential to improve value capturing by working on the cost side, our Delphi panel also estimates that new revenue models are possible in the metaverse. They can be achieved through e.g., platform fees from transactions between fans, commercial partners, and media partners (#10, 65%) as well as continuous royalty payments (projection #09, 65%). As for platform fees, some of our experts argue that there are already encouraging examples of networks and transactional platforms, such as Twitch, Whatnot, or Discord, that have successfully implemented earning transaction fees on micropayments – certainly paving a potential pathway for PFCs and enabling the creation of own fan-centric metaverse marketplaces.

THE METAVERSE WILL RETAIN ITS GLOBAL SIGNIFICANCE BUT WILL NOT MEAN AN EQUAL OPPORTUNITY FOR ALL PFCs

Overall, our experts' views on the projections vary significantly, only two out of twelve projections achieved consensus in the expected probabilities of occurrence (#02, #12). This low degree of consensus among the experts highlights the controversial and multifaceted nature of the metaverse as a topic of discussion. It also reflects the specific statics of versatile business models in the football industry, where the impact of innovation and transformation forces elicits diverse perspectives and viewpoints. When asked about the degree of potential business model innovation on a scale ranging from incremental change (AAA) to radical innovation (BBB), the expert panel assessed it to be strongly incremental (falling between the two-scale points A and A/B), without reaching consensus on this question.

In their qualitative comments across various projections, our experts point out that PFCs are well-positioned to enter the metaverse since entertainment will be a core foundation of this new digital realm. They believe that PFCs can leverage their brand pull on a global scale and reach new customer segments, while enhancing the

intensity and quality of fan and customer interaction and engagement. However, the comments also highlight that different PFCs might experience varying impacts, and there are concerns that the metaverse could widen the gap between top European PFCs and other clubs.

Moreover, the experts consistently emphasize that football fans could frequently display resistance when it comes to embracing innovative ideas introduced by PFCs. This predisposition towards traditional football causes PFCs to anticipate slow-changing consumer behavior. Subsequently, this may lead to hesitancy in exploring innovative approaches to transform their business model to extend beyond the current state. Additionally, the experts voice significant concerns about the managerial capabilities and the extent of receptiveness towards innovation and exploratory endeavors within the leadership of PFCs.

We anticipate the metaverse to continue to be of global societal significance, not at least because of the recent fervor ignited by the product presentation of the mixed reality (MR) headset "Apple Vision Pro" (Apple, 2023; Scheuer et. al, 2023), and recent Chinese government initiatives promoting financial support of metaverse technologies across the country (e.g., Jansen, 2023; TechNode Feed, 2023). Despite the relatively low consensus on the expected probabilities of our projections, we do not underestimate the potential future influence of the metaverse on existing business models. Quite to the contrary, akin to the internet which was occasionally dismissed as a "passing fad" in the early 2000s (Chapman, 2000), we believe the metaverse has a significant transformative power. Due to its complexity, this transformative potential currently may not generate unanimous opinions. Nonetheless, PFCs will inevitably engage with the metaverse, whether out of anticipation or necessity. We look forward to further discourse on this topic whether it occurs in the stands of the physical stadiums or their metaverse twins. .

Authors

Prof. Dr. Sascha L. Schmidt, Prof. Dr. Heiko von der Gracht, Dr. Daniel Beiderbeck, Gerrit Heidemann

CONTENT

12 PROJECTIONS ON THE IMPACT OF THE METAVERSE ON THE BUSINESS MODEL OF PROFESSIONAL FOOTBALL CLUBS (PFCs)

#01: By 2030, PFCs employ a dedicated “Head of Metaverse” to explore, detect and develop new business opportunities in the metaverse economy.	6
#02: By 2030, PFCs use immersive technology hardware as an integral part of their core entertainment product football.	7
#03: By 2030, PFCs use blockchain based smart contracts as a standard to manage their license player teams.	8
#04: By 2030, PFCs have entered multiple commercial partnerships with metaverse building or service companies.	9
#05: By 2030, PFCs earn more than 5% of their overall revenue through virtual goods and services in the metaverse.	10
#06: By 2030, PFCs have grown their global B2C customer base by more than 10% compared to 2022 through the metaverse.	11
#07: By 2030, PFCs are cross-industry market leaders in terms of owning multiple presences on metaverse platforms.	12
#08: By 2030, the integration of web3 applications into daily business has significantly improved PFCs’ interaction with their fans.	13
#09: By 2030, PFCs earn perpetual royalties from activities in the metaverse.	14
#10: By 2030, PFCs earn platform fees from transactions between their fans, commercial and media partners on their metaverse premises.	15
#11: By 2030, fan supported decentralized autonomous organizations (DAOs) provide significant financial support for the implementation of PFCs’ investments.	16
#12: By 2030, artificial intelligence (AI) powered advertising in the metaverse has significantly reduced PFCs’ marketing cost for entering the long tail.	17

AT A GLANCE: ALL 12 PROJECTIONS	18
---------------------------------	----

STUDY DESIGN AND METHODOLOGY	19
------------------------------	----

ABOUT THE WHU, THE CSM, AND THE AUTHORS	20
---	----

REFERENCES	22
------------	----

#01

HEADS OF METAVERSE

BY 2030, PROFESSIONAL FOOTBALL CLUBS (PFCs) EMPLOY A DEDICATED "HEAD OF METAVERSE" TO EXPLORE, DETECT AND EXPLOIT NEW BUSINESS OPPORTUNITIES IN THE METAVERSE ECONOMY.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

"IT WOULD BE A GOOD THING IF PROFESSIONAL FORCES IN THE CLUBS WITH CLEAR RESPONSIBILITY AND EXPERTISE WERE TO DRIVE FORWARD TECHNOLOGICAL DEVELOPMENTS AND TAKE SIGNIFICANT RESPONSIBILITY FOR THEM. THIS IS SIMPLY A QUESTION OF WILLINGNESS TO INVEST."

"THE MORE LIKELY OUTCOME IS THAT PFCs WILL EMPLOY SUPPLIERS TO MANAGE THIS FOR THEM AND NOT MANAGE THE TECH INTERNALLY. [...] THE REAL KNOWLEDGE WILL LIE WITH THE TECHNICAL SUPPLIER/ AGENCIES."

PRO ARGUMENTS

AS THE METAVERSE EMERGES, IT EXPEDITES THE LONG-OVERDUE PRIORITIZATION OF DIGITAL POSITIONS WITHIN PFCs, FOSTERING A SEAMLESS CONNECTION BETWEEN INNOVATIVE AND TRADITIONAL BUSINESS MODELS.

METAVERSE TALENT IN THE INTERNAL HR STRUCTURE IS IMPERATIVE FOR PFCs TO CULTIVATE NEW COMPETENCIES AND UNLOCK NEW BUSINESS OPPORTUNITIES AND REVENUE STREAMS.

FOLLOWING INDUSTRIES SUCH AS FAST-MOVING CONSUMER GOODS (FMCG), PFCs ARE MOTIVATED TO ADOPT METAVERSE STRATEGIES, HIRING HEADS OF METAVERSE TO ENHANCE THEIR ECOMMERCE CAPABILITIES AND BRAND PRESENCE.

CON ARGUMENTS

PFCs MAY OPT TO LEVERAGE EXTERNAL AGENCIES OR UTILIZE EXISTING INTERNAL POSITIONS WITH SHARED RESPONSIBILITIES FOR THE METAVERSE, RATHER THAN INVESTING IN A DEDICATED ROLE INTERNALLY.

INTERNAL BUDGET AND SALARY COST JUSTIFICATION AND UNCLEAR RETURN ON INVESTMENT MAY HINDER MOST OF PFCs TO INVEST INTO THIS NEW POSITION INTERNALLY.

THE PRESENCE OF TRADITIONAL THINKING AND INTERNAL POWER DYNAMICS WITHIN PFCs MAY IMPEDE THE ESTABLISHMENT OF A NEW METAVERSE-FOCUSED POSITION.

The presence of a "Head of Metaverse" position in PFCs by 2030, lacks consensus among our Delphi experts, with concerns being raised regarding its return on investment. While our experts find it rather conceivable that heads of metaverse become a standard position in PFCs, there is a moderate degree of ambivalence concerning this projection. The expected likelihood of occurrence for projection #01, with a probability of 68%, is slightly above average, along with slightly above average desirability and impact. Our Delphi expert panel argues that intraorganizational challenges must be addressed for the successful implementation of such a position. Top manage-

ment plays a key role in developing a clear metaverse strategy to capitalize on future revenue opportunities. Explicit management support and a redefined understanding of PFCs as entertainment companies would facilitate the implementation of a head of metaverse position. The qualitative comments support the idea that having such a dedicated position is crucial for PFCs to succeed in the metaverse. When building metaverse competencies, our Delphi experts consider both, developing those within the existing team via shared responsibilities, and seeking external suppliers as equally reasonable approaches alongside the recruitment of a head of metaverse.

