The Metaverse relevance, consideration, trust, and impact on purchase intent for Beauty Industry Brands.

Bruno Veiga dos Santos

Dissertation written under the supervision of

Professor Pedro Tavares

Dissertation submitted in partial fulfillment of requirements for the MSc in Management with Specialization in Strategic Marketing, at the Universidade Católica Portuguesa, January 2024.

ABSTRACT

Title: The Metaverse relevance, consideration, trust, and impact on purchase intent for Beauty Industry Brands.

Author: Bruno Veiga dos Santos

It is known that since 2021, internet searches for the term “metaverse” increased by 7,200 percent (McKinsey, 2022) and in 2022, knowledge of the metaverse has grown, with the percentage of individuals claiming to understand its concept increasing from 34% in 2022 to 43% in 2023 (Deloitte, 2023). This paper delves into the dynamic intersection of the metaverse and the beauty industry, exploring its relevance, consideration, trust implications, and impact on consumer purchase intent. Employing a mixed-methods approach, the research combines qualitative insights derived from in-depth interviews with a quantitative analysis through an online survey developed on Qualtrics. Key findings highlight a substantial lack of knowledge concerning the metaverse, including its applications and characteristics. A universal interest in engaging in metaverse activities is identified across various age demographics. Social Interactions, Virtual Events, and Online Shopping emerge as primary activities of interest for potential consumers within the metaverse. Moreover, the research uncovers diverse perceptions and levels of interest in the metaverse across different industries. Notably, despite the metaverse not yet being widely perceived as a purchase platform, gender does not appear to significantly impact the intent to engage in purchases within this digital realm. These insights contribute significantly to understanding the metaverse's impact on consumer behavior, shedding light on its potential implications for the beauty industry. The dissertation offers a nuanced perspective on the evolving landscape of consumer engagement in the metaverse and provides valuable considerations for beauty industry brands navigating this transformative digital terrain.

Keywords: Metaverse; Brand; Consumer Behavior; Purchase Intent; Beauty Products.

SUMÁRIO EXECUTIVO

Título: A relevância, consideração, confiança e impacto do Metaverso na intenção de compra de marcas do sector da beleza.

Autor: Bruno Veiga dos Santos

Desde 2021, pesquisas na Internet por "metaverso" aumentaram 7.200% (McKinsey, 2022) e, em 2022, o conhecimento do metaverso cresceu, com a percentagem de indivíduos que afirmam conhecer este conceito a aumentar de 34% em 2022 para 43% em 2023 (Deloitte, 2023). Este artigo investiga a interseção do metaverso e da indústria da beleza, explorando a sua relevância, consideração, confiança e impacto na intenção de compra do consumidor. A metodologia de investigação realizada foi mista, ao combinar o método qualitativo (entrevistas), com o método quantitativo (questionário online desenvolvido no Qualtrics). As principais conclusões destacam uma substancial falta de conhecimentos sobre o metaverso, incluindo as suas aplicações e características. É identificado um interesse geral em participar em atividades no metaverso em várias faixas etárias. As interações sociais, eventos virtuais e as compras *online* surgem como as principais atividades de interesse para potenciais utilizadores no metaverso. A investigação revela diversas perceções e níveis de interesse no metaverso em diferentes indústrias. Em particular, apesar do metaverso ainda não ser amplamente percecionado como uma plataforma de compras online, o género não tem impacto significativo na intenção de efetuar compras neste domínio digital. Estes conhecimentos contribuem significativamente para a compreensão do impacto do metaverso no comportamento do consumidor, clarificando as suas potenciais implicações para a indústria da beleza. A dissertação oferece uma perspetiva clara sobre o cenário em evolução do envolvimento do consumidor no metaverso e fornece considerações valiosas para as marcas da indústria da beleza que pretendam interagir com potenciais consumidores através deste mundo digital.

Palavras-chave: Metaverso; Marca; Comportamento do Consumidor; Intenção de Compra; Produtos de Beleza.

TABLE OF CONTENTS

FIGURE INDEX

TABLE INDEX

PREFACE

Navigating Life's Unexpected Turns

I often reflect on life's unexpected twists and turns, realizing that "Life's Twists and Turns" could aptly serve as the title for my journey. Initially, I aspired to be a one thing in which I deeply invested, only to find myself on a disconcerting path when that aspiration didn't materialize. The uncertainty of discovering an alternative path can be daunting.

Upon completing high school, I deviated from the conventional route of applying to college. I sought something distinct for my life, and I invested in that pursuit. Along the way, I explored a different avenue, discovering genuine enjoyment but eventually acknowledging it wasn't my ultimate calling. These were bewildering times.

Then came the day when I realized what had been missing: a return to academic life. I made that choice, and subsequently, during my bachelor's journey, I decided to embark on a master's degree as well. If you had asked me eight years ago whether this would be the trajectory of my life, I would have deemed such a prediction absurd. Life, it seems, has a way of surprising us and leading us down unforeseen yet fulfilling paths.

But none of this twists and turns would have been possible without my parents, whose boundless love, sacrifices, unyielding belief in my potential and support through these indecisive decisions have been the bedrock of my perseverance – thank you. Your unwavering support has been my anchor, and this achievement is as much yours as it is mine.

In the course of the academic journey, I've encountered someone who continually motivates me to excel in my pursuits—an individual steadfastly standing by my side through turbulent times and relishing moments of tranquility with me. I extend a heartfelt acknowledgment to my girlfriend, Ana Margarida Rodrigues, whose enduring patience, profound understanding, and encouragement have been unwavering companions throughout this odyssey. You have been my steadfast companion on this shared journey, and I am certain that without you, doing this would have been a hundred times harder.

Amidst the narrative of the twists and turns in my life, there is one individual I must acknowledge. During periods when my future seemed uncertain, our conversations dispelled the haze and

illuminated the way forward. I'm not certain if you fully grasp the profound impact you've had on my life. I express my gratitude for your sincerity, your friendship, and your unwavering companionship. This heartfelt acknowledgment is dedicated to my best friend, Frederico Vicente Ribeiro.

I extend my deepest appreciation to my esteemed professor Pedro Tavares, whose guidance has been instrumental in shaping the intellectual landscape of this thesis. Your mentorship, scholarly insights, and constructive feedback have not only enriched the content of this work but have also left an indelible mark on my academic growth.

This thesis stands as a testament to the collective strength of these incredible individuals who have touched my life in profound ways. Your contributions, whether big or small, have shaped not only the content of this dissertation but also the person I have become.

With heartfelt gratitude,

Bruno Veiga dos Santos

1. INTRODUCTION

The Metaverse has experienced substantial growth and gained increasing influence in recent years. This emerging environment is witnessing exponential growth in the potential number of users, presenting numerous opportunities for brands to engage and connect with them. To fully leverage this novel landscape, it is essential for brands to grasp how consumers perceive it. Furthermore, brands must determine if the Metaverse holds potential as a new channel for interacting with and conducting business with consumers, potentially even establishing new customer relationships.

This paper explores the consumer perception of the metaverse, examines their inclination towards making purchases in this novel virtual realm, and assesses whether this purchase intent differs across various industries. Ultimately, the objective of this paper is to gain insights into the opportunities that the metaverse presents for brands operating in the beauty sector.

With that purpose, the present paper is organized in seven chapters. The second chapter will cover the literature review, where topics such as Brand, Consumer Behavior with focus on customer experience and digital customer journey, and the Metaverse were thoroughly addressed with the goals of first, providing a context to the research, developing a theoretical framework, and giving support strengthening the hypothesis. The third chapter will cover the Research Purpose, where the Research Questions and hypothesis were developed. The hypothesis were defined with the purpose of developing alternative assumptions to be able to forecast the relationship that exists between two or more variables. The third chapter covers the fourth methodology. The fifth chapter presents the discussion regarding the empirical findings of the two parts of the methodological study. Finally, the sixth and seventh chapters will address the conclusions, outlining also the limitations.

The research employed a mixed-methods approach, incorporating both qualitative and quantitative methodologies. In the qualitative phase, in-depth interviews were conducted to gain nuanced insights into participants' perspectives. The quantitative aspect utilized an online survey developed on Qualtrics, enabling the collection of a broader range of data. The findings highlight several key observations: (i) a substantial lack of knowledge exists regarding the metaverse, its applications, and characteristics; (ii) irrespective of age, there is a widespread interest in engaging in activities within the metaverse; (iii) predominant activities of interest for potential consumers within the metaverse include Social Interactions, Virtual Events, and Online Shopping; (iv) varying

perceptions and interest levels in the metaverse were identified across different industries; (v) despite the metaverse not being widely perceived as a purchase platform, gender does not significantly impact the intent to engage in purchases within this digital realm. These results provide valuable insights into the current landscape and potential future trends within the metaverse.

1. LITERATURE REVIEW

1.1.Brand

Conventional business wisdom often assumes a direct alignment between a product's value perceived by the firm and the value experienced by customers. This assumption implies that creating a superior product will automatically lead customers to recognize and appreciate its value. Contrary to this belief, marketing challenges the idea, asserting that customer value is inherently subjective rather than an objective reality (Holt, D. B., 2003). A brand transcends a mere name, positioning statement, or marketing message. It represents a commitment made by a company to its customers and is upheld by the actions of that company. While brand names assist buyers in understanding a product or service, they essentially encapsulate a set of attributes associated with the brand (Yakup & Sevil, 2011). It enables consumers to swiftly identify a product they are familiar with or fond of, serving as a memory cue that aids in recalling pertinent information from their memory (Chovanová et al., 2015).

This concept is closely tied to Brand Awareness, as defined by Adiwijaya et al. (2021) as the public's ability to recognize and easily identify a brand. It reflects the consumer's consciousness of the brand, enabling an analysis of the association between companies and the products they offer. The higher the consumer’s awareness of a brand, the greater its market value and the lower its susceptibility to factors like price, convenience, and technical characteristics (Adiwijaya et al., 2021).

Branding holds the potential to shape consumer behavior by strategically embedding a distinct brand message into their perceptions (Chovanová et al., 2015). When a brand effectively communicates its message, consumers are likely to resonate with it, influencing their consideration of that particular brand. Well-established brands enjoy a distinct advantage in shaping consumers' purchasing decisions. Peer influence, as highlighted by Nielsen (2012), underscores the significance of recommendations from friends and family, with 92 percent of global consumers expressing trust in earned media. Brands are also utilized for self-representation, symbolizing status and prestige. Finally, successful branding not only captures the attention of the target audience but also facilitates a deeper understanding of the brand, fostering trust and loyalty among consumers (Chovanová et al., 2015).

1.2. Consumer Behavior

1.2.1. The new consumers' behavior

Consumers have evolved over the years, driven by changes in trends, evolving demands, and most notably, the impact of the Covid-19 pandemic. Technological advancements have undeniably played a significant role in shaping the behavior of both brands and consumers. However, the pandemic accelerated a transformation that had already been underway. With stay-at-home mandates and physical stores shuttered, eCommerce experienced a meteoric rise, becoming the primary and, at times, the sole avenue for shopping. This shift compelled a segment of the population that had previously resisted online shopping to embrace this new experience (Kim, 2020). Nowadays, "93% of consumers expect the online shopping experience to be at least equal to, if not better, than in-store" (Coveo, 2022).

The pandemic also triggered a resurgence in the pursuit of experiences and hedonism, reigniting the hedonistic mindset of "I could die tomorrow" or "you only live once." This shift in perspective has had a notable impact on consumer behavior (Zwanka & Buff, 2021).

1.2.2. Customer Experience

In an era where consumers place a higher premium on experiences over products during their interactions with brands, it is essential to focus on enhancing the customer experience (Billore & Anisimova, 2021). Customer Experience (CX) encompasses the holistic impression a customer or consumer forms through their interactions with a specific company. This impression takes shape as they navigate the company's website, engage with its representatives, and progress through the purchasing and post-purchase phases. The entirety of this customer journey significantly influences their perception and plays a pivotal role in their decision to buy a product or service and the likelihood of repeat business. Consequently, prioritizing a positive customer experience is paramount in defining an organization's success (Lemon & Verhoef, 2016).

Most organizations understand that consistently fulfilling their promises and providing consumers with an exceptional experience leads to smoother attainment of their objectives and, naturally, increased financial benefits (Jain et al., 2017).

Thus, according to Lemon & Verhoef (2016) formulating a successful CX strategy yields several advantages for the company, including: Amplifying revenue and the per-customer value; Elevating

brand value and enhancing consumer perception; Cultivating loyalty and fostering brand advocates; Maintaining a strong connection with consumers and influencing behavior; Trimming costs and optimizing resource utilization.

As mentioned earlier, consumers are becoming progressively digital-oriented and have higher expectations when it comes to the experience a specific brand offers them. They are seeking online experiences that closely mimic the in-store ones (Märtin, Bissinger & Asta, 2023).

It is crucial and indispensable for the success of any brand to prioritize the optimization of the digital customer journey. At every interaction point, the primary objective should be to establish a scenario that ultimately results in the best possible user experience (UX) for potential customers (Stein & Ramaseshan, 2016).

1.2.3. Digital Customer Journey

"An omnichannel strategy should seek to ensure that an outstanding and consistent experience is created both within and across channels. This requires a total integration of all aspects of the supply chain and all activities in the different channels which influence the multiple customer touchpoints during the digital customer journey" (Weber & Chatzopoulos, 2019).

According to Scott et al. (2017), the Digital Customer Journey (DCJ) encompasses the steps taken by a user, starting from the point they recognize a need to the moment they obtain a product or service to fulfill or resolve that need. This journey consists of eight distinct phases (see figure 1):

Awareness: The customer awareness or discovery phase marks the moment when a user recognizes a need. In essence, the entire customer journey can initiate offline and then seamlessly transition to the digital realm, not having to be a fully digital journey (Scott et al., 2017).

Interest: The potential customer starts to pay attention to certain information regarding the need he previously identified (Scott et al., 2017).

Consideration: Digital consideration constitutes the third phase of the digital customer journey. During this stage, the user begins to contemplate what they've discovered and evaluates the possibility of making a purchase and where to do so (Scott et al., 2017).

Information Search: This is where the search process commences. In this stage, it is imperative to set apart from competitors and provide the added value of a brand (Scott et al., 2017).

Intent: Stage where the potential customers sort out the first draft of brands or products that may have the capacity to fulfil the need (Scott et al., 2017).

Final Consideration: It is in this stage of the journey that the customer ends up deciding. Potential clients may opt for alternatives if they encounter a cumbersome purchase process elsewhere that appears more user-friendly (Scott et al., 2017).

Purchase: The significance of the shopping experience in a digital customer journey cannot be overstated. As part of the company's digitization strategy, optimizing the sales process is essential to prevent losing the progress made thus far (Scott et al., 2017).

Evaluation: Once the purchase is completed, the focus shifts to customer retention. If the customer service experience has been positive, it becomes much easier to retain customers. Timely responses to customers contribute to a favorable impression of a business and, most importantly, increase the customer's lifetime value. Having a smooth journey throughout all the touchpoints increases the level of satisfaction of the customer, being crucial to bear in mind that the journey doesn't come to an end when the purchase is done, but in the post-purchase stage (Scott et al., 2017).