#02

IMMERSIVE TECHNOLOGY HARDWARE (AR/VR)

BY 2030, PROFESSIONAL FOOTBALL CLUBS (PFCs) USE IMMERSIVE TECHNOLOGY HARDWARE AS AN INTEGRAL PART OF THEIR CORE ENTERTAINMENT PRODUCT FOOTBALL.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

PRO ARGUMENTS

THE GENERATIONAL SHIFT IN CONSUMER BEHAVIOR AND EVOLVING FAN DEMANDS ARE EXPECTED TO DRIVE THE ADOPTION OF NEW TECHNOLOGY HARDWARE AND PUSH PFCs TO OFFER MORE IMMERSIVE EXPERIENCES.

THE EXPANSION OF IMMERSIVE OFFERINGS EMPOWERS PFCs TO PROVIDE A SENSE OF PROXIMITY FOR REMOTE GLOBAL FANS, BRIDGING THE GAP AND CREATING AN ENGAGING EXPERIENCE DESPITE THE PHYSICAL DISTANCE.

AUGMENTED REALITY (AR) AND VIRTUAL REALITY (VR) TECHNOLOGIES MAY ENHANCE THE STADIUM EXPERIENCE BOTH AT HOME AND IN THE VENUE, OFFERING ELEVATED LEVELS OF ENGAGEMENT AND SERVING AS VALUABLE TOOLS FOR INTRODUCING INNOVATIVE REVENUE STREAMS BEYOND TRADITIONAL TICKETING.

"I DO BELIEVE THAT WE WILL SEE PFCs OFFERING METAVERSE STADIUM TICKETS, WHICH BRING FANS AS CLOSE AS THEY CAN GET TO THE STADIUM EXPERIENCE[...] THAT OPENS A NEW BUSINESS CASE FOR PFCs [...] AND CAN IMPACT NEW REVENUE STREAMS NOT ONLY FROM TICKETING."

CON ARGUMENTS

THE OVERALL DEVELOPMENT STAGE OF IMMERSIVE TECHNOLOGY HARDWARE AND ITS PRACTICAL USABILITY FOR REAL CONSUMER USE CASES COULD PRESENT A BARRIER TO ITS APPLICATION IN SPORTS.

LOW MARKET PENETRATION, CONSUMER ACCEPTANCE, AND AFFORDABILITY OF VR AND AR TECHNOLOGY COULD PRESENT SIGNIFICANT CHALLENGES FOR PFCs IN THEIR EFFORTS TO EXTENSIVELY IMPLEMENT THESE TECHNOLOGIES.

FAN SKEPTICISM, MISPERCEIVED FAN DEMAND REGARDING AR AND VR, AND POTENTIAL NEGATIVE IMPACT OF AR TECHNOLOGY ON STADIUM ATMOSPHERE MAY PREVENT THE APPLICATION OF IMMERSIVE TECHNOLOGY HARDWARE.

"VR AND AR ARE STILL VERY FAR FROM PERFECTION FOR PROVIDING A SEAMLESS EXPERIENCE. LOOK AT WHAT HAPPENED TO 3D-TV. I AM JUST NOT CONFIDENT THIS CAN OR WILL HAPPEN ANYTIME SOON."

It is the consensus of our Delphi experts that PFCs will use immersive technology hardware as an integral part of their core entertainment product football. With a probability of 76%, the expected likelihood of occurrence for projection #02 is significantly above average, with impact and desirability similarly high. In fact, among all 12 projections, our Delphi experts rate this projection the highest. Qualitative comments indicate that the experts are largely convinced that AR and VR hardware will be a significant element of business model innovation by 2030. They believe that immersive technology hardware not only holds val-

ue for clubs in engaging fans and boosting revenue streams but also aligns with changing consumer behavior and evolving fan preferences. While the expert panel generally supports this projection, their views on immersive technology vary. They distinguish between potential use cases for VR and AR hardware, leaning slightly towards virtual reality due to its higher perceived value and potential use cases, such as connecting with global fans, enhancing the home viewing experience, and elevating content to a more engaging and immersive level.

#03

SMART CONTRACTS

BY 2030, PROFESSIONAL FOOTBALL CLUBS (PFCs) USE BLOCKCHAIN BASED SMART CONTRACTS AS A STANDARD TO MANAGE THEIR LICENSE PLAYER TEAMS.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

"SMART CONTRACTS COULD ADD A LOT TO THE OVERALL PFC'S ECONOMY. AS I THINK THAT PROFESSIONAL SPORTS BUSINESS MODELS SHOULD BE HEAVILY DISRUPTED IN THE UPCOMING YEARS, IT WILL ONLY GROW THE NEED FOR SMART CONTRACTS."

"THIS VERY MUCH DEPENDS ON THE WILLINGNESS AND KNOWLEDGE OF MANAGERS [...] TO LEVERAGE THOSE OPPORTUNITIES. CURRENTLY, I DON'T HAVE MUCH FAITH IN MANAGERS UNDERSTANDING THE BENEFITS OF BLOCKCHAIN TECHNOLOGIES IN GENERAL."

PRO ARGUMENTS

BLOCKCHAIN TECHNOLOGY HAS THE POTENTIAL TO REDUCE PROCESS COSTS, ENHANCE TRANSPARENCY, AND STREAMLINE EFFICIENCY IN THE PLAYER TRANSFER MARKET FOR PFCs.

PFCs MIGHT STRATEGICALLY UTILIZE BLOCKCHAIN-BASED SMART CONTRACTS BY FACILITATING THE TOKENIZATION OF PLAYERS' ASSOCIATED LICENSE VALUE AND OFFERING SUPPORTERS THE OPPORTUNITY TO INVEST IN HIGHLY SPECIFIC ASSETS / REVENUE-BEARING TOKENS.

CON ARGUMENTS

THE PRESENCE OF DIVERSE REGULATIONS FROM LEGISLATIVE BODIES AND FOOTBALL ASSOCIATIONS CAN CREATE SIGNIFICANT HURDLES FOR THE WIDESPREAD ADOPTION OF BLOCKCHAIN-BASED SMART CONTRACTS.

THE ADVANTAGES OF IMPLEMENTING SMART CONTRACTS IN PROFESSIONAL FOOTBALL ARE CONTINGENT, AS POTENTIAL PROCEDURAL EFFICIENCY GAINS APPEAR UNCERTAIN.

THE EXISTING MARKET STRUCTURE IN FOOTBALL, CHARACTERIZED BY A DOMINANCE OF TRADITIONAL PLAYER AGENTS, MIGHT IMPEDE ADOPTION OF SMART CONTRACTS IN THE CURRENT PLAYER TRANSFER SYSTEM.

There is no consensus among our Delphi experts regarding whether PFCs will use blockchain-based smart contracts as a standard to manage their licensed player teams. More specifically, the expected probability of occurrence for projection #03 is only 51%, which is well below average and makes it the projection with the second-lowest approval. Similarly, our experts rated the desirability of the event and its potential impact below average, with only one other projection being considered less desirable and potentially impactful. Our experts' opinions on the efficiency gains of smart contracts vary. Some recognize the value of blockchain technology for its transpar-

ency and efficiency benefits, while others consider smart contracts unnecessary for handling internal employee contracts and milestone-based player bonuses, instead preferring traditional contracts. Many experts highlight that football's existing interest networks will likely resist the implementation of transparency-enhancing blockchain technology. Also regulatory constraints could hinder widespread adoption of blockchain technology. However, a minority of experts believes in the potential of blockchain-based smart contracts to tokenize players' license value for clubs in the future.

#04

COMMERCIAL PARTNERSHIPS

BY 2030, PROFESSIONAL FOOTBALL CLUBS (PFCs) HAVE ENTERED MULTIPLE COMMERCIAL PARTNERSHIPS WITH METAVERSE BUILDING OR SERVICE COMPANIES.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

PRO ARGUMENTS

NEW FORMS OF PARTNERSHIPS, INCLUDING CRYPTO SPONSORSHIPS AND METAVERSE BRAND LICENSE FEES, AND THE EMERGENCE OF NEW PARTNER COMPANIES (E.G., CRYPTO FIRMS AND GEAR MANUFACTURERS), WILL DRIVE PFCs TO ACTIVELY EXPLORE NOVEL COOPERATION NETWORKS.