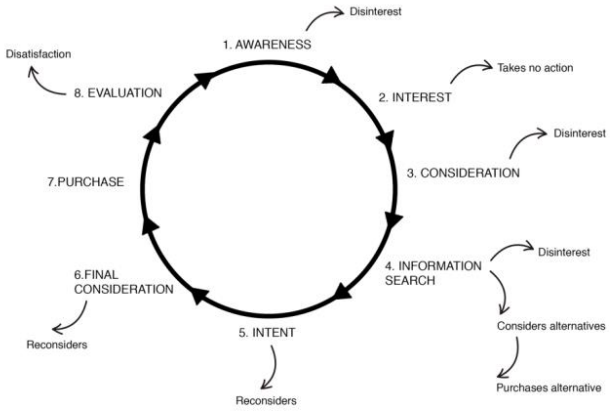


Figure 1: Customer Journey model for digital age (Scott et al., 2017)

Due to technological advancements, the consumer's path to purchasing a product has been evolving rapidly. "Now that change has become the new normal, brands have to evolve from the power of symbolism and the power of narration to the power of reciprocity. As brands morph from symbols and stories to systems, they need to find new ways to be relevant, useful, and entertaining. They need to create hospitable ecosystems and build upon ideas that welcome and nurture consumer relationships now and in the future." (Kocheilas, 2018). An article from EY (2022) states that

brands and retailers must establish a presence in the spaces where consumers are increasingly spending time, engaging with them in new and emerging digital environments, and according to Yalowitz et al. (2022), over 70% of consumers plan to explore the metaverse in non-gaming settings within the next 2 to 5 years.

1.3.The Metaverse

1.3.1. Metaverse Definition

Since 2021, internet searches for the term “metaverse” increased by 7,200 percent (McKinsey, 2022) and in 2022, knowledge of the metaverse has grown, with the percentage of individuals claiming to understand its concept increasing from 34% in 2022 to 43% in 2023 (Deloitte, 2023). The concept of “metaverse” is not new. The term was first introduced by Neal Stephenson in his 1992 novel 'Snow Crash,' in which characters utilized digital avatars to navigate a virtual realm, engage with one another, and seek refuge from their dystopian reality (Huang et al., 2022). But, defining the metaverse precisely can be a challenging task (Mileva, 2022). Mystakidis (2022) defines it as a post-reality universe, a continuous and enduring multiuser realm that fuses the physical world with digital virtuality. This concept relies on the integration of technologies that facilitate multisensory engagements with virtual environments, digital entities, and individuals, such as virtual reality (VR) and augmented reality (AR). Consequently, the Metaverse forms an interconnected network of social, immersive environments on persistent multiuser platforms, fostering seamless real-time communication and dynamic interactions with digital elements (Kim, 2021).

Considering a diverse array of definitions, Hollensen et al. (2022) provided a concise summary of the metaverse as a network of interconnected virtual realms, where users employ avatars for interactions within these domains, primarily though the use of virtual reality and augmented reality technologies (see figure 2).

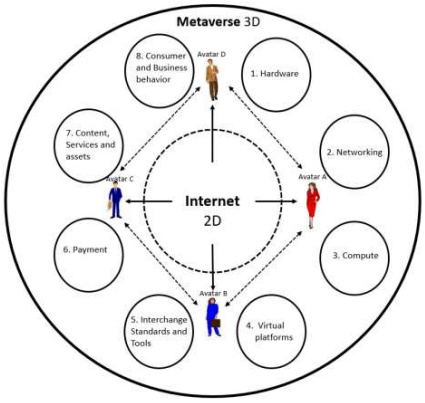


Figure 2: Metaverse's 'building blocks' and acting avatars (Hollensen et al., 2022)

It was previously addressed that consumers are seeking for experiences in their interactions with products, services, and brands. The metaverse promises to revolutionize customer engagement through immersive and interactive experiences. In this digital realm, customers will have the opportunity to explore, interact, and connect with brands and products in ways previously unimaginable (Bousba & Arya, 2022). Technology is propelling novel digital experiences, and the metaverse is constructed through a variety of technologies, best conceptualized as layers built upon one another (Burke, 2021).

1.3.2. The Strata of the Metaverse

Fundamental Infrastructure

At the metaverse core, there are fundamental infrastructure elements and technologies such as networking and cybersecurity. In the realm of networking, two significant Key Performance Indicators (KPIs) include bandwidth, denoting the data transmission capacity between two points within a defined time period, often measured in bits per second (bps) (Xu et al., 2022). Notably, metaverse requirements surpass those of most internet applications and games, demanding much higher bandwidth (Cheng et al., 2022; Dong & Lee, 2022). The second critical KPI is reliability since the final outcome hinges on the service's quality (Hollensen, 2022). With the world's growing online presence, cybersecurity apprehensions are on the rise. While the internet has facilitated unprecedented connectivity, it has simultaneously opened doors for criminals to exploit new opportunities (Di Pietro & Cresci, 2021; Gadekallu et al., 2022). The incorporation of blockchain, a decentralized digital ledger built to house diverse data types, into the metaverse enhances security and trust in all transactions, as personal data and digital assets are authenticated in this virtual space. While some level of risk is ever-present, this integration undoubtedly creates a safer environment (Mourtzis et al., 2023).

Access to the Metaverse

The concept of immersive and experiential technology lies at the heart of the metaverse (Marr, 2022). Software is the medium through which the genuine experience or 'magic' is delivered, yet the hardware (physical technologies) plays a crucial role by interacting with and advancing the development of the Metaverse (Hollensen, 2022). Virtual Reality (VR) is among the emerging technologies within the metaverse, enabling users or consumers to engage in real-time interactions and experiences (Koohang et al., 2023) and is defined as a medium comprising interactive computer simulations that track a participant's position and actions, then modify or enhance sensory feedback to create a sense of profound mental immersion or presence within the simulated virtual world (Sherman & Craig, 2018). Another emerging technology within the metaverse is Augmented Reality (AR) defined by Javornik (2016) as an enriched rendition of the tangible, physical world achieved by incorporating digital visual elements, sound, and other sensory stimuli delivered through technology.

Metaverse Capabilities

The metaverse encompasses various capabilities, with a key concept being its ability to serve as a gateway for users to engage in real-time activities within a virtual environment. This makes the metaverse a versatile platform for social interactions, allowing users to communicate with family, friends, business associates, and participate in online events regardless of their physical location (Seidel et al, 2022). Another noteworthy application of the metaverse lies in revolutionizing shopping experiences (Jeong et al., 2022). The prospect of shopping within the metaverse is particularly enticing, prompting many fashion brands to explore ways to align with the metaverse vision. By embracing real-time, immersive, and interactive elements, these brands aim to enhance the virtual shopping experience. The integration of AI technologies further amplifies the metaverse's potential for virtual shopping. This integration enables the tracking of customer activities, purchase history, preferences, and demographic information (Huynh-The et al., 2022). Leveraging this data, the metaverse can offer highly personalized clothing recommendations and actively encourage purchases. Shopping in the metaverse transcends physical constraints, providing users with complete accessibility. They can navigate virtual stores, virtually try on clothes using 3D fitting rooms, and obtain a 360-degree view of outfits, creating a shopping experience beyond the limitations of space and time (Darbinyan, 2022).

Linked to the shopping experience, the undeniable impact of the metaverse on businesses is evident. It represents a significant opportunity for businesses of all kinds to revolutionize traditional transactions. The key to success in metaverse business opportunities lies in the effective adaptation of businesses to an open environment and their willingness to leverage the metaverse—a virtual, open, shared, and persistent space. By embracing this unique environment and providing users with captivating experiences, the metaverse becomes a facilitator for purchasing, trading, and holding goods. This transformative potential allows businesses to reimagine their transactions, fostering innovation and interaction within the dynamic landscape of the virtual world.

Amidst all these capabilities, a common thread unifying them is the entertainment factor. The metaverse, inherently captivating in its digital realm, takes on a special significance for the online gaming community, as it strives to provide a more immersive experience, thereby elevating the level of engagement (He, 2022). According to EY (2022), a staggering 97% of gaming executives believe that the gaming industry stands at the epicenter of the metaverse today. The metaverse, in the gaming context, extends beyond mere entertainment; it becomes a platform fostering social interaction on a global scale. This transcends traditional multiplayer games, creating a persistent and interconnected virtual world where players can connect, collaborate, compete, and build communities (Barr, 2023). Innovations within the gaming industry are evident, particularly through the integration of blockchain technology and cryptocurrencies. This enables players to own and trade virtual assets, infusing real-world economic value into the virtual gaming landscape (Patruti et al., 2023). This transformative shift opens avenues for entrepreneurship, virtual businesses, and even virtual employment within the metaverse. Moreover, the metaverse is not confined to a singular gaming experience; it seamlessly integrates different game genres, mechanics, and experiences. Beyond the realm of gaming, it incorporates elements of social networking, education, entertainment, and various other industries. In this expansive virtual space, players can participate in a diverse array of activities—from playing games and attending virtual events to exploring marketplaces and engaging in virtual economies. The metaverse emerges as a multifaceted digital universe, offering a holistic and interconnected experience that goes beyond the boundaries of traditional gaming (Bhattacharya, et al., 2023).

Products within the Metaverse

Certainly, as a space teeming with numerous opportunities, the metaverse gives rise not only to unique experiences but also to various products. These include NFTs, Phygital products, skins and avatars, and cryptocurrency.

A Non-fungible token (NFT) is cryptographically distinct, indivisible, irreplaceable, and verifiable, signifies a specific asset, whether it be digital or physical, within a blockchain. (Bal & Ner, 2019; Regner et al., 2019). NFTs typically exist as unique or, at the very least, part of an extremely limited edition, each possessing distinctive identification codes (Conty & Schmidt, 2023). Transactions involving NFTs commonly occur online, often using cryptocurrency, a decentralized means of exchange, employing cryptographic functions to facilitate financial transactions (Fang et al., 2022), that utilize Blockchain technology to achieve decentralization, transparency, and immutability (Meunier, 2018).

As a means of self-representation, the metaverse will significantly expand the adoption of avatars and skins. With the advancements in Artificial Intelligence (AI), Virtual Reality (VR), and Augmented Reality (AR), the Metaverse is poised to unlock fresh possibilities for social interaction and experiences (Han et al., 2023). Avatars will play a crucial role in shaping how we engage and navigate the virtual realms of the Metaverse. These digital representations not only enable self-expression but also facilitate interactions with other community members within the virtual world. Through our respective devices, avatars allow us to engage in activities and socialize with others, becoming integral to our virtual experiences in the Metaverse (Mystakidis, 2022).

Finally, the customer experience and product interaction in the future transcend the physical and purely digital realms—it's now *phygital*. Contemporary consumers seek the convenience of digital solutions without forgoing the in-person connection inherent in physical experiences (EY, 2022). Phygital experiences seamlessly integrate the strengths of both worlds, blurring the lines between technology and in-person engagement by minimizing latency, which is the duration for data transmission; crafting three-dimensional digital representations of both real and envisioned spaces; constructing digital environments capable of real-time interaction with users, and augmenting the capabilities of foundational material products. (Di Bartolo, 2023).

2. Research Purpose

This dissertation endeavors to delve into the intricate landscape of customers' perceptions within the metaverse, specifically focusing on their trust levels and considerations concerning the acquisition of beauty products. By undertaking this exploration, the study seeks to unravel the nuanced attitudes and beliefs that shape consumers' trust in virtual environments and their decision-making processes when it comes to beauty-related purchases. The metaverse, with its immersive and evolving digital realm, will introduce a novel dimension to consumer behavior, necessitating an in-depth investigation into how individuals may navigate trust issues and make informed choices in the virtual realm of beauty product consumption. Through rigorous examination and analysis, this research aims to contribute valuable insights to the understanding of consumer dynamics within the metaverse, shedding light on the factors that influence trust and decision-making in the context of beauty product transactions.

In this study, the following research questions and hypothesis are posed:

RQ1: Does age have an impact on the likelihood of engaging in purchases or transactions within the metaverse?

> **H1:** Age significantly influences the likelihood of engaging in purchases or transactions within the metaverse, with younger individuals demonstrating a higher propensity for virtual commerce compared to older age groups.

RQ2: **Which specific activities within the metaverse are of interest to customers or users, constituting their primary engagement preferences?**

> **H2:** Online Shopping, Virtual Events, and Social Interactions are the activities of most interest for the customers or users within the metaverse.

RQ3: Does the level of trust in the metaverse play a pivotal role in encouraging consumers to participate in purchasing products within this virtual space?

> **H3:** The higher the level of trust that consumers have in the metaverse, the more likely they will engage in purchasing products within the virtual environment.

RQ4: Is there a variation in the impact of gender on purchase intent within the metaverse across different industries?

H4: The influence of gender on purchase intent within the metaverse differs significantly across various industries, suggesting that gender plays a varying role in shaping consumer intentions within distinct industry contexts.

RQ5: Is the Metaverse perceived by customers as a viable platform for purchasing beauty products?

H5: Customers perceive the Metaverse as a viable platform for purchasing beauty products and value the possibility of virtual trials and diagnosis.

3. Methodology

3.1.Research Design

The research design for this study involved a two-phase approach aimed at gaining comprehensive insights into the subject matter. The initial phase incorporated in-depth interviews as the primary data collection method. These interviews served as a foundational exploration, allowing for a nuanced understanding of the research topic. Following the analysis of the in-depth interview results, a structured survey was developed, informed by the rich qualitative data obtained in the first phase. The survey design was tailored to capture a broader perspective and quantitative data, providing a more comprehensive view of the research variables. This sequential process, combining qualitative depth with quantitative breadth, enhances the robustness and validity of the study, offering a well-rounded exploration of the research objectives.

3.2. Data Collection

3.2.1. Primary Data

3.2.1.1.In-depth Interviews (Qualitative method)

1) Nature of Research

Following an initial exploration through secondary data analysis to establish a foundational understanding of the research topic, qualitative research was undertaken through in-depth interviews. The aim was to gain comprehensive insights into potential consumers and users of the metaverse, providing a broad understanding of their perceptions and potential behaviors concerning considerations, relevance, trust, and purchase intent within this digital realm.

2) Data Collection Method

To collect qualitative data, a semi-structured online face-to-face data collection method was employed. The interview adhered to a guide primarily consisting of 11 open-ended questions to ensure a coherent and consistent flow of conversation. This approach aimed to maintain a common thread throughout the interviews.

3) Sampling

Twenty interviews were undertaken, with participants distributed across five distinct age groups (18-25, 25-35, 36-49, >50), each comprising five individuals. The age category under 18 was excluded from consideration due to their limited purchasing autonomy. In this demographic,

parents are typically the ones making the purchases, or at the very least, providing consent for such transactions. The interviews were conducted using Microsoft Teams as the virtual platform and in-person interviews.

4) Method of Analysis

The focus group analysis relied on the interview transcript, available in Appendix 1. This approach facilitated a more accurate and detailed assessment. Through this evaluation, responses were categorized into distinct clusters, subsequently employed in the analytical process. The outcomes are elucidated in Chapter 5.1.

3.2.1.2.Online Survey (Quantitative method)

1) Nature of Research

An online survey was undertaken to incorporating insights garnered from earlier interviews, focusing on consumer perspectives and inputs regarding the metaverse. To maximize survey participation, the questionnaire was widely distributed on WhatsApp and various social media platforms. The survey was crafted in both English and Portuguese (see Appendix 2). To minimize unanswered questions, a mandatory response format was enforced for all inquiries. To ensure the reliability of responses, the survey was structured to commence with demographic questions, followed by a screening question gauging respondents' familiarity with the metaverse. For those indicating no familiarity or only slight familiarity, the survey was promptly concluded. This was necessary as the subsequent sections assumed a baseline level of familiarity with the metaverse to gather meaningful insights. In terms of measurement and scaling, a Likert scale was predominantly employed in most questions, allowing for nuanced degrees of opinion rather than binary "yes and no" responses.

2) Sample Characterization

In the period of data collection spanning from November 5th to November 19th, a total of N=244 responses were gathered. With a dropout rate of 14.75%, this resulted in a total of 208 fully completed responses. A comprehensive analysis of descriptive statistics was carried out on all demographic indicators to characterize the attributes of the analyzed sample. Among the 208 participants in the study 23,1% (n=48) fall within the age range of 18-25 years old, 21.6% (n=45) are aged between 26-35 years old, 26.9% (n=56) belong to the 36-49 years old category, and 28.4% (n=59) are 50 years old or above (table 2). In terms of gender distribution, 45.7% (n=95) of

participants identify as male, 53.8% (n=112) identify as female, and 0.5% (n=1) opted not to disclose their gender (table 3). Lastly, regarding the highest level of education attained, 3.8% (n=8) have less than a High School diploma, 39.4% (n=82) have completed high school or an equivalent qualification, 40.9% (n=85) have a bachelor's degree, 15.4% (n=32) hold a master's degree, and 0.5% (n=1) have earned a doctorate (table 4).

3.2.2. Secondary Data

Presently, a staggering 93% of consumers expect their online shopping experience to be on par with or superior to in-store experiences (Coveo, 2022). Additionally, the pandemic triggered a resurgence in hedonistic pursuits and a shift in perspective, influencing consumer behavior with a mindset of "I could die tomorrow" or "you only live once," as outlined by Zwanka and Buff (2021). The costumer experience (CX) gained, this way, a paramount importance. The holistic impression formed by customers throughout their interactions with a company, from navigating its website to post-purchase engagements, significantly influences their perception and shapes their decision-making processes (Lemon & Verhoef, 2016). Notably, as consumers become increasingly digital-oriented, the optimization of the digital customer journey becomes indispensable. Brands are tasked with replicating the in-store experience in the online realm, aiming for the best possible user experience at every interaction point (Märtin, Bissinger & Asta, 2023). The Digital Customer Journey (DCJ), as articulated by Scott et al. (2017), encompasses various stages from customer awareness to the post-purchase evaluation. This journey includes phases such as interest, consideration, information search, intent, final consideration, purchase, and evaluation. Each stage plays a critical role in influencing consumer decisions and shaping their perceptions of the brand. According to EY (2022), brands and retailers need to establish a presence in the digital spaces where consumers are increasingly spending time, including the emerging metaverse. Since 2021, internet searches for the term “metaverse” increased by 7,200 percent (McKinsey, 2022) and in 2022, knowledge of the metaverse has grown, with the percentage of individuals claiming to understand its concept increasing from 34% in 2022 to 43% in 2023 (Deloitte, 2023). The Metaverse presents a paradigm shift in the way individuals interact with digital environments. Coined by Neal Stephenson in 1992, the Metaverse is defined as a continuous and enduring multiuser realm that blends the physical world with digital virtuality, facilitated by technologies like virtual reality (VR) and augmented reality (AR) (Mystakidis, 2022). This digital realm holds

vast potential for reshaping customer engagement, offering immersive experiences that transcend the boundaries of traditional online interactions.

4. Results and Analytics

4.1.In-depth Interviews

After segmenting the interviews based on age groups, the analysis will adhere to a consistent structure, gathering information for each question in accordance with the responses obtained within each specific age group. This approach allows for a focused examination of the data within distinct demographic categories.

The initial significant discovery revolves around the limited to no knowledge among individuals aged 50 and above regarding the metaverse. For four out of five inquiries, participants lacked information to the extent that the interviews could not be completed. This strongly suggests a high likelihood that the metaverse is not a platform targeted at individuals above 50 years old. Initially, there was contemplation of using the demographic question about age as a screening criterion for the data collection on the survey, excluding those above 50 from the study. However, it was ultimately decided to rely on quantitative research to validate or refute this observation.

Definition of the Metaverse.

The understanding and self-definition of the metaverse remain remarkably consistent across all age groups. It is commonly perceived as the fusion of the real world with the digital realm—a space where users interact using virtual and augmented reality, coupled with the integration of artificial intelligence - “The idea of the metaverse is fascinating because it opens up so many possibilities, and it feels like a glimpse into the future of how we might live, work, and connect with others.”. Viewed as a groundbreaking digital domain, the metaverse is seen as having the potential to revolutionize interactions and various activities, offering a digital representation of the real world.

Metaverse Key Characteristics.

Similarly to the previous question, the identified characteristics exhibit similarities across various age groups. Consistent themes across responses include the emphasis on technological elements (virtual reality, augmented reality, AI, NFTs, and cryptocurrencies), avatars, and the immersive nature of the metaverse. Privacy and security are recognized as crucial considerations, reflecting contemporary concerns in the digital realm. The metaverse is perceived as a dynamic space that involves virtual property ownership, online activities (shopping, gaming), and social interactions. Varied perspectives highlight the multifaceted nature of the metaverse, with a blend of futuristic

ideas, technological innovation, and interactive experiences. Overall, these responses illustrate a complex and evolving understanding of the metaverse, emphasizing its potential as a technologically advanced, interactive, and immersive digital space.

Impact, applications and features of the metaverse on consumers daily life.

Regarding the group age between 18 and 25 years old, common themes across responses include the potential for the metaverse to improve remote collaboration, entertainment, and shopping experiences. Positive aspects highlighted include convenience, accessibility, and customization in daily activities. Concerns are raised about potential negative impacts, including altered social dynamics and expectations in the real world. The metaverse is seen as a transformative force, particularly in its potential to revolutionize markets and industries by prompting companies to adapt and create innovative digital environments. These varied perspectives underscore the dynamic nature of consumer expectations and the multifaceted impact the metaverse may have on daily life, reflecting a balance between optimism for positive transformations and apprehension about potential challenges.

With respect to the group age between 26 and 35 years old, common themes across responses include improvements in virtual interactions, professional tasks, and accessibility for individuals with physical limitations. The metaverse is perceived as a platform for testing and experiencing scenarios not possible in the real world, emphasizing its potential for innovation and inclusivity. Virtual communication, remote workstations, and immersive entertainment emerge as versatile applications of the metaverse, impacting both personal and professional spheres. Gaming is identified as a significant aspect related to the metaverse, providing entertainment and interaction with recent advancements in virtual reality and augmented reality. These responses collectively showcase a positive outlook on the metaverse's potential to enhance various aspects of daily life, from professional efficiency to inclusive experiences for individuals with physical limitations. The broad range of applications suggests a multifaceted role for the metaverse in shaping the future of consumer experiences.

In relation to the group age between 36 and 49 years old, responses highlight a broad spectrum of expectations and considerations regarding the metaverse's impact on daily life. Positive aspects include enhanced personal interactions, limitless professional possibilities, and the potential for replicating immersive in-store experiences online. Interest is expressed in the convenience offered

by the metaverse, suggesting a high-tech solution for socializing, entertainment, learning, and daily tasks. Concerns are raised about potential impacts on social behavior and the current limitations related to sensory experiences. These responses collectively reflect a dynamic mix of enthusiasm for the possibilities offered by the metaverse, acknowledgment of potential limitations, and considerations about its ongoing development. The diverse perspectives underscore the complexity of consumer expectations as the metaverse continues to evolve.

How the metaverse affects how consumers make decisions and purchases.

In reference to the group age between 18 and 25 years old, common themes across responses include the metaverse's potential to enhance consumer experiences through immersive trials, personalization, and testing. Trust in online shopping, developed during the pandemic, is expected to be complemented by the metaverse's immersive experiences. Anticipation of real-time product trials, personalized support through AI avatars, and fun, engaging decision-making processes are consistent themes. The metaverse is viewed as a game-changer, introducing a new level of interaction, and transforming how consumers explore, evaluate, and make purchasing decisions. These responses collectively emphasize the metaverse's significant potential to revolutionize consumer decision-making and purchasing behaviors by offering immersive, personalized, and engaging experiences. The anticipation is that these changes will cater to the evolving preferences of digital-native generations.

Regarding the group age between 26 and 35 years old, the metaverse is perceived as a tool that facilitates decision-making by providing prior interactions with products, potentially increasing consumer certainty. Extensive testing opportunities in the metaverse are emphasized, allowing consumers to thoroughly evaluate and choose products without constraints. Anticipation of clarity in decision-making and a better understanding of product use and effectiveness is noted. Virtual shopping experiences, social interactions, and personalization are viewed as key features contributing to an enhanced shopping experience in the metaverse. A recognition of both advantages and disadvantages, with the expectation that advancements in virtual and augmented reality may address certain limitations. These responses collectively highlight the metaverse's potential to reshape consumer decision-making by providing immersive experiences, extensive testing opportunities, and personalized interactions, while also acknowledging certain challenges that may evolve with advancements in technology.

With respect to the group age between 36 and 49 years old, the importance of the metaverse in attracting a digital-savvy and younger audience is emphasized for the survival of brands over time. Views on shopping in the metaverse vary, with one perspective portraying it as a game-like, futuristic experience with potential social elements. The uncertainty regarding consumer preferences between virtual and traditional shopping is acknowledged. Anticipation of a more practical and easier shopping experience in the metaverse, with the outcome potentially leading to either more informed and conscientious purchases or increased impulse buying. Personalized shopping is recognized as a key aspect of the metaverse's influence on decision-making and purchases. These responses collectively underscore the transformative potential of the metaverse on consumer decision-making and purchasing behaviors. The emphasis on creating engaging, practical, and personalized experiences within the metaverse is highlighted, acknowledging the impact on both informed decision-making and potential impulse purchases.

Motivating factors to engage in the metaverse.

The motivating factors that would induce consumers to engage in the metaverse are coherent and similar across age groups. Common themes across responses include the metaverse's potential to offer differentiated experiences, social interaction, and exclusive services/products. Technological innovation, particularly in virtual and augmented reality, is a significant motivator for engagement. Factors such as convenience, ease of use, and integration into daily life are crucial motivators, along with the allure of novel experiences and socialization. FOMO (Fear Of Missing Out) is acknowledged as a powerful psychological motivator, suggesting that the desire not to miss out on the metaverse experience will be a driving force for consumer engagement. These insights collectively underscore the multifaceted nature of motivators driving consumers to actively participate in the metaverse, ranging from technological innovation and convenience to social and experiential factors.

Impact of the metaverse on consumer research and evaluation of products.

Regarding the age group between 18 and 25 years old, the responses collectively underscore the transformative potential of the metaverse in reshaping how consumers research, evaluate, and make purchasing decisions. The immersive experiences, global access, and interactive exploration in the metaverse are expected to offer advantages over traditional methods. Key factors influencing consumer decisions in the metaverse include personalization, competitive pricing, safety, and trust.

The anticipated impact of the metaverse extends beyond practical considerations to creating an engaging and exclusive customer journey, integrating AI, and redefining the overall consumer experience. These insights emphasize the diverse ways in which the metaverse is perceived as a game-changer in the consumer decision-making process, pointing toward a future where virtual environments play a significant role in shaping purchasing behaviors.

In reference to the group age between 26 and 35 years old, these foresee the Metaverse revolutionizing shopping by enabling virtual product trials, AI-driven personalized recommendations, and a fusion of in-store and online experiences. The inclination to use the Metaverse for purchases hinges on factors like confidence through detailed comparisons, security, speed, and the wealth of information. While uncertainties persist about the extent of changes, the convenience, and advantages of online shopping, amplified in the Metaverse, emerge as influential factors.

With respect to the group age between 36 and 48 years old, responses anticipate the Metaverse reshaping product research and acquisition by offering novel avenues like exploring new brands and trying out combinations through avatars. The prospect of virtual reviews and immersive experiences in the metaverse intrigues, suggesting a shift from conventional online reviews. However, the mass adoption of the metaverse hinges on the ease and practicality of navigation, emphasizing the importance of a user-friendly experience. The transformative potential lies in immersive experiences, such as virtual try-ons, yet the willingness to purchase in the metaverse is contingent on the reliability of these virtual experiences and the convenience they provide compared to traditional methods.

Metaverse as a potential purchase channel.

In reference to the age group between 18 and 25 years olde, the metaverse is perceived as a potential channel for purchases, offering improved consumer experiences through personalization, virtual stores, and immersive shopping experiences. However, concerns about privacy and security, coupled with limited consumer knowledge in these areas, raise issues of distrust in society. While the Metaverse holds promise for e-commerce, challenges related to security and privacy must be addressed for widespread adoption and consumer confidence. Blockchain technology is seen as a key player in ensuring secure transactions within the Metaverse, making it an exciting prospect for the future of shopping and transactions. Regarding the group age between

26 and 35 years old, responses suggest a cautious openness to the Metaverse as a potential purchasing channel. Users express a willingness to try it, starting with small purchases, and join if they perceive its potential benefits. The perceived advantages include unlimited information access and the ability to explore a global market. However, concerns about security and privacy challenges are present, indicating that widespread adoption will depend on addressing these issues to ensure consumer comfort and trust in this emerging alternative. Overall, the Metaverse is seen as a potential complement rather than a replacement for traditional methods.

In respect to the group age between 36 and 49 years old, responses highlight a mix of perspectives on the metaverse as a potential purchasing channel. Some express reservations about the limitations of a purely digital experience and emphasize the need for more exploration in integrating the metaverse with offline activities. Others view the metaverse as a digital mall, speculating on virtual currency and the potential for an immersive shopping experience. The recurring theme is the importance of user-friendliness, trustworthiness, and reliability in the metaverse shopping process. Overall, there's a sense of curiosity and openness, with users willing to explore the concept but expecting a seamless and trustworthy experience.