DUE TO A SCARCITY OF INHOUSE EXPERTISE, FORMING PARTNERSHIPS WILL BE THE NATURAL COURSE FOR CLUBS TO LEVERAGE THE STRENGTHS PARTNERS TO INCREASE PFCs' METAVERSE CAPABILITIES AND OFFERINGS.

PARTNERSHIPS BETWEEN PFCs AND METAVERSE COMPANIES MIGHT UNLOCK NEW REVENUE STREAMS AND TAP INTO NEW CUSTOMER SEGMENTS BY EXPANDING PFC's GLOBAL REACH.

"ALREADY TODAY, CLUBS ARE PARTNERING WITH A WIDE RANGE OF BLOCKCHAIN AND CRYPTO COMPANIES TO TRANSITION THEIR IP INTO THE DIGITAL ERA, THROUGH [...] IP-DEALS, SPONSORSHIPS, OR WHITE-LABELED PRODUCT SOLUTIONS."

CON ARGUMENTS

RECENT INSTANCES OF FINANCIAL DEFAULT AMONG CRYPTO COMPANIES AND THE USE OF DARK PATTERNS IN THEIR BUSINESS PRACTICES MIGHT CREATE SIGNIFICANT REPUTATIONAL AND FINANCIAL RISKS FOR PFC BRANDS, POTENTIALLY LEADING TO THE REJECTION OF SUCH PARTNERSHIPS.

A LACK OF OPENNESS TO NEW PARTNERSHIPS AND OF INTERNAL CHANGE MANAGEMENT TO BUILD CAPABILITIES TO ACTIVATE THE POTENTIAL OF SUCH PARTNERSHIPS COULD BE A LIMITING FACTOR FOR PFCs.

THE GEOPOLITICAL SITUATION, EXEMPLIFIED BY THE EXISTING TREND TOWARD DECOUPLING IN THE DIGITAL SPHERES, ASSOCIATED WITH THE LONG-TERM GEO-ECONOMIC CRISIS AFTER COVID-19, MAY DETER INVESTMENTS AND COMMERCIAL PARTNERSHIPS BETWEEN PFCs AND POTENTIAL PARTNERS.

"AFTER THE IMPACT OF THE CRYPTO CRASH ON SPORTS SPONSORSHIPS, PFCs AND LEAGUES WILL BECOME MORE RESISTANT TO ENTER INTO ENGAGEMENT WITH SUCH COMPANIES."

There is no consensus among our experts that, by 2030, PFCs have entered multiple commercial partnerships with metaverse building or service companies. More specifically, with a probability of 70%, the expected likelihood of occurrence for projection #04 is well above average, while the desirability and the anticipated impact in case of occurrence is both rated below average. Within our set of 12 projections, the projection ranks in the highest third concerning expected probability. Our Delphi experts suggest that forming commercial partnerships with metaverse companies, including blockchain, cryp-

to, VR tech, or hardware firms, is a promising way to unlock new revenue streams and expand global brand reach. Leveraging external partnerships when in-house metaverse expertise is lacking is seen as a logical approach. These partnerships could range from crypto sponsorships and IP licensing to more comprehensive collaborations integrating technology with PFCs' brand assets. However, our experts also acknowledge potential barriers, including reputational risks and current geo-economic challenges, which may deter PFCs from investing in metaverse partnerships and the required capabilities to activate them.

#05

REVENUE FROM VIRTUAL GOODS AND SERVICES

BY 2030, PROFESSIONAL FOOTBALL CLUBS (PFCs) EARN MORE THAN 5% OF THEIR OVERALL REVENUE THROUGH VIRTUAL GOODS AND SERVICES IN THE METAVERSE.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

"ALTHOUGH PFCs CURRENTLY STILL STRUGGLE TO GENERATE CLEAR AND EMBEDDED REVENUE STREAMS FROM THE METAVERSE, IT IS JUST A MATTER OF TIME UNTIL [...]PFCs BREAK THROUGH THE 5 TO 10% WALL."

PRO ARGUMENTS

GROWING INCLINATION TO INVEST IN VIRTUAL GOODS WILL STIMULATE THE CONSUMER ADOPTION OF NFTs IN SPORTS, LEADING TO INCREASED REVENUE STREAMS FOR PFCs.

AS THE DEVELOPMENT OF VIRTUAL GOODS AND SERVICES NATURALLY TARGETS THE SPORTS AND ENTERTAINMENT MARKET, PFCs MIGHT LEVERAGE THEIR STRONG FAN BASE AND BRAND IDENTITY TO TAP INTO THIS NEW REVENUE POTENTIAL.

THE METAVERSE COULD SUBSTITUTE REVENUE STREAMS FROM TRADITIONAL SOURCES, WITH REVENUE GENERATED THROUGH IMMERSIVE VIRTUAL IN-STADIUM EXPERIENCES LIKE VR SEASON TICKETS.

"I BELIEVE THAT NON-FUNGIBLE TOKENS (NFTs) WILL LIKELY FAIL AS THEY CURRENTLY MAINLY SERVE AS INSTRUMENTS FOR FINANCIAL SPECULATION AND LACK SIGNIFICANT REAL AND LASTING USE CASES."

CON ARGUMENTS

HIGH PROFIT MARGINS FROM EXISTING REVENUE SOURCES COULD PROVE TO BE AN OBSTACLE FOR THE DIVERSIFICATION OF REVENUE THROUGH VIRTUAL GOODS.

THE CURRENT LACK OF PROVEN BENEFITS OF VIRTUAL GOODS AND SERVICES MAY HINDER THEIR ACCEPTANCE AND MASS MARKET ADOPTION AMONG CONSUMERS AND FOOTBALL FANS.

HIGH INVESTMENT COSTS AND UNCERTAIN FUTURE MARKET POTENTIAL OF NFTs, FUNGIBLE TOKENS, AND METAVERSE SERVICES, MAY DIRECT PFCs' FOCUS TO ALTERNATIVE INVESTMENT OPPORTUNITIES.

It is possible, but there is no consensus among our experts that, by 2030, PFCs will earn more than 5% of their overall revenue through virtual goods and services in the metaverse. Specifically, with a probability of 60%, the expected likelihood of occurrence for projection #05 is below average, as is its impact of occurrence. The desirability of occurrence is on average. The qualitative comments reveal a unanimous sentiment among the experts. They acknowledge that the generational shift and the transition to Gen Z and Gen Alpha as the most important con-

sumer segments might facilitate a shift in PFCs' revenue structure. However, our experts also argue that current revenue streams show a solid foundation, including profitability, making it challenging for new metaverse revenue streams to match them. While the metaverse has the potential to replace traditional revenue sources, our panel does not fully perceive metaverse goods and services, such as NFTs, fungible tokens, or virtual merchandise, as being appealing enough yet to fans regarding the benefits or to PFCs in terms of justifying the necessary investments.

#06

CUSTOMER GROWTH (B2C)

BY 2030, PROFESSIONAL FOOTBALL CLUBS (PFCs) HAVE GROWN THEIR GLOBAL B2C CUSTOMER BASE THROUGH THE METAVERSE BY MORE THAN 10% COMPARED TO 2022.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

PRO ARGUMENTS

THE METAVERSE MIGHT SERVE AS A NATURAL DISTRIBUTION CHANNEL FOR APPEALING IMMERSIVE CONTENT, ENABLING PFCs TO ATTRACT COMPLETELY NEW FAN SEGMENTS BEYOND THE TRADITIONAL FOOTBALL FAN BASE.

THE METAVERSE HAS THE POTENTIAL TO ENGAGE ADJACENT CUSTOMER SEGMENTS, INCLUDING TECHNOLOGY ENTHUSIASTS AND GAMERS, AND REACH OUT TO YOUNGER GENERATIONAL SEGMENTS SUCH AS GEN Z AND GEN ALPHA.

PFC INVESTORS' GROWTH INTERESTS CAN ACT AS A COMPELLING CATALYST FOR VENTURING INTO THE METAVERSE, ALLOWING FOR THE EXPANSION OF THE INTERNATIONAL FAN BASE IN THE VIRTUAL REALM.

"THE MLB HAS ALREADY STARTED CREATING DIGITAL TWINS FOR ALL THE STADIUMS, ALLOWING VISITORS TO MEET OR WATCH GAMES VIRTUALLY. THIS WILL OPEN UP A COMPLETELY NEW FAN BASE WORLDWIDE."

CON ARGUMENTS

THE METAVERSE WILL PRIMARILY ENHANCE EXPERIENCES SURROUNDING FOOTBALL, THUS RATHER RETAINING EXISTING FAN SEGMENTS INSTEAD GENERATING SIGNIFICANT B2C CUSTOMER GROWTH.