Perception of the metaverse across FMCG, Retail, Telecom, Banking and Energy industries. Regarding the group age between 18 and 25 years old, the responses generally agree on the potential impact of the metaverse across various industries. There's a consensus that as consumers become accustomed to the digital environment, industries need to adapt to stay competitive. The FMCG sector is seen as a potential game-changer for consumer product experiences, while the Retail industry may benefit from integrating physical and virtual stores. In Telecom, the metaverse could enhance customer support and education. The Banking industry is expected to offer virtual financial services but concerns about security and privacy are highlighted. However, opinions on the Energy sector's connection to the metaverse vary, with some expressing uncertainty about its potential benefits. Overall, there's a recognition that industries must be adaptable and responsive to consumer needs driven by the metaverse to maintain competitiveness.

With respect to the group age between 26 and 35 years old and between 36 and 49 years old the response behavior is similar, with participants expressing diverse views on the perception of the metaverse across different industries. While one perspective argues that each sector will maintain its specificities and differentiation strategies in the metaverse, another attempts to envision how

the metaverse fits into specific industries. For FMCG and retail, there is a recognition of potential interactive and futuristic shopping experiences. Telecom is perceived to involve virtual communication or experiences, while banking might incorporate virtual transactions. Energy, however, remains a puzzle. The varying perceptions suggest that industries may need to tailor their approach to the metaverse, adapting to the unique challenges and opportunities presented by this digital environment. The distinction between tangible products and abstract services is also highlighted, with some skepticism about the applicability of the metaverse to services compared to tangible goods.

Impact of the metaverse in the FMCG industry.

The perception of how the metaverse impacts the FMCG industry remains consistent across different age groups. The perception of how the metaverse will impact the FMCG (Fast-Moving Consumer Goods) industry is generally positive and anticipates significant transformations. Respondents highlight the potential for virtual shopping experiences, product customization, and in-depth interactions with brands. The metaverse is seen as a platform that can revolutionize the consumer experience, allowing for interactive campaigns, virtual feedback, and enhanced customer support. The ability to present and supply products in a virtual environment is deemed crucial for brands to maintain a competitive advantage. Security is recognized as a fundamental concern, and the adaptation of brands to the metaverse is seen as a key factor in navigating the global consumer landscape. The idea of virtually strolling through a digital supermarket, trying out virtual samples, and creating a novel and immersive experience for consumers is seen as a game-changer in the FMCG industry. Overall, there is a consensus that the metaverse has the potential to bring about profound changes, requiring brands to be agile, creative, and adaptable to new consumer demands in this digital realm.

Metaverse as a potential channel for beauty products purchase.

The perception of purchasing beauty products within the metaverse is generally positive across various age groups, with several key themes emerging from the responses. Many respondents express excitement about the potential for virtual experiences, including customization, personalized recommendations, and virtual try-ons. The metaverse is seen as a platform that can transform the shopping process, offering innovative changes to the consumer experience. However, challenges are acknowledged, particularly concerning the fidelity of virtual

representations to real products. The sensory aspects of beauty products, such as smell and touch, are highlighted as potential hurdles to overcome. Some respondents emphasize the importance of ensuring data security and addressing challenges related to color and texture replication in the virtual environment. Despite these challenges, there is an overall belief that the metaverse could revolutionize the beauty industry by providing an immersive and interactive shopping experience.

Challenges and advantages on buying beauty products within the metaverse.

As in the previous question, the responses don't vary much across the different group ages. Respondents identify various advantages and challenges associated with purchasing beauty products within the metaverse. Advantages include the potential for virtual experimentation, personalization, tutorials integrated into product visualization, and a faster, more convenient shopping experience. Virtual try-ons, global access to beauty products, and the ability to test multiple products quickly are highlighted as positive aspects. However, challenges are acknowledged, such as the need for accuracy in replicating colors and textures, technological accessibility, and concerns about data security and privacy. The sensory experience, particularly touch and smell, emerges as a critical challenge, with respondents expressing doubts about the metaverse's ability to replicate these aspects accurately. Trust issues regarding the fidelity of virtual representations compared to real products are also noted. Overall, while the metaverse offers exciting possibilities for beauty product shopping, addressing challenges related to accuracy, security, and sensory experiences will be crucial for its successful adoption in this industry.

4.1.1. Metaverse Experts Analysis

Out of all the interviewees, four can be identified as Metaverse experts due to their professional engagement with this realm. These experts represent diverse age groups, with one falling within the 26-35 age range and three within the 36-49 age range. Given their expertise in the Metaverse, it is noteworthy to highlight their insights in an individual analysis, even though these contributions are already considered in the primary analysis of the interviews.

Definition of the Metaverse.

The metaverse is characterized as a collective virtual space that seamlessly integrates augmented reality, virtual reality, and the internet. They envision it as an immersive digital environment where users engage with computer-generated entities and interact with others in real-time. To them, the metaverse signifies a transformative shift in how individuals experience and interact with digital

content, extending beyond conventional online spaces. They emphasize its potential for innovation, collaboration, and novel forms of social interaction, foreseeing it as a catalyst for a groundbreaking digital future.

Metaverse Key Characteristics.

This group envisions the metaverse as a vibrant digital realm defined by immersive virtual spaces, interconnected universes, and real-time interactions. It seamlessly integrates augmented and virtual reality, providing cross-platform accessibility and a participatory dimension through user-generated content. Identified characteristics include a digital economy, social collaboration, and continually evolving environments. As an innovation ecosystem, they believe the metaverse holds the potential to revolutionize digital engagement and reshape how individuals interact with technology and one another.

Impact, applications and features of the metaverse on consumers daily life.

The metaverse is seen as a substantial enhancer of consumers' daily lives across various dimensions. They foresee immersive social interactions that transcend geographical boundaries, a revolutionary impact on education through interactive learning environments, and a transformation of entertainment with participatory experiences. They believe that the metaverse will also have a great impact on commerce, once will introduce engaging shopping experiences and virtual transactions. Key applications identified by this group include social interaction, education, entertainment, and commerce, with a dedicated focus on crafting seamless and enriching experiences.

How the metaverse affects how consumers make decisions and purchases.

This group anticipates significant transformations in consumer behaviors within the metaverse. They emphasize the redefinition of the shopping experience through virtual features and collaborative decision-making in social spaces. The integration of a digital economy and virtual currencies is foreseen to reshape transactional models. The experts also highlight the metaverse's potential to elevate expectations for personalized experiences and brand engagement.

Motivating factors to engage in the metaverse.

The motivating factors identified encompass a range of compelling elements that contribute to the active engagement of consumers in the Metaverse. The recognized motivating factors include the attraction of immersive experiences, the importance of social interaction, the desire for

personalized content, acknowledgment of economic incentives with a particular emphasis on virtual assets, currencies, and transactions as avenues for new economic opportunities, and the utilization of gamification as a form of entertainment.

Impact of the metaverse on consumer research and evaluation of products.

According to this group, the Metaverse has the potential to transform how consumers conduct research and evaluate products or services during purchase decisions. Immersive experiences enable interactions with virtual representations, while the social dimension allows real-time collaboration and sharing of insights. Factors influencing purchases include trust in virtual transactions, the level of personalization, and the maturity of the virtual economy. Success in the Metaverse relies on establishing a secure digital marketplace, providing personalized recommendations, and ensuring the stability and perceived value of products and virtual assets.

Metaverse as a potential purchase channel.

This group of experts reveal an optimistic perspective on the metaverse as a potential channel for purchases and transactions. Their insights highlight the transformative nature of the metaverse, emphasizing its immersive features, such as virtual storefronts and marketplaces enriched by augmented and virtual reality. The acknowledgment of the social and collaborative aspects underscores the potential replication of familiar aspects of physical shopping in a digital environment. The experts also recognize the emergence of a novel economic ecosystem with virtual currencies, presenting opportunities for innovative transaction models and virtual entrepreneurship. However, their assessment acknowledges the importance of addressing challenges, particularly in ensuring the security of virtual transactions and seamlessly integrating the metaverse into daily consumer habits. Overall, the analysis reflects a balanced understanding of the potential and challenges inherent in utilizing the metaverse as a channel for transactions.

Perception of the metaverse across FMCG, Retail, Telecom, Banking and Energy industries.

The collective analysis of the group of experts reveals nuanced perspectives on the metaverse as a channel for purchases and transactions across various industries. In the FMCG sector, experts recognize the potential for immersive product experiences, emphasizing the importance of virtual simulations in enhancing consumer engagement. In Retail, the group acknowledges the transformative impact of the metaverse on the entire shopping experience, emphasizing the creation of dynamic and personalized environments. For Telecom, experts highlight the innovative

opportunities for interactive customer engagement, while in Banking, the metaverse is seen as a potential disruptor, redefining financial services through secure virtual transactions. In the Energy sector, the experts note the educational potential of the metaverse, particularly in conveying complex processes and promoting sustainability. This collective analysis underscores the industry-specific considerations that shape perceptions of the metaverse as a transactional channel.

Impact of the metaverse in the FMCG industry.

The transformative impact of the metaverse on the Fast-Moving Consumer Goods (FMCG) industry was highlighted by this group. Envisioned changes include the revolutionization of product experiences through virtual simulations and interactive showcases, emphasizing immersive encounters and educational platforms. Anticipated shifts in distribution channels, particularly the emergence of virtual storefronts, signify a recognition of the evolving landscape for FMCG products within the metaverse. The experts also acknowledge the potential for the metaverse to foster a more interconnected consumer community through its social and collaborative features. Overall, the analysis underscores the need for adaptability within the FMCG industry to effectively leverage the metaverse's multifaceted potential.

Metaverse as a potential channel for beauty products purchase.

The response analysis of this group reveals a positive outlook on the potential of the metaverse as a platform for beauty product shopping. Their collective perspective highlights a keen interest in the innovative possibilities offered by virtual environments for the beauty industry. The experts emphasize the transformative impact of features like virtual simulations and augmented reality, recognizing their ability to revolutionize the traditional beauty shopping experience. The acknowledgment of challenges, such as color accuracy and the tactile or scent experience, indicates a realistic awareness within the group. Nevertheless, their overall enthusiasm underscores the belief in the metaverse's capacity to redefine beauty product shopping through dynamic and engaging virtual interactions. This group of experts envisions the metaverse as a promising avenue for enhancing the consumer experience in the beauty industry.

Challenges and advantages on buying beauty products within the metaverse.

Upon analyzing the response this group, it becomes evident that they possess a balanced perspective on buying beauty products through the metaverse. These express optimism about the transformative advantages, emphasizing the immersive and interactive features. However, their

realistic awareness is apparent in acknowledging challenges such as color accuracy, the absence of a tactile and scent experiences, and heightened concerns about trust and security. This balanced viewpoint reflects a nuanced understanding within the expert group, showcasing both enthusiasm for innovation and a cautious approach to addressing industry-specific considerations.

4.2.Online Survey

Familiarity with the Metaverse

As mentioned in section 4.2.1.2, "Nature of Research," subsequent to the demographic inquiries, a screening question assessed respondents' familiarity with the metaverse. Participants indicating either no familiarity or only slight familiarity led to the survey being promptly concluded. Regarding the query, "How familiar are you with the concept of the 'metaverse'?" the breakdown is as follows: 29.3% (n=61) reported no familiarity at all, 36.5% (n=76) expressed slight familiarity, 23.6% (n=49) indicated moderate familiarity, 9.1% (n=19) reported high familiarity, and 1.4% (n=3) mentioned extremely high familiarity (table 5). Therefore, out of the 208 valid responses obtained in the survey, 65.8% (n=137) were unable to proceed beyond the screening question and complete the rest of the survey because of insufficient knowledge about the metaverse. Employing a cross-tabulation study on SPSS with the variables age and familiarity with the concept of the metaverse offers a comprehensive understanding of the relationship between these two factors. Among respondents aged 18-25 (n=48), 14.6% (n=7) exhibit no familiarity, 43.8% (n=21) have slight familiarity, 35.4% (n=17) possess moderate familiarity, and 6.3% (n=3) express a high level of familiarity with none indicating extreme familiarity. In the 26-39 age group (n=45), 20% (n=9) are not familiar, 33.3% (n=15) have slight familiarity, 26.7% (n=12) maintain moderate familiarity, and 15.6% (n=7) and 4.4% (n=2) claim very and extremely familiar status, respectively. For respondents aged 36-49 (n=56), 28.6% (n=16) lack familiarity, 41.1% (n=23) have slight familiarity, 17.9% (n=10) demonstrate moderate familiarity, 10.7% (n=6) express high familiarity, and 1.8% (n=1) exhibit extreme familiarity. Lastly, among those aged 50 or more years old (n=59), 49.2% (n=29) are entirely unfamiliar, 28.8% (n=17) have slight familiarity, 16.9% (n=10) possess moderate familiarity, and 5.1% (n=3) show high familiarity, with none indicating extreme familiarity (table 6).

RQ1: Does age have an impact on the likelihood of engaging in purchases or transactions within the metaverse?

The choice of utilizing a one-way analysis of variance (ANOVA) study was driven by the need to assess potential variations in metaverse engagement across distinct age groups. By employing ANOVA, the study aimed to discern whether there are statistically significant differences in metaverse activities among different age groups, providing a comprehensive understanding of the impact of age on consumer behavior within the metaverse landscape (Independent Variable (IV) – Age; Dependent Variable (DV) – Likelihood to purchase within the metaverse). Commencing with descriptive statistics, the mean likelihood of making purchases within the metaverse is 3.05 for the 18-25 age group, 3.75 for the 26-35 age group, 3.47 for the 36-49 age group, and 3.69 for the 50 or more-age group. Upon analyzing the means, it is evident that all age groups exhibit a positive inclination, indicating interest in purchasing within the metaverse (table 7). Notably, it is crucial to emphasize two age groups with the highest means, namely the 26-35 age group and the 50 years or above age group. The variance homogeneity was tested with Levene's test, according to which one can assume equality of variances ($p = 0.208$), this suggests that the variances across groups are not significantly different (table 8). The p-value is $p=0,211> 0,05$ and thus, based on the sample data, there is insufficient evidence to conclude that there are significant differences in the likelihood of purchasing in the metaverse among the different age groups and thus, we cannot accept the hypothesis (table 9). To provide a more comprehensive understanding of the relationship between age and the likelihood of purchasing in the metaverse it helpful to analyze the report effect sizes through the Eta-squared (η^2) to quantify the proportion of total variability in the dependent variable that can be attributed to the variability between groups (treatments) compared to the total variability. $\eta^2=0,170$, thus it indicates a greater proportion of variance in the dependent variable is explained by the independent variable (table 10).

RQ2: Which specific activities within the metaverse are of interest to customers or users, constituting their primary engagement preferences?

Employing a frequencies study in SPSS is a valuable analytical approach when seeking to understand the level of interest among survey respondents in various activities within the metaverse. This method allows for a comprehensive exploration of the distribution and prevalence of preferences across different categories, such as social interactions, gaming, virtual events, educational and learning experiences, online shopping, virtual economy, and virtual workspace.