THE METAVERSE'S INTRODUCTION WILL INCREASE COMPETITION BETWEEN BRANDS OFFERING IMMERSIVE EXPERIENCES, RESULTING CANNIBALIZATION RATHER THAN EXPANSION DUE TO COMPETITION FOR SHARE OF WALLET AND TIME.

NEW METAVERSE TECHNOLOGIES MAY NOT SURPASS THE APPEAL OF EXISTING TECHNOLOGIES AND HENCE MAY NOT ATTRACT NEW CUSTOMERS THROUGH UNPRECEDENTED USE CASES.

"I CAN'T IMAGINE THAT[...] TRADITIONAL PFCs ARE CREATING SUCH INSPIRING EXPERIENCES THAT THEY ATTRACT 10% OF NEW CUSTOMERS. [...] I BELIEVE THAT ADDITIONAL IMMERSIVE EXPERIENCES WILL BE STRONG COMPETITORS FOR PFCs' OFFERINGS, BOTH IN TERMS OF SHARE OF WALLET AND TIME."

There is no consensus among our experts on whether, through the metaverse, PFCs will grow their B2C customer base by more than 10% compared to 2022. The expected probability of occurrence for projection #06 is 66%, which is at an average level. Additionally, our experts rated this projection as the second most desirable among all 12 of our projections, with a desirability rating of 5.3 out of 7. Our experts' qualitative comments reveal varying opinions regarding whether the metaverse will offer opportunities for PFCs to expand into entirely new fan segments and

adjacent customer segments passionate about football or if it carries the risk of cannibalizing existing football target groups. While there is general agreement on the projection's likelihood, our experts express some concerns about the ambitious growth rate of 10% by 2030. They refer to challenges such as technological development gaps (e.g., graphics, user experience, and interaction ability in VR technology) and mass-market adoption of new technologies in an environment that is rather slowly and gradually transitioning to a more tech-savvy generation of fans.

#07

CROSS-INDUSTRY MARKET LEADERS

BY 2030, PROFESSIONAL FOOTBALL CLUBS (PFCs) ARE CROSS-INDUSTRY MARKET LEADERS IN TERMS OF OWNING MULTIPLE PRESENCES ON METAVERSE PLATFORMS.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

"I THINK THIS WILL BE THE CASE FOR TOP PFCs (E.G., PSG, REAL MADRID, BAYERN MUNICH, ETC.) THAT ARE SOMEHOW A FORM OF LIFESTYLE FOR MANY PEOPLE. BUT NOT FOR THE VAST MAJORITY OF PFCs."

"I'D BE SURPRISED IF THE FOOTBALL INDUSTRY WERE TO LEAD IN THIS DOMAIN. IF OTHER INDUSTRIES TAKE IT SERIOUSLY, THEY WILL LIKELY PERFORM BETTER, GIVEN THEY HAVE HIGHER LEVELS OF COMPETENCE."

PRO ARGUMENTS

ESTABLISHING AND OWNING MULTIPLE PRESENCES ON METAVERSE PLATFORMS TO CONNECT AND ENGAGE WITH THEIR GLOBALLY DISPERSED REMOTE FAN BASE WILL BECOME A HIGHLY LOGICAL AND STRATEGIC STEP FOR PFCs.

WITH ENTERTAINMENT BEING A CORE FOUNDATION OF THE FUTURE METAVERSE, PFCs WILL NATURALLY CONCENTRATE ON CRAFTING IMMERSIVE CONTENT AND ENHANCING SPORTS EXPERIENCES, THUS CREATING A UNIQUE POSITION FOR MULTI-PLATFORM DISTRIBUTION WHICH WILL BE FURTHER BOLSTERED BY MAJOR SPORTS EVENTS SUCH AS THE FIFA WORLD CUP.

CON ARGUMENTS

OTHER INDUSTRIES SUCH AS FASHION, MUSIC, OR SPORTS EQUIPMENT, MIGHT BE BETTER POSITIONED TO BECOME MARKET LEADERS DUE TO STRONGER TECH AFFINITY AND HIGHER MANAGERIAL COMPETENCE IN THIS REALM.

FOOTBALL FANS MIGHT SHOW RELUCTANCE TO SHIFT THEIR FAN EXPERIENCE TO THE METAVERSE, HINDERING PFCs TO ADOPT A PIONEERING APPROACH IN THIS REALM.

THE ECONOMIC DISBALANCE BETWEEN TOP CLUBS AND CLUBS WITH LOWER BRAND ATTRACTIVENESS WILL PREVENT PFCs FROM ACHIEVING A GENERAL CROSS-INDUSTRY LEADERSHIP POSITION.

In the view of our experts, there is a possibility, although no consensus that by 2030, PFCs could emerge as cross-industry market leaders, owning multiple presences on metaverse platforms. Specifically, projection #07 has a probability of 59%, which is below the average, with the desirability and impact of occurrence also slightly below average. Interestingly, based on their qualitative comments, our experts draw a distinction between whether PFCs will establish multiple presences in the metaverse and whether they will attain market leadership. While they acknowledge the advantageous position of PFCs for delivering immer-

sive emotional content on metaverse platforms, there are doubts about their ability to achieve cross-industry leadership. These doubts stem from PFCs' cautious approach to new business opportunities and the traditional characteristics of football fans. Those who envision cross-industry leadership for PFCs suggest it may be reserved for elite clubs with strong brands, significant budgets, and an international fan base. Some of our experts also express concerns that incompatible multiple metaverse presences, high market volatility, and an excess of options and tools could confuse consumers and reduce efficiency.

#08

IMPROVED FAN INTERACTION

BY 2030, THE INTEGRATION OF WEB3 APPLICATIONS INTO DAILY BUSINESS HAS SIGNIFICANTLY IMPROVED PROFESSIONAL FOOTBALL CLUBS' (PFCs') INTERACTION WITH THEIR FANS.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

PRO ARGUMENTS

LOW TECHNOLOGICAL BARRIERS AND GENERATIVE AI ENABLE DEVELOPERS TO EFFICIENTLY CREATE A WIDE RANGE OF INNOVATIVE AND DYNAMIC WEB3 APPLICATIONS.

INCREASING AFFINITY OF YOUNGER FAN GROUPS TO INTERACT VIA WEB3 APPLICATIONS WILL DRIVE THE WIDESPREAD ADOPTION OF WEB3-BASED INTERACTION AND COMMUNICATION CHANNELS BETWEEN CLUBS AND FANS.

WEB3 APPLICATIONS SUCH AS NFT TICKETING, DIGITAL TRADING CARDS, AND PAY-TO-WIN MICROTRANSACTIONS ARE ALREADY TRANSFORMING SPORTS INDUSTRIES, AND THEIR INFLUENCE ON FOOTBALL FANDOM IS SET TO STRENGTHEN FURTHER IN THE FUTURE.

“OTHER INDUSTRIES HAVE PROVEN THAT WEB3 TECHNOLOGIES CAN SIGNIFICANTLY DRIVE CUSTOMER ENGAGEMENT THROUGH BLOCKCHAIN-BASED LOYALTY PROGRAMS, PFCs ALREADY BENEFIT FROM LOYAL FANS, AND THEY CAN FURTHER AMPLIFY THIS THROUGH WEB3-BASED OFFERINGS.”

CON ARGUMENTS

THE LACK OF REAL BENEFIT, TRANSACTION ABILITY OF TOKENS, AND COMPELLING USE CASES WITH TANGIBLE VALUE WILL IMPEDE THE ADOPTION OF WEB3 APPLICATIONS AMONG FANS.

GENERAL LEGISLATION AGAINST THE USE OF WEB3 APPLICATIONS AND RELATED CRYPTOCURRENCIES, AND REGULATORY HURDLES IMPOSED BY FOOTBALL ASSOCIATIONS, MIGHT IMPEDE MASS ADOPTION OF WEB3 APPLICATIONS.

ATTITUDES FROM TRADITIONAL FAN GROUPS ARE LIKELY TO PRESERVE OLD PHYSICAL INTERACTION PATTERNS AND LIMIT THE „HYBRIDIZATION POTENTIAL“ OF FAN INTERACTIONS THROUGH WEB3 APPLICATIONS.

“I AM NOT CONVINCED OF THE UTILITY OF TOKENS OR OTHER BLOCKCHAIN-BASED SOLUTIONS BECAUSE NONE OF THEM HAVE BEEN PROVEN [...]. I AM A STRONG BELIEVER IN THE POWER OF BELONGING, BUT IT IS LESS TRANSACTIONAL THAN WHAT MOST WEB3 PROPHETS LEAD US TO BELIEVE.”