By analyzing the frequencies, it is possible to gain insights into the sheer number and proportion of respondents expressing interest in each activity. Among all the activities surveyed, Social Interactions exhibit the highest percentage of interest at 16.3% (n=34) (table 11), closely followed by Virtual Events at 15.4% (n=32) (table 12). Online Shopping follows with 14.4% (n=30) (table 13), while Educational and Learning activities command a 12% interest rate (n=25) (table 14). Virtual Workspace (table 15) and Virtual Economy (table 16) trail with 11.1% (n=23) and 9.6% (n=20), respectively. Gaming (table 17) concludes the list with a 9.1% interest rate (n=19). Therefore, we can confirm the hypothesis that Social Interactions, Virtual Events and Online Shopping are the three main metaverse's activities of interest among the consumers.

RQ3: Is trust in the metaverse a key factor for consumers to engage on purchasing products within the metaverse?

To understand if the perceived level of interest in the metaverse is associated with the likelihood of purchasing products or digital assets within it, a Chi-square test for independence was conducted. This test was conducted to assess if there is a statistically significant association between the two categorical variables are level of trust in the metaverse and consumer's engagement in purchasing products within this virtual environment. The Pearson chi-square test indicates statistical significance, with a significance level of less than 0.01 ($p < 0.01$) (table 18). This suggests that there is a significant association between the variables being studied. In order to quantify the strength of the relationship between two categorical variables and used in conjunction with the Chi-square test to provide a measure of effect size, helping to interpret the practical significance of the observed association and complement the Chi-square test by providing a standardized measure of the strength of the association, allowing for a more nuanced understanding of the practical significance of the relationship., a Cramer's V test was also conducted. With a value of 0.496 and a significance level of less than 0.01, this indicates a substantial and meaningful association between the variables (table 19). The closer Cramer's V is to 1, the stronger the association. In summary, both the statistical significance (p-value < 0.01) and the substantial effect size (Cramer's V = 0.496) suggest a robust and meaningful association between the variables. This implies that there is a statistically significant relationship between the level of trust in the metaverse and consumers' engagement in purchasing products within that virtual environment. The findings support the hypothesis that trust is a key factor influencing

consumer behavior in the metaverse, emphasizing the practical importance of trust in shaping purchasing decisions within this digital space.

RQ4: Is there a variation in the impact of gender on purchase intent within the metaverse across different industries?

To examine the effects of the independent variable on all dependent variables simultaneously and provide a holistic understanding of how the groups differ across the entire set of outcomes a MANOVA study was conducted. Conducting multiple univariate tests increases the risk of Type I errors. MANOVA helps control the overall experiment-wise error rate, reducing the likelihood of false-positive findings. Pillai's Trace is a multivariate test statistic that ranges from 0 to 1. It represents the proportion of variance in the dependent variables that is accounted for by the independent variable and the 0,929 value with a p-value <0,01 indicates that there is a significant difference between groups (table 20). Wilks' Lambda (Λ) is another multivariate test statistic that ranges from 0 to 1. Like Pillai's Trace, it measures the proportion of variance not explained by the independent variable. The low Wilks' Lambda value Λ=0.071 suggests a substantial effect and with a p-value<0,01 reinforces the finding that there are statistically significant differences between groups across the set of dependent variables (table 20). Upon scrutinizing the Between-Subjects Effects (Table 21), the Type III Sum of Squares serves as a metric quantifying the variance in the dependent variable(s) attributed to the independent variable under examination. Notably, in the Retail (Type III Sum of Squares = 6.353), Energy (Type III Sum of Squares = 5.630), and FMCG (Type III Sum of Squares = 4.982) sectors, gender exhibits a substantial impact, accounting for more variance. In contrast, within the Banking (Type III Sum of Squares = 2.214) and Telecom (Type III Sum of Squares = 1.806) industries, the influence of gender is relatively low (Table 22). This observation aligns with the F test results, where larger values suggest that the group means deviate significantly from each other, indicating an effect beyond what would be expected by chance alone. As previously proven, Retail (F=5.540), Energy (F=4.213), and FMCG (F=3.267) emerge as the industries where gender exerts a more pronounced influence on the purchase intent within the metaverse. In contrast, in the Banking (F=1.775) and Telecom (F=1.288) sectors, it can be asserted that gender has a comparatively lower impact on purchase intent. Finally, it is important to analyze the significance (p-value) associated with the F-statistic. The p-value (p-value=0,021) for Retail is less than the conventional significance level of 0.05. This suggests that

the impact of gender on the purchase intent within the metaverse in the Retail industry is statistically significant. Similar to Retail, the p-value (p-value=0,044) for Energy is less than 0.05. This indicates that gender has a statistically significant impact on purchase intent in the Energy industry. The p-value (p-value=0,075) for FMCG is greater than 0.05. In this case, the evidence is not strong enough to conclude that gender has a statistically significant impact on purchase intent in the FMCG industry. The p-value (p-value=0,187) for Banking is greater than 0.05. The evidence does not support a statistically significant impact of gender on purchase intent in the Banking industry. The p-value for Telecom is the highest among the industries mentioned, and it is greater than 0.05 (p-value=0,260). The evidence suggests that gender does not have a statistically significant impact on purchase intent in the Telecom industry. Hence, we can confirm the hypothesis for the Retail and Energy industries, remain inconclusive about the FMCG industry, and reject the hypothesis for the Banking and Telecom industries.

RQ5: Is the Metaverse perceived by customers as a viable platform for purchasing beauty products?

To address this research question, it is crucial to examine the extent of purchase intent concerning beauty products in the metaverse. Among all respondents, 7% (n=5) exhibit no purchase intent; 22,5% (n=16) show a low level of purchase intent; 28,5% (n=20) neither express high nor low purchase intent; 35,2% (n=25) demonstrate a high level of purchase intent; and 7% (n=5) manifest a very high purchase intent (table 21). Given that the subject under examination is the category of beauty products, it is of interest to investigate whether gender plays a substantial role in determining the level of purchase intent. The mean of Male respondents regarding the level of purchasing intent is M=3,18 and the mean of female respondents is M=3,08, the mean difference of 0.103 indicates that, on average, males have a slightly higher level of purchase intent compared to females (table 23). Even though there is a mean difference, it is crucial to understand if it is statistically significant. For that it is important to look at Levene's Test (table 24) with a result F=0,531 and a significance level of p=0,469, hence the non-significant Levene's test suggests that there is no significant impact of gender in the purchase intent regarding beauty products. By looking at the T-Test for Equality of Means (table 24), the t-value = 0.402; One-sided significance (p-value) = 0.344; Two-sided significance (p-value) = 0.689; with a mean difference = 0.103. The one-sided p-value of 0.344 is greater than the conventional significance level of 0.05. The two-sided p-value is also higher (0.689). Therefore, there is no significant difference in the mean level

of purchase intent between male and female groups. To measure the standardized difference between the means, the Independent Samples effect size was conducted, with focus on Cohen's d test (table 25), with a value of 0.096 which is considered a small effect size, suggesting a relatively small practical significance of the observed difference. In summary, the results indicate that, while there is a slight mean difference in purchase intent between male and female groups, this difference is not statistically significant. The effect size (Cohen's d) suggests a small practical significance. Therefore, gender does not seem to have a substantial impact on the level of purchase intent in the metaverse for beauty products in this analysis. To comprehend the preferences of respondents with high and very high purchase intent on Q25, a targeted data selection was executed, excluding those with Neutral, low, and no purchase intent (table 26). Consequently, among the remaining responses, Virtual Trials (table 27) emerged as the most favored, chosen by 70% (n=21) of potential consumers, followed by Virtual Diagnosis (table 28) at 60% (n=18). Virtual Beauty Consultations (table 29) garnered a 43.3% preference rate (n=13), while Interactive Beauty Events (table 30) secured a 40% preference rate (n=12). This substantiates the hypothesis that product testing and personalized diagnostic features. In summary, there is currently insufficient evidence to suggest that the metaverse is widely perceived as a platform with high purchase intent among consumers. The qualitative study indicates that this could be attributed to the limited interaction with products, particularly concerning texture and scent. Gender does not significantly influence purchase intent, implying that being male or female does not play a crucial role in enhancing the level of purchase intention. Notably, among respondents with high and very high purchase intention, Virtual Trials and Virtual Diagnosis emerge as standout beauty-related experiences in the metaverse, garnering greater interest and value among these potential consumers.

5. Conclusions

In conclusion, this comprehensive study illuminates crucial insights into the dynamics of consumer engagement within the metaverse. A substantial observation is the evident knowledge gap, with 65.8% of the surveyed population exhibiting inadequate familiarity with the metaverse. This underscores the pressing need for enhanced awareness and educational initiatives to bridge the generational gap in metaverse familiarity, ensuring a more inclusive understanding across diverse age groups.

While shared positive inclinations towards metaverse activities are observed across age groups, the statistical analysis robustly concludes that age does not significantly influence the likelihood of making purchases within this digital landscape. The identified primary metaverse activities of interest—Social Interactions, Virtual Events, and Online Shopping—are essential focal points for guiding metaverse development and shaping consumer-centric strategies.

A particularly noteworthy finding is the robust and meaningful association between the level of trust in the metaverse and consumers' engagement in purchasing products within this virtual environment. This reinforces the hypothesis that trust is a pivotal factor influencing consumer behavior in the metaverse, highlighting the practical importance of trust in shaping purchasing decisions within this evolving digital space.

Examining the influence of gender on purchase intent within specific industries reveals that gender significantly impacts the Retail and Energy sectors. The FMCG industry presents inconclusive results, while the hypothesis is rejected for the Banking and Telecom industries. This nuanced understanding emphasizes the importance of tailored marketing strategies, recognizing the diverse impact of gender on consumer behavior within the metaverse across different sectors.

Contrary to expectations, the metaverse is not widely perceived as a platform with high purchase intent among consumers. The qualitative study identifies potential reasons, such as limited interaction with products, particularly concerning texture and scent. Interestingly, gender does not emerge as a significant factor influencing purchase intent, highlighting that being male or female does not play a crucial role in enhancing the level of purchase intention in the metaverse.

In the realm of beauty-related experiences, Virtual Trials and Virtual Diagnosis emerge as key drivers for consumer engagement within the metaverse in the beauty industry. These findings provide valuable insights for crafting effective marketing strategies and interventions, aligning with consumer preferences and contributing to a more tailored and engaging approach in the virtual beauty product landscape.

In summary, the metaverse undeniably holds relevance and influence within the Beauty Industry. The comprehensive study underscores its significance, revealing that Virtual Trials and Virtual Diagnosis serve as pivotal drivers for consumer engagement. The metaverse is not only considered by consumers within the beauty sector but is also recognized as a platform where immersive experiences significantly impact purchase intent. The identified association between trust in the metaverse and consumer engagement in purchasing beauty products highlights the importance of establishing credibility and trustworthiness for brands operating within this virtual space. Consequently, the metaverse has emerged as a transformative arena for beauty industry brands, necessitating strategic alignment with consumer preferences, immersive marketing approaches, and interventions to enhance overall engagement and purchase intent in this dynamic digital landscape.

6. Limitations

In the course of conducting this research, several limitations have emerged that merit consideration. Firstly, the sample used for the study may not be fully representative of the diverse perspectives within the broader population. Consequently, the findings may not be universally applicable, and caution should be exercised in generalizing the results to broader contexts.

Additionally, the research design, employing a cross-sectional approach, captures a snapshot of attitudes and behaviors within a specific timeframe. This approach, while useful for providing insights at a particular moment, limits the ability to track changes over time or establish causal relationships between variables. As the metaverse is a rapidly evolving concept, this static view may not fully capture the dynamics of this dynamic digital landscape.

The study also highlighted a substantial knowledge gap among the surveyed population concerning the metaverse. However, the research did not extensively explore the underlying reasons for this gap, whether rooted in a lack of awareness, access, or interest. Understanding these factors could provide a more nuanced perspective on the observed knowledge disparities. Since the topic in study is a concept that remains in its early stages or is not widely accessible to the majority, or even had the first experience within the metaverse, my approach involves gathering information without the benefit of prior experience. This study is rooted in speculative scenarios, exploring the possibilities of a "what if" scenario.

Moreover, the reliance on self-reported data through surveys introduces the possibility of response bias. Participants may provide responses influenced by social desirability or may not accurately reflect their actual behaviors. This potential bias introduces a degree of uncertainty into the accuracy and reliability of the study's findings.

The study focused on specific industries—Retail, Energy, FMCG, Banking, and Telecom—which may not fully encompass the breadth of sectors impacted by the metaverse. Consequently, the findings may not be universally applicable across industries, and the dynamics of other sectors may differ significantly.

The qualitative study, while offering valuable insights into consumer perceptions, may have limitations in comprehensively understanding individual experiences within the metaverse. A

more extensive qualitative approach could provide a deeper understanding of the intricacies of metaverse engagement.

Furthermore, the metaverse's dynamic and rapidly evolving nature poses a challenge to the study's conclusions. Technological advancements in the metaverse may outpace the research findings, rendering them potentially less relevant or applicable to the rapidly changing landscape.

Cultural variations and ethical considerations associated with metaverse engagement were not extensively explored in this study. Cultural nuances may influence perceptions and behaviors within the metaverse, and ethical concerns related to privacy and data security warrant further investigation.

Lastly, external factors such as global events or economic changes could impact consumer perceptions and behaviors within the metaverse. The study did not delve into the potential influence of external variables on the observed trends.

Acknowledging these limitations is crucial for interpreting the study's scope and applicability. It also serves as a foundation for future research, pointing towards areas that merit further exploration and refinement in the dynamic and evolving field of metaverse studies.