According to our experts, there is no consensus on whether integrating web3 applications into daily business will significantly enhance PFC's interaction with their fans. However, projection #08 stands out with a high 72% probability of occurrence and is ranked as the third most likely and impactful among the set of 12 projections. The Delphi experts show consensus with respect to its impact rating. Our experts' qualitative comments reveal diverse perspectives on the future of web3 applications in fan interaction, especially in an environment of changing con-

sumer behavior and generative AI as a creation tool for new applications. While acknowledging the potential of existing technologies like NFT ticketing, digital trading cards, and pay-to-win transactions to drive fan interaction, concerns about utility, future regulation, and traditionalist customers are noted as constraints. Some experts anticipate web3 applications as complementary communication and interaction channels for specific target groups like tech-savvy young football fans or dispersed international supporters seeking closer ties to their clubs.

#09

PERPETUAL ROYALTIES

BY 2030, PROFESSIONAL FOOTBALL CLUBS (PFCs) EARN PERPETUAL ROYALTIES FROM ACTIVITIES IN THE METAVERSE.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

“FOOTBALL CLUBS ARE CONSTANTLY LOOKING FOR ALTERNATIVE REVENUE STREAMS, PARTICULARLY DUE TO THE SATURATION OF THE SPONSORSHIP MARKET AND LIMITED FUNDS FROM BROADCASTERS. IT IS INEVITABLE THAT THEY WILL EXPLORE AND MONETIZE THESE OPTIONS [...]. BY 2030, I ANTICIPATE THAT ALL OBSTACLES WILL BE OVERCOME.”

“THE CONCEPT OF ROYALTIES HAS FACED INTENSE SCRUTINY AND HAS BEEN VOIDED BY MOST MARKET-PLACES - OR CHANGED TO VOLUNTARY PAYMENTS.”

PRO ARGUMENTS

PFCs ARE UNDER PRESSURE AND HIGHLY MOTIVATED TO INTRODUCE INNOVATIVE NEW REVENUE MODELS, SUCH AS GENERATING ROYALTIES FROM NON-FUNGIBLE TOKENS (NFTs) AND UTILITIES, SUCH AS SPECIAL ACCESS RIGHTS.

AMIDST INTENSIFYING CROSS-INDUSTRY COMPETITION FOR MEDIA BUDGET AGAINST THRIVING ENTERTAINMENT SECTORS, PFCs ARE FORCED TO BUILD WEB3-PROOF INVENTORY, PAVING THE WAY FOR FUTURE ROYALTIES.

AS SMART CONTRACTS AND ROYALTY-BASED REVENUE MODELS FOR NFTs ALREADY EXIST, PFCs HAVE ALL NECESSARY TOOLS AT THEIR DISPOSAL TO LEVERAGE THEIR MEDIA RIGHTS ASSETS EFFECTIVELY.

CON ARGUMENTS

ROYALTY-BASED REVENUE MODEL WILL DECLINE AS MAJOR PLATFORMS LIKE BLUR AND OPENSEA UNTIGHTENED THEIR CREATOR FEE ENFORCEMENT POLICY, THREATENING ROYALTY INCOME THROUGH SECONDARY MARKET TRADING.

THE LONG-TERM VIABILITY AND WIDESPREAD ADOPTION OF NFTs MAY BE HINDERED BY THE CHALLENGES OF SUSTAINING CONSUMER INTEREST AND MAINSTREAM ACCEPTANCE, DESPITE THEIR INITIAL SIGNIFICANT ATTENTION.

THE UNCERTAINTY CONCERNING NFTs' ASSET CLASS CATEGORIZATION (E.G., SECURITIES OR INVESTMENTS), TAXATION, AND OTHER LEGAL ASPECTS, MAY DETER PFCs FROM MAKING SUBSTANTIAL INVESTMENTS IN NFTs.

There is no consensus among our experts that PFCs will earn perpetual royalties from activities in the metaverse by 2030. More specifically, projection #09 has an expected probability of occurrence rated at 65%, with the desirability of occurrence rated as average, and its expected impact slightly below average within our set of 12 projections. This projection represents one of two which fall closest to the mean across all three dimensions. Based on their qualitative comments, most of our experts anticipate PFCs adopting metaverse royalty payments

as a new revenue model. This shift is driven by overall revenue pressure, cross-industry competition in the web3 space, and existing technical solutions. However, some of our experts raise concerns. Major NFT trading platforms have changed their creator royalty policies, making payments voluntary or reducing them. This change aligns with doubts about the long-term economic viability of NFT investments for future royalties due to limited market and consumer potential.

#10



PLATFORM FEES

BY 2030, PROFESSIONAL FOOTBALL CLUBS (PFCs) EARN PLATFORM FEES FROM TRANSACTIONS BETWEEN THEIR FANS, COMMERCIAL AND MEDIA PARTNERS ON THEIR METAVERSE PREMISES.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

PRO ARGUMENTS

CURRENT TRENDS SURROUNDING NETWORKS AND TRANSACTIONAL MIGHT ENCOURAGE PFCs TO BUILD FAN-CENTRIC METAVERSE MARKETPLACES ALLOWING THEM TO EARN TRANSACTION FEES ON MICROPAYMENTS.

THE STRONG INTEREST OF PFCs' COMMERCIAL B2B PARTNERS TO CONNECT WITH THEIR TARGET GROUPS ON NEW PLATFORMS WILL STRONGLY DRIVE PFCs TO BUILD METAVERSE ECOSYSTEMS WITH NEW MONETIZABLE FAN TOUCHPOINTS.

AS STRONG IP AND BRAND OWNERS, PFCs MIGHT COLLABORATE WITH THIRD-PARTY TECH COMPANIES TO BUILD METAVERSE PLATFORMS AND CO-MONETIZE BASED ON TRANSACTION REVENUE SHARE MODELS.

"FAN-CENTRIC METAVERSE MARKETPLACES WILL COME SOONER OR LATER, AND BEING THE OWNER WILL OPEN UP A HUGE POTENTIAL FOR EARNINGS FOR PFCs."

CON ARGUMENTS

WHILE PFCs MAY VIEW THE ADDED INTERACTIONS AND MONETIZATION POTENTIAL AS POSITIVE, FANS COULD PERCEIVE THEM AS MONEY-MAKING SCHEMES, LEADING TO FEELINGS OF BEING EXPLOITED AND DISCONNECTED FROM THE CLUB.

PFCs MIGHT ENCOUNTER ECONOMIC CHALLENGES WHEN INVESTING IN BUILDING AND MAINTAINING METAVERSE PLATFORMS, WHILE THE REVENUE POTENTIAL MIGHT BE LIMITED DUE TO FANS' GENERAL SPENDING POWER.

MANY PFCs WITHOUT INTERNATIONAL BRAND AWARENESS WHO ARE FACING TOUGH COMPETITION FROM TOP CLUBS AND OTHER BRANDS MAY HESITATE TO EXPLORE REVENUE MODELS THROUGH METAVERSE PLATFORMS DUE TO THE NEED FOR SUBSTANTIAL REACH.

"I DO NOT THINK THAT IT IS DESIRABLE OR HIGHLY LIKELY THAT CLUBS WILL SUCCESSFULLY IMPLEMENT FEE-BASED PLATFORMS THAT FANS WILL ADOPT ON A LARGER SCALE. I BELIEVE THE TRADITIONALISTS WILL HOLD BACK THIS DEVELOPMENT."

According to our experts, there is a possibility, but no consensus that by 2030, PFCs will earn platform fees from transactions within their metaverse premises involving fans, commercial, and media partners. Projection #10 has a 65% probability of occurrence, with its desirability and impact rated on average, making it the closest to the average considering all three dimensions. According to our experts it is a suitable way to build metaverse platforms or marketplaces to earn transaction fees on micropayments, taking inspiration from platforms

like Twitch, Whatnot, or Discord. However, some of our Delphi experts argue that PFCs may need to partner with third-party tech companies due to their limited technological knowledge and managerial competencies. Concerns include market competition with other marketplaces, fan spending power, and the risks of alienating fans by being seen as purely profit-focused. Given these factors and the associated investment costs, PFCs may approach infrastructure for such innovative revenue models with high caution.

#11

DAOs

BY 2030, FAN SUPPORTED DECENTRALIZED AUTONOMOUS ORGANIZATIONS (DAOs) PROVIDE SIGNIFICANT FINANCIAL SUPPORT FOR THE IMPLEMENTATION OF PROFESSIONAL FOOTBALL CLUBS' (PFCs) INVESTMENTS.

50
%

EXPECTED LIKELIHOOD

4.2
of 7

IMPACT

4.1
of 7

DESIRABILITY

"FANS ALREADY FEEL A VERY, VERY STRONG EMOTIONAL SENSE OF OWNERSHIP OVER THEIR FAVORITE CLUB. DAOs MIGHT SOLVE TWO MAJOR ISSUES IN FOOTBALL: FANS WANT TO HAVE AN EVEN BIGGER STAKE IN THEIR TEAM AND A BIGGER SAY IN ITS OPERATION, AND THEREFORE BE INVESTED."

PRO ARGUMENTS

ALREADY EXISTING FAN SUPPORTED DAOs ARE PAVING THE WAY FOR SIGNIFICANT ADVANCEMENTS IN THIS DIRECTION, FOSTERING POTENTIAL FURTHER DEVELOPMENT WITHIN THE REALM OF FOOTBALL CLUBS AND FAN OWNERSHIP.

AS FOOTBALL FANS INCREASINGLY YEARN FOR A MORE PROFOUND SENSE OF OWNERSHIP AND ACTIVE INVOLVEMENT IN THEIR FOOTBALL CLUBS, PFCs CAN HARNESS THIS PASSION AND RAISE SUBSTANTIAL INVESTMENT CAPITAL BY EMBRACING FAN SUPPORTED DAOs.

FACING ECONOMIC AND SPORTIVE PRESSURE, PFCs ARE COMPELLED TO EXPLORE INNOVATIVE METHODS OF FUND-RAISING AND FINANCING COST REDUCTION, ESPECIALLY IN LEAGUES CONSTRAINED BY INVESTOR-IMPOSED RESTRICTIONS ON MAJORITY EQUITY STAKES.

"AS CURRENT DAO EXPERIMENTS WITH REGARDS TO PFCs SHOW, THE INFLUENCE OF DAOs IS VERY LIMITED. [...] I ANTICIPATE A HIGH LEVEL OF BUREAUCRACY AFTER REGULATION, WHICH MAKES THE CONCEPT UNATTRACTIVE."

CON ARGUMENTS

WHILE DAOs MIGHT BE SUITABLE FOR FAN ENGAGEMENT AND IMPROVING THE SENSE OF FAN OWNERSHIP, THE LIMITED POTENTIAL OF CROWDFUNDING MIGHT NOT BE SUITABLE FOR LARGE-SCALE INVESTMENTS AND HIGHER IMPACT.

THE TRANSFER OF SIGNIFICANT DECISION-MAKING RIGHTS TO ORGANIZATIONS OUTSIDE THE TRADITIONAL PFC GOVERNANCE STRUCTURE OF PFCs IS MIGHT LEAD TO INCREASED SCRUTINY AND STRICTER REGULATION BY FOOTBALL AUTHORITIES TO ENSURE HIGHER LEVEL OF ACCOUNTABILITY.

POSING A THREAT TO THE CURRENT GOVERNANCE OF PFCs, DAOs ARE HIGHLY LIKELY TO ENCOUNTER RESISTANCE FROM THE CLUB'S MANAGEMENT AND OTHER STAKEHOLDERS WHO ARE VESTED IN THE EXISTING STRUCTURES.

There is no consensus among our experts regarding whether fan supported DAOs will provide significant financial support for the implementation of PFCs' investments. The expected probability of occurrence for projection #11 is 50%, which is the lowest value among all 12 projections. Accordingly, our experts rated this projection as the least desirable among all 12 of our projections, with a desirability rating of 4.1 out of 7. Interestingly, qualitative comments strongly support this projection,

in contrast to the quantitative data analysis. Our experts see DAOs as tools for fans to extend ownership and gain stakes in their clubs, with examples like WAGMI United and Kraus House. However, our experts also note limitations, including fans' limited spending power, traditional PFC governance, and football's unique regulatory regime. These constraints appear to outweigh the investment potential of DAOs by 2030.

#12

AI POWERED ADVERTISING

BY 2030, ARTIFICIAL INTELLIGENCE (AI) POWERED ADVERTISING IN THE METAVERSE HAS SIGNIFICANTLY REDUCED PFCs' MARKETING COST FOR ENTERING THE LONG TAIL.



EXPECTED LIKELIHOOD



IMPACT



DESIRABILITY

PRO ARGUMENTS

THE COMBINATION OF IN-DEPTH CUSTOMER KNOWLEDGE THROUGH FAN DATA COLLECTION, ALONG WITH AI-BASED INVASIVE MARKETING AND TARGETING COULD SIGNIFICANTLY REDUCE PFC'S MARKETING EXPENSES.

RECENT TECHNOLOGICAL ADVANCEMENTS HAVE PROMPTED WIDESPREAD ACCEPTANCE OF AI AS A POWERFUL TOOL FOR REVOLUTIONIZING PROCESS EFFICIENCY AND COST OPTIMIZATION IN THE SPORTS INDUSTRY.

ITS USER-FRIENDLY, SCALABLE NATURE FOR MARKETING ACROSS DIVERSE PRODUCT CATEGORIES WILL NATURALLY MOTIVATE PFCs TO ADOPT AI TECHNOLOGY AND CULTIVATE INTERNAL EXPERTISE FOR SUSTAINED COMPETITIVENESS.

"IN THE METAVERSE, HYPERLOCAL TARGETING SEEMS MORE FEASIBLE, COST EFFICIENT AND EFFECTIVE IN TERMS OF REACHING TARGET GROUPS. USE OF AI WILL DEFINITELY CONTRIBUTE TO EFFICIENCY."

CON ARGUMENTS

THE USE OF AI ALGORITHMS TO COLLECT VAST AMOUNTS OF DATA FOR PERSONALIZED ADVERTISING COULD LEAD TO INCREASED REGULATORY EFFORTS TO MITIGATE CONCERNS RELATED TO PRIVACY, CONSENT, AND ETHICAL DATA USAGE.

LOW DEGREE OF PROFESSIONALISM AND A RESISTANCE TO CHANGE IN MANY PFCs ARE LIKELY TO CAUSE DELAYS IN THE ADOPTION OF AI, DESPITE ITS NUMEROUS POTENTIAL ADVANTAGES IN THE SPORTS INDUSTRY.

THE COST ADVANTAGES OF AI IN DATA ANALYSIS, PERSONALIZATION, AND TARGETED ADVERTISING MAY BE RESTRICTED BY THE WIDESPREAD ADOPTION OF AI AMONG COMPETITORS.

"THE LONG TAIL MAKES SENSE IN PRINCIPLE FOR VIRTUAL GOODS, BUT IT REQUIRES A VERY DIFFERENTIATED STRATEGY [...]. I DOUBT WHETHER AI-SUPPORTED ADVERTISING WILL SIGNIFICANTLY REDUCE MARKETING COSTS IF ALL MARKET PARTICIPANTS USE IT."

It is the consensus of the Delphi experts that AI powered advertising will significantly reduce PFCs' marketing cost for entering the long tail. With a probability of 75%, the expected likelihood of occurrence for projection #12 is significantly above average, with impact and desirability similarly high. In fact, among all 12 projections, our Delphi experts rate this projection the second highest. The experts indicate a strong belief in AI's revolutionary potential in the sports industry, with widespread acceptance, making it highly likely to become a significant component of business model innovation by 2030. They are convinced that AI's rise as the primary tool in marketing will significantly reduce advertising cost. While the long

tail is rarely mentioned explicitly, there is consistent faith in AI's role as a pivotal technology in optimizing advertising and marketing across various product categories, including merchandising, ticketing, and upselling. Examples like Betegy using sports data for advertising in high-performance marketing are cited. However, there are concerns about future regulations on privacy and ethical data usage. Some of our experts suggest that AI will undoubtedly revolutionize marketing and advertising, but this transformation may not be limited to the metaverse. Traditional digital channels are expected to offer even more extensive opportunities for AI's application compared to the metaverse.