APPENDIX 1 – In-depth Interviews

In-depth interviews Script

1. **How would you personally define the metaverse, and what does that mean to you?**
2. **Can you identify some key characteristics or elements that you associate with the concept of the metaverse?**
3. **In what ways do you think the metaverse can enhance or improve the daily lives of consumers, and what specific applications or features do you find most relevant to them?**
4. **In your opinion, how might the metaverse change consumer behaviors and expectations in their decision and purchasing process?**
5. **What do you believe are the motivating factors that would encourage consumers to engage actively in the Metaverse?**
6. **In your perspective, how might the Metaverse transform the way consumers conduct research and evaluate products or services when making purchase decisions? Additionally, what factors would influence your willingness to make a purchase in the Metaverse compared to conventional methods?**
7. **What are your perceptions about the metaverse as a potential channel for making purchases or conducting transactions?**
8. **Does your perception regarding the metaverse as a channel for making purchases or conducting transactions vary across the following industries: FMCG, Retail, Telecom, Banking and Energy? If so, how?**
9. **How do you envision the metaverse impacting the FMCG industry specifically, and what changes might it bring?**
10. **Considering the metaverse as a potential platform for beauty product shopping, what are your thoughts on buying beauty products in a virtual environment?**
11. **Can you foresee any unique challenges or advantages related to buying beauty products through the metaverse compared to traditional methods?**

In-depth interviews Table of Content

In-Depth Interviews Content Table			
	Group age 18-25	**Group age 36-35**	**Group age 36-49**
1. Definition of the Metaverse	Consistent understanding across age groups: Fusion of real world with digital realm. Key elements: Virtual reality, augmented reality, AI, NFTs, cryptocurrencies, avatars. Potential to revolutionize interactions and activities, offering a digital representation of the real world.		
2. Metaverse Key Characteristics.	Similarities across age groups: Emphasis on technological elements, avatars, immersive nature. Privacy and security recognized as crucial considerations. Dynamic space involving virtual property ownership, online activities, and social interactions.		
3. Impact, applications and features of the metaverse on consumers daily life.	Potential to improve remote collaboration, entertainment, and shopping.	Enhancements in virtual interactions, professional tasks, and inclusivity.	Broad expectations, convenience, interest in replicating immersive in-store experiences online.
4. How the metaverse affects how consumers make decisions and purchases.	Immersive trials, personalization, and testing enhance consumer experiences.	Facilitates decision-making with prior interactions, extensive testing opportunities.	Reshapes decision-making through enhanced personal interactions, limitless possibilities.
5. Motivating factors to engage in the metaverse.	Differentiated experiences, social interaction, and exclusive services motivate engagement. Technological innovation, convenience, ease of use, and FOMO are significant motivators.		
6. Impact of the metaverse on consumer research and evaluation of products.	Transformative potential in reshaping research, immersive experiences, AI integration.	Revolutionizes shopping with virtual trials, personalized recommendations.	Novel avenues for exploring new brands, immersive experiences reshape product research.
7. Metaverse as a potential purchase channel.	Potential for purchases, concerns about privacy, security, and limited consumer knowledge.	Cautious openness, potential benefits, concerns about security and privacy.	Mix of perspectives, importance of user-friendliness, trustworthiness, and reliability.

8. Perception of the metaverse across FMCG, Retail, Telecom, Banking and Energy industries.	Consensus on metaverse's potential impact across industries. Industries need to adapt to the digital environment for competitiveness. FMCG seen as a game-changer; Retail may benefit from virtual integration. Telecom for enhanced support; Banking for virtual financial services with privacy concerns. Varying opinions on Energy sector's metaverse connection.	Diverse views on metaverse perception across industries. Debate on industry specificity in the metaverse. Acknowledgment of potential in FMCG, retail, and Telecom. Expectation of virtual transactions in banking; Energy sector's metaverse role unclear. Recognition of industry adaptation to metaverse challenges and opportunities. Skepticism about metaverse's applicability to services compared to tangible goods.
9. Impact of the metaverse in the FMCG industry.	Positive perception, anticipates significant transformations. Potential for virtual shopping experiences, product customization, and interactive campaigns. Brands must be agile, creative, and adaptable to new consumer demands.	
10. Metaverse as a potential channel for beauty products purchase.	Generally positive perception across age groups. Excitement about virtual experiences, customization, personalized recommendations, and virtual try-ons. Acknowledgment of challenges related to fidelity, sensory aspects, and data security.	
11. Challenges and advantages on buying beauty products within the metaverse.	Advantages: Virtual experimentation, personalization, faster, more convenient shopping. Challenges: Accuracy in replicating colors and textures, technological accessibility, sensory experiences, data security, and privacy. Trust issues regarding fidelity of virtual representations compared to real products.	

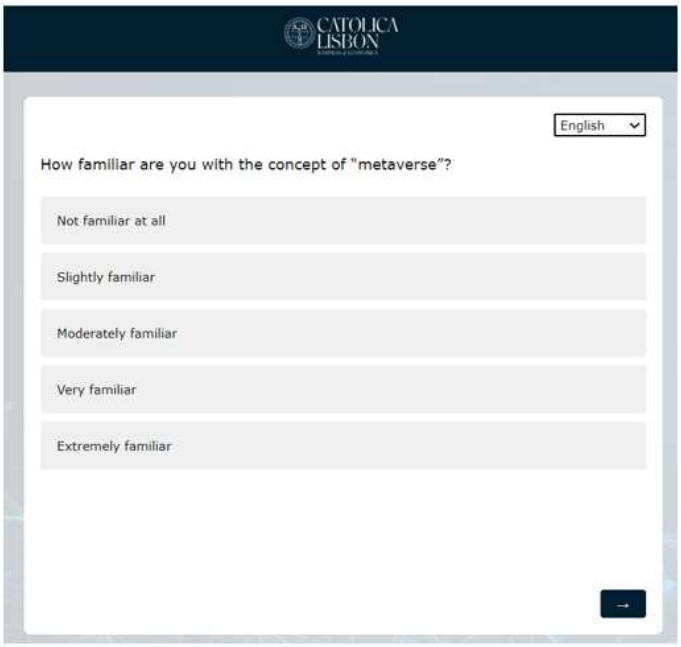
Table 1: In-depth interviews Table of Content

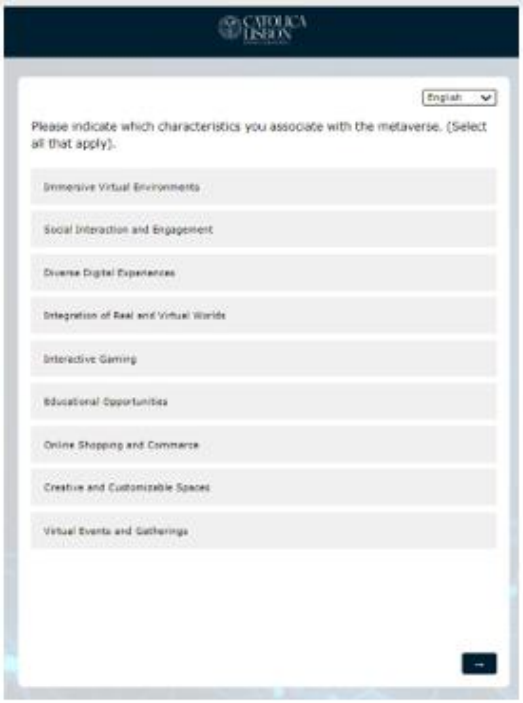
APPENDIX II - Survey

Survey

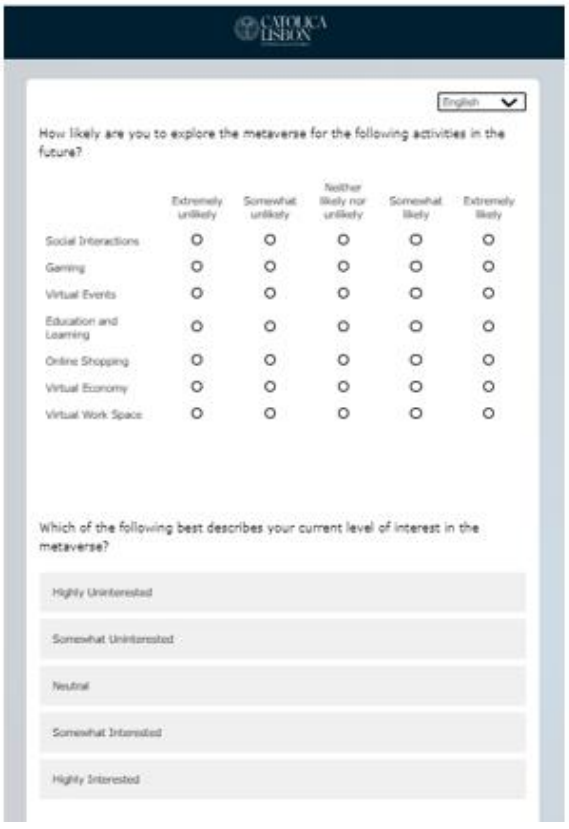
Figure 3: Survey


CATOLICA LISBON
English
How old are you?
< 18
18-25
26-35
36-49
> 50
What is your gender?
Male
Female
Non-binary / third gender
Prefer not to say
What is the highest-level dehgree or level of education you have completed?
Less than High School
High school graduate or similar
Bachelor's Degree
Master's Degree
Doctorate
→

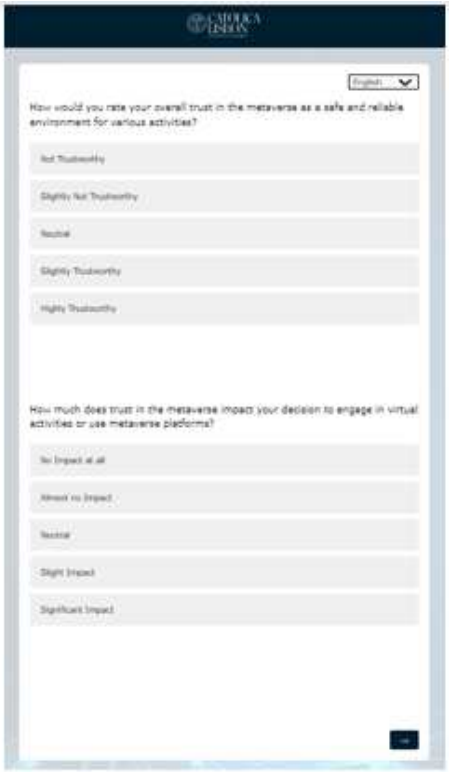

CATOLICA LISBON
English
How familiar are you with the concept of "metaverse"?
Not familiar at all
Slightly familiar
Moderately familiar
Very familiar
Extremely familiar
→


English
Please indicate which characteristics you associate with the metaverse. (Select all that apply).
Immersive Virtual Environments
Social Interaction and Engagement
Diverse Digital Experiences
Integration of Real and Virtual Worlds
Interactive Gaming
Educational Opportunities
Online Shopping and Commerce
Creative and Customizable Spaces
Virtual Events and Gatherings
→

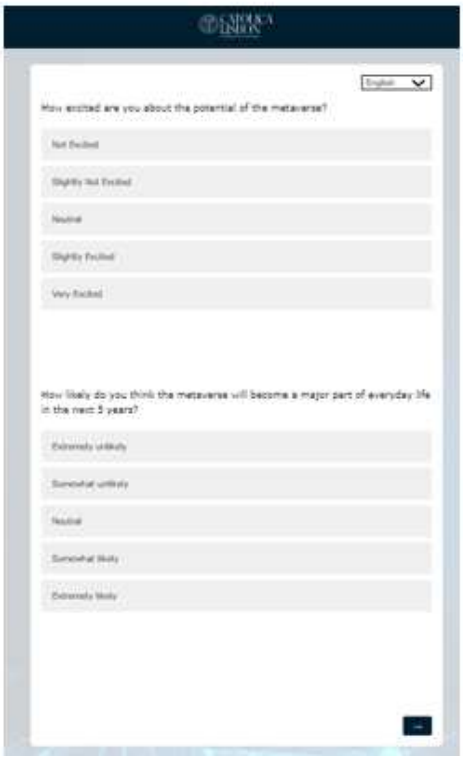

English
What aspects of the Metaverse are you most interested in? (Select all that apply)
Social Interactions
Gaming
Virtual Events
Educational and Learning
Online Shopping
Virtual Economy
Virtual Work Space
→

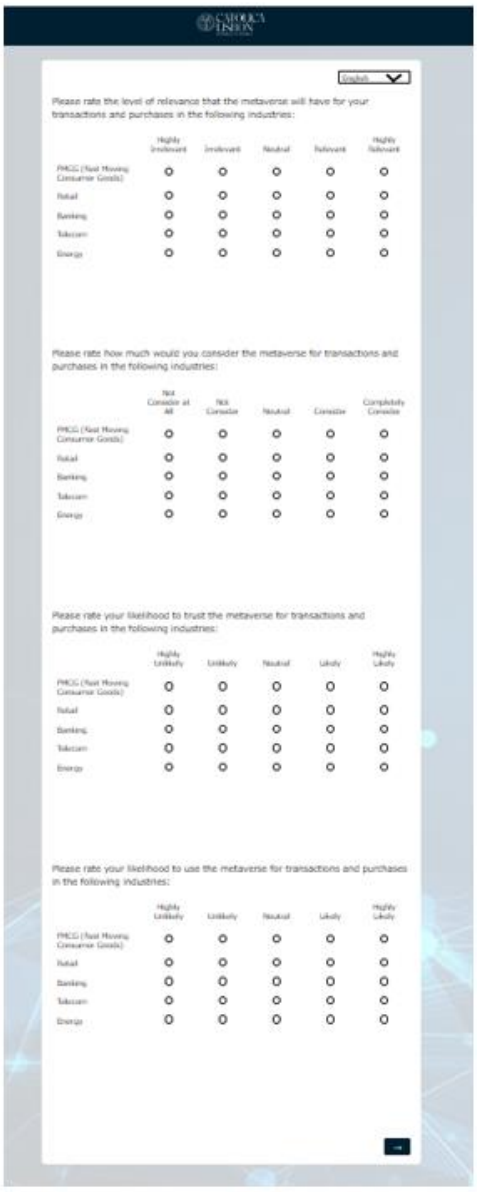

English
How likely are you to explore the metaverse for the following activities in the future?
Extremely unlikely
Somewhat unlikely
Neither likely nor unlikely
Somewhat likely
Extremely likely
Social Interactions
Gaming
Virtual Events
Education and Learning
Online Shopping
Virtual Economy
Virtual Work Space
Which of the following best describes your current level of interest in the metaverse?
Highly Uninterested
Somewhat Uninterested
Neutral
Somewhat Interested
Highly Interested


What do you think are the three main reasons for considering the metaverse for various activities? (Select three).
What do you think are the three main reasons for not considering the metaverse for various activities? (Select three).


How would you rate your overall trust in the metaverse as a safe and reliable environment for various activities?
How much does trust in the metaverse impact your decision to engage in virtual activities or use metaverse platforms?


Do you think the metaverse will become a significant platform for shopping and making purchase decisions in the future?
Do you believe the metaverse have the potential to enhance your understanding of products or services leading to more informed purchase decisions?


How excited are you about the potential of the metaverse?
How likely do you think the metaverse will become a major part of everyday life in the next 5 years?