AT A GLANCE: ALL 12 PROJECTIONS

	PROBABILITY in %		IMPACT	DESIRABILITY
#01: HEADS OF METAVERSE: By 2030, professional football clubs (PFCs) employ a dedicated “Head of Metaverse” to explore, detect and exploit new business opportunities in the metaverse economy.	68	Possible	5.1	5.0
#02: IMMERSIVE TECHNOLOGY HARDWARE (AR/VR): By 2030, professional football clubs (PFCs) use immersive technology hardware as an integral part of their core entertainment product football.	76	Likely <i>Consensus</i>	5.5	5.2
#03: SMART CONTRACTS: By 2030, professional football clubs (PFCs) use blockchain based smart contracts as a standard to manage their license player teams.	51	Maybe	4.4	4.3
#04: COMMERCIAL PARTNERSHIPS: By 2030, professional football clubs (PFCs) have entered multiple commercial partnerships with metaverse building or service companies.	70	Likely	4.8	4.8
#05: REVENUE FROM VIRTUAL GOODS AND SERVICES: By 2030, professional football clubs (PFCs) earn more than 5% of their overall revenue through virtual goods and services in the metaverse.	60	Possible	4.5	4.9
#06: CUSTOMER GROWTH (B2C): By 2030, professional football clubs (PFCs) have grown their global B2C customer base through the metaverse by more than 10% compared to 2022.	66	Possible	5.0	5.3
#07: CROSS-INDUSTRY MARKET LEADERS: By 2030, professional football clubs (PFCs) are cross-industry market leaders in terms of owning multiple presences on metaverse platforms.	59	Maybe	4.6	4.7
#08: IMPROVED FAN INTERACTION: By 2030, the integration of web3 applications into daily business has significantly improved professional football clubs’ (PFCs’) interaction with their fans.	72	Likely	5.1	5.3
#09: PERPETUAL ROYALTIES: By 2030, professional football clubs (PFCs) earn perpetual royalties from activities in the metaverse.	65	Possible	4.7	4.9
#10: PLATFORM FEES: By 2030, professional football clubs (PFCs) earn platform fees from transactions between their fans, commercial and media partners on their metaverse premises.	65	Possible	4.8	4.9
#11: DAOs: By 2030, fan supported decentralized autonomous organizations (DAOs) provide significant financial support for the implementation of professional football clubs’ (PFCs’) investments.	50	Maybe	4.2	4.1
#12: AI POWERED ADVERTISING: By 2030, artificial intelligence (AI) powered advertising in the metaverse has significantly reduced professional football clubs’ (PFCs’) marketing cost for entering the long tail.	75	Likely <i>Consensus</i>	5.3	5.5



STUDY DESIGN AND METHODOLOGY

THIS EMPIRICAL STUDY IS BASED ON THE DELPHI METHODOLOGY. THIS SCIENTIFICALLY BASED RESEARCH METHOD AIMS TO OBTAIN THE OPINIONS OF A PANEL OF EXPERTS IN AN INTERACTIVE SURVEY PROCESS.

As part of the Delphi method, selected experts evaluate pre-formulated forward-looking statements, so-called projections, regarding the expected probability (in percent) of occurrence, the potential impact in case of occurrence, and the desirability of occurrence on a seven-point Likert scale from 1 (= very low) to 7 (= very high). The experts supplement their quantitative assessments with qualitative remarks and comments. After completing their own assessments, the experts are given access to the assessment results of the entire expert panel. They are also provided with summarized statistical data (for example, on the mean or consensus/ agreement level) for each projection. Each expert can then decide whether to retain or change his ratings in further runs (von der Gracht, 2012). This approach has been shown to improve the cogency, acceptability, plausibility, and consistency of forward-looking studies because experts can effectively discuss complex issues in a structured, anonymous group communication process (Linstone & Turoff, 2011). This Delphi study was conducted in three steps. In step one, the projections were formulated. Step two involved the expert survey. In step three, the survey results were aggregated and analyzed using descriptive statistical methods and the coding of qualitative comments.

FORMULATION OF FUTURE PROJECTIONS

The relevant literature recommends deriving Delphi projections from multiple sources (Markmann et al., 2020). As an

integral component of our study, we proactively selected the topic "The Impact of The Metaverse on The Future Development of Professional Football Clubs". This selection was the result of thorough desk research involving existing literature and organization of creative workshops and interviews with experts from the sports and digital media industry. Subsequently, we developed a framework designed to formulate a set of 12 Delphi projections, directly addressing the potential future impact of the metaverse and its underlying technologies on the different components of PFC's business models. These projections, developed and successively refined through a series of 15 expert workshops and interviews, were deliberated and finalized by our research team. This approach ensured a concise range of projections with a focus on key market-relevant developments. To align with relevant and comparable Delphi studies (e.g., Beiderbeck et al., 2021) in consideration of the significant reference point of the FIFA World Cup in 2030, we selected the year 2030 as the time horizon for this study.

SELECTION OF EXPERTS

By design, Delphi panels are inherently not meant to be statistically representative. Therefore, the selection of experts plays a pivotal role in ensuring the validity of Delphi surveys (Devaney & Henchion, 2018). In our study, the process of expert selection followed a multi-stage approach similar to that employed by Okoli and Pawlowski (2004). Initially, categories were defined to maintain a balanced representation among the following expert groups: football professionals (e.g., league and club representatives), sports-adjacent professionals (e.g., sports entrepreneurs, media rights & IP holders, broadcasters, sports consultants, or agencies), metaverse professionals (e.g., experts from metaverse building companies, digital firms, or metaverse consultan-

cies), and academics and professionals from universities. The practice of balancing Delphi panels is recommended, as it fosters diverse perspectives from various expert groups, ultimately enhancing the validity of Delphi studies (Yaniv, 2011). Consequently, we proceeded to identify potential experts for each category based on a range of criteria (e.g., years of experience, age, diverse backgrounds). Altogether, our final expert panel comprised 29 sports-adjacent professionals, 29 metaverse & digital professionals, 25 football professionals, and 20 academia or university researchers.

EXECUTION OF THE SURVEY AND ANALYSIS OF RESULTS

The Delphi survey was conducted over a 10-week period and was administered via the internet using "Surveylet" by Calibrium, an online survey tool specifically designed to facilitate Delphi research studies. We analyzed the 8,638 quantitative assessments provided by 103 experts of 12 Delphi projections on three dimensions. Additionally, 590 written explanations (with around 25,000 words) were analyzed. Using both qualitative and quantitative survey data, we were able to pick out the different viewpoints and reasons for both agreement and dissent regarding the impact of the metaverse on the business model of PFCs; this helped us to better understand (diverging) views within the industry (Warth et al., 2013). The expert panel assessed all the projections with an average impact rating of just below 5 on a seven-point Likert scale from 1 (= very low) to 7 (= very high). This underscores their relevance and confirms the accuracy of the pre-formulation process. The variance in the experts' responses was moderately high and consensus was reached for 2 of the 12 projections for which the interquartile range (IQR) was 25 or less percent.

ABOUT THE WHU, THE CSM, AND THE AUTHORS



WHU – OTTO BEISHEIM SCHOOL OF MANAGEMENT

WHU – Otto Beisheim School of Management is an internationally oriented, privately financed business school. Founded in 1984, the Business School is established among the top 20 international business schools in Europe and consistently ranked as one of the top German business schools. Accredited by EQUIS, AACSB, and FIBAA, WHU offers academic programs as well as education for executives. Its core values – community, cosmopolitanism, entrepreneurship, and excellence – can be gleaned from any of its academic offerings. In October 2012, the university opened its second campus in Düsseldorf.

CENTER FOR SPORTS AND MANAGEMENT (CSM)

As an academic partner for executives in the sports business, the CSM aims to positively influence the future of sports by inspiring, nurturing, and connecting. The research and teaching activities focus on future sustainability, corporate diversification strategies, and the influence of technologies on sports, and stadium economics. In addition, we investigate trends and future scenarios in various technological and social contexts. Strong partnerships are thereby the basis for all our activities, including leading sports clubs, leagues, and federations.



PROF. DR. HEIKO A. VON DER GRACHT

Heiko A. Von Der Gracht is a Professor of Futures Studies and Foresight at Steinbeis University, School of International Business and Entrepreneurship (SIBE), Germany. Since 2013, he has also held various management positions at KPMG Germany, currently as Department Head in KPMG's Solutions unit and Head of the firm's cross-divisional Metaverse Taskforce. He has published more than 100 scientific and practice-oriented articles and has given more than 250 conference appearances and lectures. He is the founder and co-editor of several academic journals. From 2012 until 2016, Prof. von der Gracht was a member of the editorial board of Technological Forecasting & Social Change. Since 2017 he is an Associate Editor of the journal, currently leading its bureau of foresight.

journals such as Technological Forecasting & Social Change, and MethodsX.

daniel.beiderbeck@whu.edu

PROF. DR. SASCHA L. SCHMIDT

Sascha L. Schmidt is a Professor, Chair Holder and Director of the Center for Sports and Management (CSM) at WHU - Otto Beisheim School of Management in Dusseldorf, Germany with the "Future of Sports" being his key research area. He is Lecturer at the Massachusetts Institute of Technology (MIT) Sports Entrepreneurship Bootcamp as well as Member of the "Digital Initiative" at Harvard Business School in Boston. Schmidt is the editor of the book "21st Century sports: How Technologies will Change Sports in The Digital Age" and, based on this book, he developed the online course "Transformational technologies: Applied lessons from sports" with MIT xPro. He regularly publishes his work in various books and peer-reviewed journals, including Technological Forecasting and Social Change, Sloan Management Review, and Applied Psychology.