Please rate the level of relevance that the metaverse will have for your transactions and purchases in the following industries:

	Highly Irrelevant	Irrelevant	Neutral	Relevant	Highly Relevant
FMCG (Fast Moving Consumer Goods)	O	O	O	O	O
Retail	O	O	O	O	O
Banking	O	O	O	O	O
Telecom	O	O	O	O	O
Energy	O	O	O	O	O

Please rate how much would you consider the metaverse for transactions and purchases in the following industries:

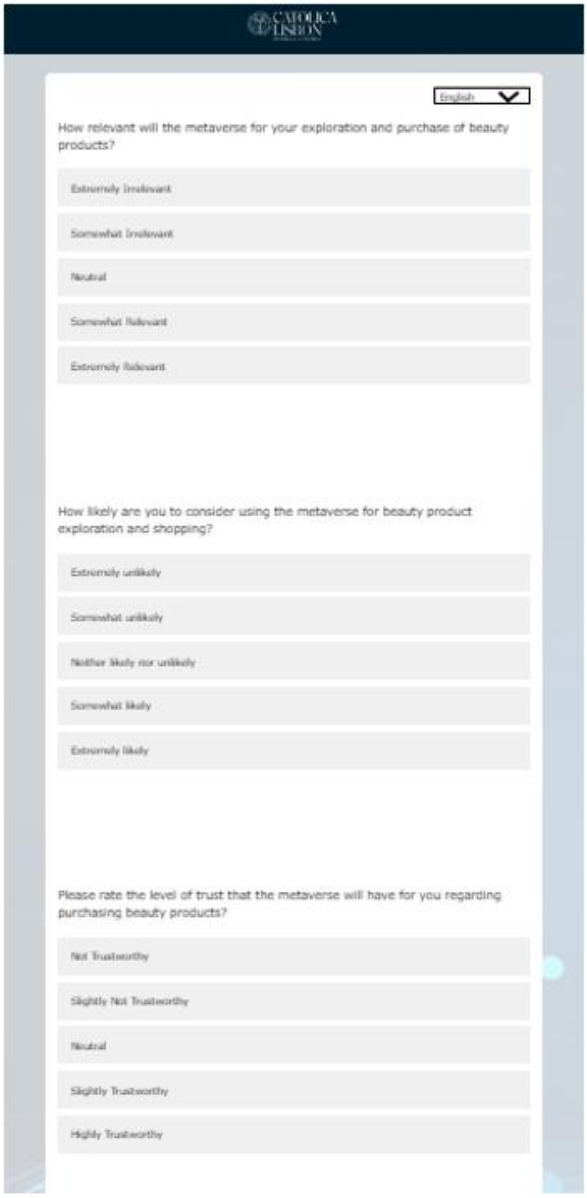
	Not Consider at All	Not Consider	Neutral	Consider	Completely Consider
FMCG (Fast Moving Consumer Goods)	O	O	O	O	O
Retail	O	O	O	O	O
Banking	O	O	O	O	O
Telecom	O	O	O	O	O
Energy	O	O	O	O	O

Please rate your likelihood to trust the metaverse for transactions and purchases in the following industries:

	Highly Unlikely	Unlikely	Neutral	Likely	Highly Likely
FMCG (Fast Moving Consumer Goods)	O	O	O	O	O
Retail	O	O	O	O	O
Banking	O	O	O	O	O
Telecom	O	O	O	O	O
Energy	O	O	O	O	O

Please rate your likelihood to use the metaverse for transactions and purchases in the following industries:

	Highly Unlikely	Unlikely	Neutral	Likely	Highly Likely
FMCG (Fast Moving Consumer Goods)	O	O	O	O	O
Retail	O	O	O	O	O
Banking	O	O	O	O	O
Telecom	O	O	O	O	O
Energy	O	O	O	O	O



How relevant will the metaverse for your exploration and purchase of beauty products?

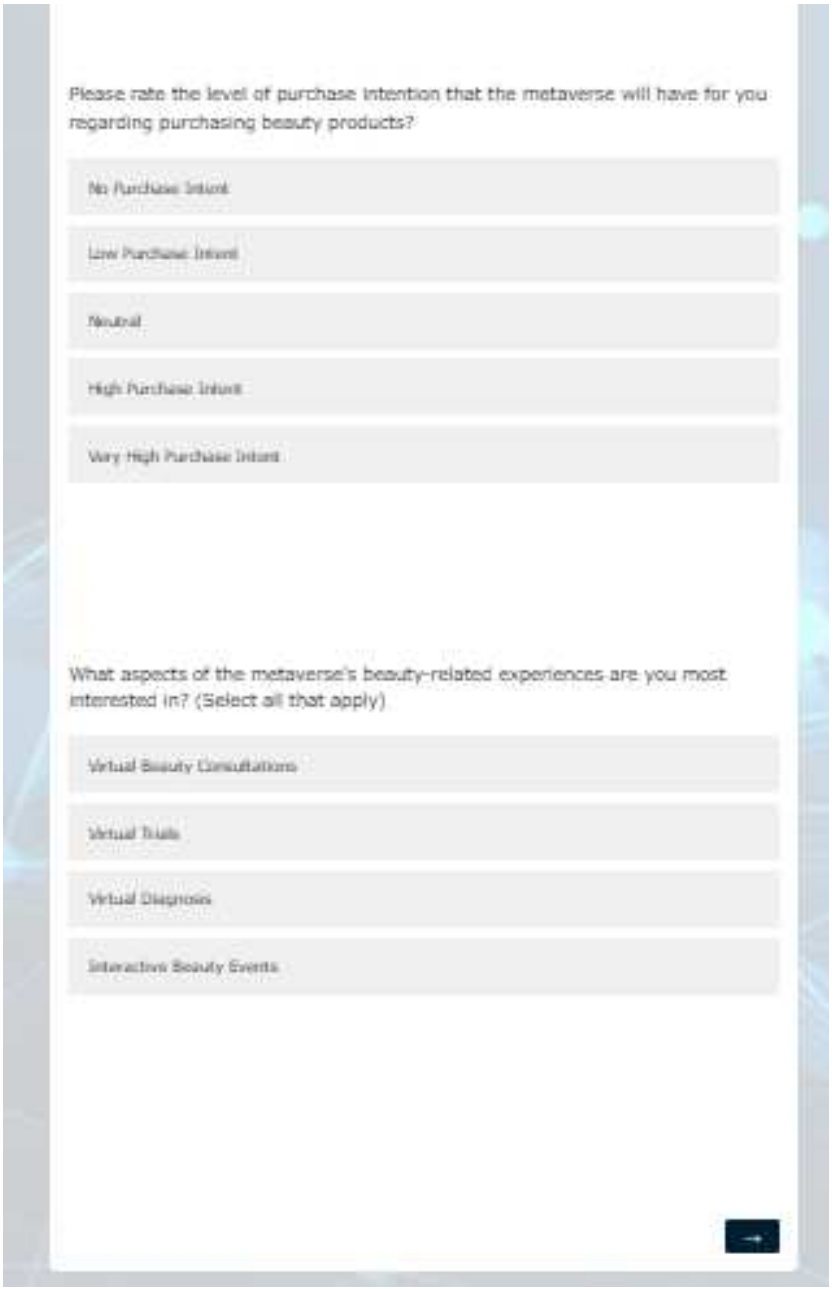
- Extremely Irrelevant
- Somewhat Irrelevant
- Neutral
- Somewhat Relevant
- Extremely Relevant

How likely are you to consider using the metaverse for beauty product exploration and shopping?

- Extremely unlikely
- Somewhat unlikely
- Neither likely nor unlikely
- Somewhat likely
- Extremely likely

Please rate the level of trust that the metaverse will have for you regarding purchasing beauty products?

- Not Trustworthy
- Slightly Not Trustworthy
- Neutral
- Slightly Trustworthy
- Highly Trustworthy


Please rate the level of purchase intention that the metaverse will have for you regarding purchasing beauty products?
No Purchase Intent
Low Purchase Intent
Neutral
High Purchase Intent
Very High Purchase Intent
What aspects of the metaverse's beauty-related experiences are you most interested in? (Select all that apply)
Virtual Beauty Consultations
Virtual Trials
Virtual Diagnosis
Interactive Beauty Events

Descriptive Statistics.

Frequency Table

How old are you?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	48	23,1	23,1	23,1
	26-35	45	21,6	21,6	44,7
	36-49	56	26,9	26,9	71,6
	> 50	59	28,4	28,4	100,0
	Total	208	100,0	100,0	

Table 2: Frequency Table - Age

What is your gender?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	95	45,7	45,7	45,7
	Female	112	53,8	53,8	99,5
	Prefer not to say	1	,5	,5	100,0
	Total	208	100,0	100,0	

Table 3: Frequency Table - Gender

What is the highest-level dehgree or level of education you have completed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than High School	8	3,8	3,8	3,8
	High school graduate or similar	82	39,4	39,4	43,3
	Bachelor's Degree	85	40,9	40,9	84,1
	Master's Degree	32	15,4	15,4	99,5
	Doctorate	1	,5	,5	100,0
	Total	208	100,0	100,0	

Table 4: Frequency Table - Education

How familiar are you with the concept of "metaverse"?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not familiar at all	61	29,3	29,3	29,3
	Slightly familiar	76	36,5	36,5	65,9
	Moderately familiar	49	23,6	23,6	89,4
	Very familiar	19	9,1	9,1	98,6
	Extremely familiar	3	1,4	1,4	100,0
	Total	208	100,0	100,0	

Table 5: Frequency Table - Familiarity with the Metaverse

How old are you? * How familiar are you with the concept of "metaverse"? Crosstabulation

			How familiar are you with the concept of "metaverse"?					
			Not familiar at all	Slightly familiar	Moderately familiar	Very familiar	Extremely familiar	Total
How old are you?	18-25	Count	7	21	17	3	0	48
		% within How old are you?	14,6%	43,8%	35,4%	6,3%	0,0%	100,0%
		% within How familiar are you with the concept of "metaverse"?	11,5%	27,6%	34,7%	15,8%	0,0%	23,1%
		% of Total	3,4%	10,1%	8,2%	1,4%	0,0%	23,1%
	26-35	Count	9	15	12	7	2	45
		% within How old are you?	20,0%	33,3%	26,7%	15,6%	4,4%	100,0%
		% within How familiar are you with the concept of "metaverse"?	14,8%	19,7%	24,5%	36,8%	66,7%	21,6%
		% of Total	4,3%	7,2%	5,8%	3,4%	1,0%	21,6%
	36-49	Count	16	23	10	6	1	56
		% within How old are you?	28,6%	41,1%	17,9%	10,7%	1,8%	100,0%
		% within How familiar are you with the concept of "metaverse"?	26,2%	30,3%	20,4%	31,6%	33,3%	26,9%
		% of Total	7,7%	11,1%	4,8%	2,9%	0,5%	26,9%
	> 50	Count	29	17	10	3	0	59
		% within How old are you?	49,2%	28,8%	16,9%	5,1%	0,0%	100,0%
		% within How familiar are you with the concept of "metaverse"?	47,5%	22,4%	20,4%	15,8%	0,0%	28,4%
		% of Total	13,9%	8,2%	4,8%	1,4%	0,0%	28,4%
Total		Count	61	76	49	19	3	208
		% within How old are you?	29,3%	36,5%	23,6%	9,1%	1,4%	100,0%
		% within How familiar are you with the concept of "metaverse"?	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%
		% of Total	29,3%	36,5%	23,6%	9,1%	1,4%	100,0%

Table 6: Crosstabulation Age x Familiarity with the Metaverse

Data RQ1.

Oneway

Descriptives

How likely are you to purchase products or digital assets within the metaverse?

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
18-25	20	3,05	1,234	,276	2,47	3,63	1	5
26-35	20	3,75	1,293	,289	3,15	4,35	1	5
36-49	17	3,47	,800	,194	3,06	3,88	2	5
> 50	13	3,69	,947	,263	3,12	4,26	2	5
Total	70	3,47	1,126	,135	3,20	3,74	1	5

Table 7: Oneway - Descriptives

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
How likely are you to purchase products or digital assets within the metaverse?	Based on Mean	1,558	3	66	,208
	Based on Median	1,156	3	66	,333
	Based on Median and with adjusted df	1,156	3	57,017	,334
	Based on trimmed mean	1,378	3	66	,257

Table 8: Oneway - Test of Homogeneity of Variances

ANOVA

How likely are you to purchase products or digital assets within the metaverse?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5,738	3	1,913	1,545	,211
Within Groups	81,705	66	1,238		
Total	87,443	69			

Table 9: ANOVA

ANOVA Effect Sizes[a,b]

		Point Estimate	95% Confidence Interval Lower	Upper
How likely are you to purchase products or digital assets within the metaverse?	Eta-squared	,066	,000	,170
	Epsilon-squared	,023	-,045	,132
	Omega-squared Fixed-effect	,023	-,045	,131
	Omega-squared Random-effect	,008	-,014	,048

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

Table 10: ANOVA Effect Sizes

Data RQ2.

What aspects of the Metaverse are you most interested in? (Select all that apply) Social Interactions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Social Interactions	34	16,3	100,0	100,0
Missing	System	174	83,7		
Total		208	100,0		

Table 11: Social Interactions

What aspects of the Metaverse are you most interested in? (Select all that apply) Virtual Events

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Virtual Events	32	15,4	100,0	100,0
Missing	System	176	84,6		
Total		208	100,0		

Table 12: Virtual Events

What aspects of the Metaverse are you most interested in? (Select all that apply) Online Shopping

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Online Shopping	30	14,4	100,0	100,0
Missing	System	178	85,6		
Total		208	100,0		

Table 13: Online Shopping

What aspects of the Metaverse are you most interested in? (Select all that apply) Educational and Learning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Educational and Learning	25	12,0	100,0	100,0
Missing	System	183	88,0		
Total		208	100,0		

Table 14: Educational and Learning

What aspects of the Metaverse are you most interested in? (Select all that apply) Virtual Work Space

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Virtual Work Space	23	11,1	100,0	100,0
Missing	System	185	88,9		
Total		208	100,0		

Table 15: Virtual Work Space

What aspects of the Metaverse are you most interested in? (Select all that apply) Virtual Economy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Virtual Economy	20	9,6	100,0	100,0
Missing	System	188	90,4		
Total		208	100,0		

Table 16: Virtual Economy

What aspects of the Metaverse are you most interested in? (Select all that apply) Gaming

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Gaming	19	9,1	100,0	100,0
Missing	System	189	90,9		
Total		208	100,0		

Table 17: Gaming

Data RQ3.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	68,993[a]	16	<,001
Likelihood Ratio	38,502	16	,001
Linear-by-Linear Association	8,803	1	,003
N of Valid Cases	70		

a. 22 cells (88,0%) have expected count less than 5. The minimum expected count is ,17.

Table 18: Chi-Square tests

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	,993	<,001
	Cramer's V	,496	<,001
N of Valid Cases		70	

Table 19: Symmetric Measures

Data RQ4.

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	,929	170,108[b]	5,000	65,000	<,001
	Wilks' Lambda	,071	170,108[b]	5,000	65,000	<,001
	Hotelling's Trace	13,085	170,108[b]	5,000	65,000	<,001
	Roy's Largest Root	13,085	170,108[b]	5,000	65,000	<,001
Q2	Pillai's Trace	,142	2,147[b]	5,000	65,000	,071
	Wilks' Lambda	,858	2,147[b]	5,000	65,000	,071
	Hotelling's Trace	,165	2,147[b]	5,000	65,000	,071
	Roy's Largest Root	,165	2,147[b]	5,000	65,000	,071

a. Design: Intercept + Q2

b. Exact statistic

Table 20: Multivariate Tests

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - FMCG (Fast Moving Consumer Goods)	4,982[a]	1	4,982	3,267	,075
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Retail	6,352[b]	1	6,352	5,540	,021
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Banking	2,214[c]	1	2,214	1,775	,187
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Telecom	1,806[d]	1	1,806	1,288	,260
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Energy	5,630[e]	1	5,630	4,213	,044
Intercept	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - FMCG (Fast Moving Consumer Goods)	892,728	1	892,728	585,438	<,001
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Retail	844,661	1	844,661	736,686	<,001
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Banking	599,848	1	599,848	480,738	<,001
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Telecom	592,888	1	592,888	414,966	<,001
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Energy	557,262	1	557,262	417,956	<,001
Q2	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - FMCG (Fast Moving Consumer Goods)	4,982	1	4,982	3,267	,075
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Retail	6,352	1	6,352	5,540	,021
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Banking	2,214	1	2,214	1,775	,187
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Telecom	1,806	1	1,806	1,288	,260
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Energy	5,630	1	5,630	4,213	,044
Error	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - FMCG (Fast Moving Consumer Goods)	105,215	69	1,525		
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Retail	79,113	69	1,147		
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Banking	86,096	69	1,248		
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Telecom	96,765	69	1,403		
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Energy	92,201	69	1,336		
Total	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - FMCG (Fast Moving Consumer Goods)	900,800	71			
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Retail	924,800	71			
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Banking	686,800	71			
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Telecom	679,800	71			
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Energy	650,800	71			
Corrected Total	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - FMCG (Fast Moving Consumer Goods)	110,197	70			
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Retail	85,465	70			
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Banking	88,310	70			
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Telecom	98,592	70			
	Please rate your likelihood to use the metaverse for transactions and purchases in the following industries. - Energy	97,831	70			

a. R Squared = ,045 (Adjusted R Squared = ,031)
b. R Squared = ,074 (Adjusted R Squared = ,061)
c. R Squared = ,026 (Adjusted R Squared = ,011)
d. R Squared = ,018 (Adjusted R Squared = ,004)
e. R Squared = ,058 (Adjusted R Squared = ,044)

Table 21: Tests of Between-Subjects Effects

Data RQ5.

Please rate the level of purchase intention that the metaverse will have for you regarding purchasing beauty products?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No Purchase Intent	5	2,4	7,0	7,0
	Low Purchase Intent	16	7,7	22,5	29,6
	Neutral	20	9,6	28,2	57,7
	High Purchase Intent	25	12,0	35,2	93,0
	Very High Purchase Intent	5	2,4	7,0	100,0
	Total	71	34,1	100,0	
Missing	System	137	65,9		
Total		208	100,0		

Table 22: Level of purchase intention

Group Statistics

	What is your gender?	N	Mean	Std. Deviation	Std. Error Mean
Please rate the level of purchase intention that the metaverse will have for you regarding purchasing beauty products?	Male	33	3,18	1,044	,182
	Female	38	3,08	1,100	,178

Table 23: Group Statistics

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Please rate the level of purchase intention that the metaverse will have for you regarding purchasing beauty products?	Equal variances assumed	,531	,469	,402	69	,344	,689	,103	,256	-,407	,613
	Equal variances not assumed			,404	68,427	,344	,688	,103	,255	-,405	,611

Table 24: Independent Samples Test

Independent Samples Effect Sizes

		Standardizer[a]	Point Estimate	95% Confidence Interval	
				Lower	Upper
Please rate the level of purchase intention that the metaverse will have for you regarding purchasing beauty products?	Cohen's d	1,075	,096	-,371	,562
	Hedges' correction	1,086	,095	-,367	,556
	Glass's delta	1,100	,094	-,374	,560

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control (i.e., the second) group.

Table 25: Independent Samples Effect Sizes

Statistics

		What aspects of the metaverse's beauty-related experiences are you most interested in? (Select all that apply) Virtual Beauty Consultations	What aspects of the metaverse's beauty-related experiences are you most interested in? (Select all that apply) Virtual Trials	What aspects of the metaverse's beauty-related experiences are you most interested in? (Select all that apply) Virtual Diagnosis	What aspects of the metaverse's beauty-related experiences are you most interested in? (Select all that apply) Interactive Beauty Events
N	Valid	13	21	18	12
	Missing	17	9	12	18
Mean		1,00	1,00	1,00	1,00
Percentiles	25	1,00	1,00	1,00	1,00
	50	1,00	1,00	1,00	1,00
	75	1,00	1,00	1,00	1,00

Table 26: Statistics

What aspects of the metaverse's beauty-related experiences are you most interested in? (Select all that apply) Virtual Beauty Consultations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Virtual Beauty Consultations	13	43,3	100,0	100,0
Missing	System	17	56,7		
Total		30	100,0		

Table 27: Virtual Beauty Consultations

What aspects of the metaverse's beauty-related experiences are you most interested in? (Select all that apply) Virtual Trials

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Virtual Trials	21	70,0	100,0	100,0
Missing	System	9	30,0		
Total		30	100,0		

Table 28: Virtual Trials

What aspects of the metaverse's beauty-related experiences are you most interested in? (Select all that apply) Virtual Diagnosis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Virtual Diagnosis	18	60,0	100,0	100,0
Missing	System	12	40,0		
Total		30	100,0		

Table 29: Virtual Diagnosis

What aspects of the metaverse's beauty-related experiences are you most interested in? (Select all that apply) Interactive Beauty Events

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Interactive Beauty Events	12	40,0	100,0	100,0
Missing	System	18	60,0		
Total		30	100,0		

Table 30: Interactive Beauty Events

References

Adiwijaya, M., McGuinness, E., Cary, J. C., & Herjanto, H. (2021). The Centrality of Brand Awareness. Petra International Journal of Business Studies, 4(2), 109-121.

Bal, M., & Ner, C. (2019). NFTracer: a Non-Fungible token tracking proof-of-concept using Hyperledger Fabric. arXiv preprint arXiv:1905.04795.

Bhattacharya, P., Verma, A., Prasad, V. K., Tanwar, S., Bhushan, B., Florea, B. C., ... & Tolba, A. (2023). Game-o-Meta: Trusted Federated Learning Scheme for P2P Gaming Metaverse beyond 5G Networks. Sensors, 23(9), 4201.

Billore, S., & Anisimova, T. (2021). Panic buying research: A systematic literature review and future research agenda. International Journal of Consumer Studies, 45(4), 777-804.

Bousba, Y., & Arya, V. (2022). Let's connect in metaverse. Brand's new destination to increase consumers' affective brand engagement & their satisfaction and advocacy. Journal of Content, Community & Communication, 15(8), 276-293.

Burke, J. (2021). Outlier Ventures Open-Metaverse OS Whitepaper.

Cheng, R., Wu, N., Varvello, M., Chen, S., & Han, B. (2022). Are we ready for metaverse? A measurement study of social virtual reality platforms. In Proceedings of the 22nd ACM Internet Measurement Conference (pp. 504-518).

Chovanová, H. H., Korshunov, A. I., & Babčanová, D. (2015). Impact of brand on consumer behavior. Procedia Economics and Finance, 34, 615–621. https://doi.org/10.1016/s2212-5671(15)01676-7

Conty, R. & Schmidt, J. (2023). *What is an NFT? How do NFTs work?*. Forbes Article. Retrieved from: What Is An NFT? How Do NFTs Work? – Forbes Advisor INDIA

Darbinyan, R. (2022). *Virtual Shopping in the Metaverse: What is it and how will AI make it work.* Forbes Articles. Retrieved from: Virtual Shopping In The Metaverse: What Is It And How Will AI Make It Work (forbes.com)

Deloitte (2023). *Digital Consumer Trends 2023.* Retrieved from: Document heading in Calibri Light green (deloitte.com)

Di Bartolo, T. (2023). *How phygital takes the Metaverse into mass adoption, and what that means for bunisess.* Forbes Article. Retrieved from: How Phygital Takes The Metaverse Into Mass Adoption, And What That Means For Businesses (forbes.com)

Di Pietro, R., & Cresci, S. (2021). Metaverse: security and privacy issues. In 2021 Third IEEE International Conference on Trust, Privacy and Security in Intelligent Systems and Applications (TPS-ISA) (pp. 281-288). IEEE.

Dong, H., & Lee, J. S. (2022). The metaverse from a multimedia communications perspective. IEEE MultiMedia, 29(4), 123-127.

EY (2022). *How meeting customers in the metaverse can unlock lasting value*. EY Article. Retrieved from: Meet customers in the metaverse to unlock lasting value (ey.com)

EY (2022). *What's possible for the gaming industry in the next dimension?* EY Article. Retrieved from: What's possible for the gaming industry in the next dimension? | EY - US

Fang, F., Ventre, C., Basios, M., Kanthan, L., Martinez-Rego, D., Wu, F., & Li, L. (2022). Cryptocurrency trading: a comprehensive survey. Financial Innovation, 8(1), 1-59.

Gadekallu, T. R., Huynh-The, T., Wang, W., Yenduri, G., Ranaweera, P., Pham, Q. V. & Liyanage, M. (2022). Blockchain for the metaverse: A review. arXiv preprint arXiv:2203.09738.

Han, E., Miller, M. R., DeVeaux, C., Jun, H., Nowak, K. L., Hancock, J. T., ... & Bailenson, J. N. (2023). People, places, and time: a large-scale, longitudinal study of transformed avatars and environmental context in group interaction in the metaverse. Journal of Computer-Mediated Communication, 28(2), zmac031.

He, T. (2022). From Single-Player Games to Metaverse: A Futuristic Analysis of Challenging Legal Issues in the Video Game Industry in China. GRUR International, 71(10), 952-966.

Hollensen, S., Kotler, P., & Opresnik, M. O. (2022). Metaverse–the new marketing universe. Journal of Business Strategy, (ahead-of-print).

Holt, D. B. (2003). Brands and branding. Boston: Harvard Business School Publishing.

Huang, J., Sun, P. & Zhang, W. (2022). An Analysis of Future Prospects of Metaverse. In How the Metaverse Will Reshape Business and Sustainability (pp. 17-25). Singapore: Springer Nature Singapore.

Huynh-The, T., Pham, Q. V., Pham, X. Q., Nguyen, T. T., Han, Z., & Kim, D. S. (2023). Artificial intelligence for the metaverse: A survey. Engineering Applications of Artificial Intelligence, 117, 105581.

Jain, R., Aagja, J., & Bagdare, S. (2017). Customer experience–a review and research agenda. *Journal of Service Theory and Practice*, *27*(3), 642-662.

Javornik, A. (2016). Augmented reality: Research agenda for studying the impact of its media characteristics on consumer behaviour. Journal of Retailing and Consumer Services, vol. 30, pp.252–261.

Jeong, H., Yi, Y., & Kim, D. (2022). An innovative e-commerce platform incorporating metaverse to live commerce. International Journal of Innovative Computing, Information and Control, 18(1), 221-229.

Kim, J. (2021). Advertising in the metaverse: Research agenda. Journal of Interactive Advertising, 21(3), 141-144.

Kim, R. Y. (2020). The impact of COVID-19 on consumers: Preparing for digital sales. IEEE Engineering Management Review, 48(3), 212-218.

Kocheilas, A (2018). *The ways customers use products have changed – but brands haven't kept up.* Harvard Business Review.

Koohang, A., Nord, J. H., Ooi, K. B., Tan, G. W. H., Al-Emran, M., Aw, E. C. X., & Wong, L. W. (2023). Shaping the metaverse into reality: a holistic multidisciplinary understanding of opportunities, challenges, and avenues for future investigation. Journal of Computer Information Systems, 63(3), 735-765.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. Journal of Marketing, 80(6), 69–96. https://doi.org/10.1509/jm.15.0420

Marr, B. (2022). *The top 5 metaverse trends in 2023*. Forbes Article. Retrieved from: The Top 5 Metaverse Trends In 2023 (forbes.com)

Märtin, C., Bissinger, B. C., & Asta, P. (2023). Optimizing the digital customer journey—Improving user experience by exploiting emotions, personas and situations for individualized user interface adaptations. Journal of consumer behaviour, 22(5), 1050-1061.

McKinsey & Co (2022). *What is the metaverse?*. McKinsey Articles. Retrieved from: What is the metaverse and where will it lead next? | McKinsey

Meunier, S. (2018) Blockchain 101: What is blockchain and how does this revolutionary technology work? In: Transforming Climate Finance and Green Investment with Blockchains. Elsevier, pp 23–34

Mileva, G. (2022) Understanding the metaverse through real-world examples, Influencer Marketing Hub. Available at: https://influencermarketinghub.com/metaverse-examples/

Mourtzis, D., Angelopoulos, J., & Panopoulos, N. (2023). Blockchain integration in the era of industrial metaverse. Applied Sciences, 13(3), 1353.

Mystakidis, S. (2022). Metaverse. Encyclopedia, 2(1), 486-497.

Nielsen (2012). Consumer trust in online, social and mobile advertising grows. Nielsen Insights. Retrieved from: https://www.nielsen.com/insights/2012/consumer-trust-in-online-social-and-mobile-advertising-grows/

Patruti, P., Zbuchea, A., & Pînzaru, F. (2023). Fashion Joining Online Gaming and the Metaverse. In Proceedings of the International Conference on Business Excellence (Vol. 17, No. 1, pp. 1065-1074).

Regner, F., Urbach, N., & Schweizer, A. (2019). NFTs in practice–non-fungible tokens as core component of a blockchain-based event ticketing application.

Scott, P., Scott, T., Stokes, P., Moore, N., Smith, S. M., Rowland, C., & Ward, T. (2017). The consumer journey in the digital age: the challenges faced by destination and place marketing agencies. International Journal of Digital Culture and Electronic Tourism, 2(1), 28-45.

Seidel, S., Berente, N., Nickerson, J., & Yepes, G. (2022). Designing the metaverse.

Sherman, W. R., & Craig, A. B. (2018). Understanding virtual reality: Interface, application, and design. Morgan Kaufmann.

Stein, A., & Ramaseshan, B. (2016). Towards the identification of customer experience touch point elements. Journal of Retailing and Customer Services, 30, 8–19.

Weber, M., & Chatzopoulos, C. G. (2019). Digital customer experience: the risk of ignoring the non-digital experience. *International Journal of Industrial Engineering and Management*, *10*(3), 201.

Yakup, D. & Sevil, Z. (2011). A TEORATİCAL APROACH TO THE CONCEPT OF BRAND. Contemporary Marketing Review (CMR). 1. 1-5.

Yalowitz, K., Lee, D., Collins, K., Gorski,S., Johnson, P. & Torres, B. (2022). *Consumer behavior in the metaverse.* Accenture Research Report. Retrieved from: Understanding Metaverse Consumer Behavior | Accenture

Xu, M., Ng, W. C., Lim, W. Y. B., Kang, J., Xiong, Z., Niyato, D. & Miao, C. (2022). A full dive into realizing the edge-enabled metaverse: Visions, enabling technologies, and challenges. *IEEE Communications Surveys & Tutorials*.

Zwanka, R. J., & Buff, C. (2021). COVID-19 generation: A conceptual framework of the consumer behavioral shifts to be caused by the COVID-19 pandemic. Journal of International Consumer Marketing, 33(1), 58-67.