✉ @ProfSLS
sascha.schmidt@whu.edu



vondergracht@steinbeis-sibe.de



DR. DANIEL BEIDERBECK

Daniel Beiderbeck is Head of Projects and Development Sport at Borussia Dortmund (BVB). He has a PhD from WHU - Otto Beisheim School of Management, Center for Sports and Management, in Germany. His research interests lie in technology forecasting in the context of football and leadership in times of uncertainty. He graduated from RWTH Aachen University and holds a Master of Science in Industrial Engineering. His work has been published in books, the Centre for Technology Management Working Paper Series at Cambridge University, as well as



GERRIT HEIDEMANN

Gerrit Heidemann is a PhD candidate at WHU - Otto Beisheim School of Management in Dusseldorf, Germany. With a rich background in the sports and media industry, business development, and cutting-edge digital technologies, he brings a wealth of expertise to his research on the future of football clubs. Having worked for over six years as a strategy consultant in China and having held director positions in sports-tech companies, he has cultivated a keen eye for emerging technological trends and innovative digital business models, extending not only within but also beyond the Western hemisphere. This knowledge serves as a valuable asset to his research, which necessitates a global understanding of the ever-evolving technological landscape within the realm of sports.

gerrit.heidemann@whu.edu

REFERENCES

Armstrong, M. (2023)

This chart shows how big the metaverse market could become. World Economic Forum. Retrieved on 06.09.2023 from <https://www.weforum.org/agenda/2023/02/chart-metaverse-market-growth-digital-economy/>.

Apple (2023)

Introducing Apple Vision Pro: Apple's first spatial computer. Retrieved on 09.08.2023 from <https://www.apple.com/newsroom/2023/06/introducing-apple-vision-pro/>.

Beiderbeck, D., Frevel, N., von der Gracht, H., Schmidt, S. L., & Schweitzer, V. M. (2021)

Preparing, Conducting, and Analyzing Delphi Surveys: Cross-disciplinary Practices, New Directions, and Advancements. *MethodsX*, 101401.

Beiderbeck, D., Frevel, N., von der Gracht, H., Schmidt, S. L., & Schweitzer, V. M. (2021)

The impact of COVID-19 on the European football ecosystem – A Delphi-based scenario analysis. *Technological Forecasting and Social Change*, 165, 120577.

Chapman J. (2000)

Internet 'may be just a passing fad as millions give up on it'. *Daily Mail*, December 5, 33.

Devaney, L. & Henchion, M. (2018)

Who is a Delphi 'expert'? Reflections on a bioeconomy expert selection procedure from Ireland. *Futures*, 99, 45-55.

DFL Deutsche Fußball Liga (2022)

Increase by about 280 percent: Record result for the awarding of licence rights for stickers and trading cards including NFTs. Retrieved on 09.08.2023 from <https://www.dfl.de/en/news/increase-by-about-280-percent-record-result-for-the-awarding-of-licence-rights-for-stickers-and-trading-cards-including-nfts>.

Jansen, S. (2023)

Nanjing unveils metaverse platform for local web3 development. Retrieved on 09.08.2023 from <https://crypto.news/nanjing-unveils-metaverse-platform-for-local-web3-development/>.

Johnson, C., Crawford, D., Naik, N., Verma, N. (2023)

Taking the hyperbole out of the metaverse. Retrieved on 29.08.2023 from <https://www.bain.com/insights/taking-the-hyperbole-out-of-the-metaverse-tech-report-2023/>.

Lee, L.-H., Braud, T., Zhou, P., Wang, L., Xu, D., Lin, Z., ... Hui, P. (2021)

All one needs to know about metaverse: A complete survey on technological singularity, virtual ecosystem, and research agenda. *Journal of Latex Class Files*, 14(08), 1-66.

Li, C., & White, K. (2023)

Social Implications of the Metaverse. World Economic Forum, July. Downloadable from https://www3.weforum.org/docs/WEF_Social_Implications_of_the_Metaverse%20_2023.pdf

Linstone, H. & Turoff, M. (2011)

Delphi: A brief look backward and forward. *Technological Forecasting and Social Change*, 78, 9, 1712-1719.

Markmann, C., Spickermann, A., von der Gracht, H., & Brem, A. (2021)

Improving the question formulation in Delphi-like surveys: Analysis of the effects of abstract language and amount of information on response behavior. *Futures & Foresight Science*, 3, 1-20.

Merkel, S., Schmidt, S. L., & Schreyer, D. (2016)

The future of professional football: A Delphi-based perspective of German experts on probable versus surprising scenarios. *Sport, Business and Management: An International Journal*, 6(3), 295-319.

Newton C. (2021)

Mark in the metaverse. Facebook's CEO on why the social network is becoming 'a metaverse company'. Retrieved on 09.08.2023 from <https://www.theverge.com/22588022/mark-zuckerberg-facebook-ceo-metaverse-interview>.

Okoli, C. & Pawlowski, S. D. (2004)

The Delphi method as a research tool: an example, design considerations and applications. *Information & Management*, 42, 15-29.

Palmer, S. (2023)

In Schmidt, S.L. (Editor), *21st Century sports: How technologies will change sports in the digital age*. Cham: Springer (2nd edition in print).

Peters, J. (2023)

Sony and Manchester City are building a Metaverse, but they need to prove why we should visit. Retrieved on 28.04.2023 from <https://www.theverge.com/23541557/sony-manchester-city-metaverse-playstation>

Radnedge, C. (2022)

Italy's Serie A enters the Metaverse to showcase new way to watch soccer.
Retrieved on 28.04.2023 from
<https://www.reuters.com/lifestyle/sports/italys-serie-enters-metaverse-showcase-new-way-watch-soccer-2022-04-30>.

Schmidt, S.L. (2023)

21st Century sports: How technologies will change sports in the digital age.
Cham: Springer (2nd edition in print).

Scheuer, S. & Möthe A. (2023)

Die wichtigsten Ankündigungen von Apple.
Retrieved on 09.08.2023 from
<https://www.handelsblatt.com/technik/gadgets/wwdc-die-wichtigsten-ankuendigungen-von-apple/29188996.html>.

TechNode Feed (2023)

China Mobile launches 5G super network supporting the metaverse industry.
Retrieved on 06.09.2023 from
<https://technode.com/2023/09/01/china-mobile-launches-5g-super-network-supporting-the-metaverse-industry/>.

Tobaccowala, R. (2023)

Sports in the third connected age.
In Schmidt, S.L. (Editor),
21st Century sports: How technologies will change sports in the digital age.
Cham: Springer (2nd edition in print).

Von der Gracht, H. A. & Darkow, I. L. (2010)

Scenarios for the logistics services industry: A Delphi-based analysis for 2025.
International Journal of Production Economics, 127, 46-59.

Von der Gracht, H. A. (2012)

Consensus measurement in Delphi studies: Review and implications for future quality assurance.
Technological Forecasting and Social Change, 79, 1525-1536.

Warth, J., von der Gracht, H. & Darkow, I. L. (2013)

A dissent-based approach for multi-stakeholder scenario development – the future of electric drive vehicles.
Technological Forecasting and Social Change, 80, 566–583.

Weston G. (2021)

NFTs and their role in the "Metaverse".
Retrieved on 09.08.2023 from
<https://101blockchains.com/nfts-and-metaverse>.

Wright, W. (2023)

Brands' metaverse leads: where are they now?
Retrieved on 06.09.2023 from
<https://www.thedrum.com/news/2023/08/22/brands-metaverse-leads-where-are-they-now>.

Yaniv, I. (2011)

Group Diversity and decision quality: Amplification and attenuation of the framing effect.
International Journal of Forecasting 27 (2011) 41-49.

Published

October 2023

Authors

Prof. Dr. Sascha L. Schmidt
Prof. Dr. Heiko von der Gracht
Dr. Daniel Beiderbeck
Gerrit Heidemann

Images

Cover © Imago/Zoonar (left),
Imago/ingimage (center),
Pexels/Worldspectrum (right)
Page 4 © Pexels/Matthias Hangst
Pages 6, 7, 8, 9, 10, 11, 12,
13, 14, 17 © Midjourney
Page 15 © Pexels/Crypto Crow
Page 16 © Imago/Indiapicture

Design & Layout

Sebastian Struch
www.sebastianstruch.de

WHU – Otto Beisheim School of Management
Center for Sports and Management (CSM)
Erkrather Straße 224a
D - 40233 Düsseldorf

T: + 49 211 4470974-1
csm@whu.edu
www.csm.whu.edu