



**Politecnico
di Torino**

Politecnico di Torino

Master's Degree in Engineering and Management
Academic Year 2022/2023
Graduation Session October 2023

**"The Metaverse and the Impact of NFTs
on the Luxury Fashion sector: a
comparative analysis of value
creation, brand engagement, and
consumer perceptions"**

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ABSTRACT

This thesis explores the impact of the Metaverse related projects in the luxury fashion industry, focusing on the implications of these digital assets on value creation, brand engagement, and consumer perceptions. With the development and expansion of digital technologies, luxury brands are adapting their strategies to exploit the opportunities offered by these new phenomena. Therefore, the objective of this research is to examine the current landscape analyzing the emerging trends and the implications of this innovative marriage between luxury fashion and virtual reality.

The research methodology adopted consists of a comparative study of two main cases through interviews with employees: Dolce & Gabbana and Versace. Following this, a sentiment analysis was carried out on the projects launched by Dolce&Gabbana to analyze the relative brand engagement. The findings will be useful for luxury fashion brands who wish to better understand how to adapt to these new technologies and exploit them to reach a wider and more engaged audience.

Through the analysis of the case studies and the integration of theoretical knowledge, this research aims to provide a detailed overview of the implications and opportunities offered by NFT and Metaverse in the luxury fashion industry.

Keywords: luxury, fashion industry, Metaverse, Non-Fungible Tokens (NFTs), digitalization, innovation.

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1. LITERATURE REVIEW

1.1. What is Metaverse?

Although the term "Metaverse" is now commonly associated with Mark Zuckerberg, CEO of the company formerly known as Facebook and now renamed Meta, its first use actually dates back to 1992, when author Neal Stephenson coined the term in his cyberpunk science fiction book titled *Snow Crash* (NetworkDigital360, 2022). Stephenson's Metaverse is a kind of virtual reality shared over the Internet, in which each person is represented by his avatar, and where anyone can create 3D buildings, shops, venues, and any other place that can be visited by other users. The author also addresses the theme of social differences, transferring them into this virtual world based on the different avatar resolutions, ranging from black and white avatars belonging to lower social classes, to three-dimensional ones of the wealthiest who have access to exclusive places that are inaccessible to others. Stephenson's Metaverse, therefore, as a concept shaped at a time when no one could have thought it was actually achievable, is not so far from the Metaverse that we hear about today, the new evolution of the Internet characterized by 3D virtual spaces within a new virtual universe (The State of Fashion, 2022).

To quote the words used on Facebook dedicated to the announcement of the Metaverse and the company's name change to Meta, "*The Metaverse is the next evolution of the social connection (...) The 3D spaces of the Metaverse will allow you to socialize, learn, collaborate and play in ways beyond what we can imagine*".

To further analyse what the Metaverse is, it should be considered as the result of the fusion of multiple technologies such as social media, virtual reality, and augmented reality. It can be defined as a virtual space in which people, in the form of digital representations called avatars, can interact in a variety of contexts (Statista, 2022b). Within this simulated environment, social experiences and interactions are reproduced, from concerts to business meetings, conferences, or sporting events. With 3D viewers, it will be possible to enter this world and interact realistically with one's avatar. Future developments even include the possibility of "teleporting" to another country for a meeting or hanging out with friends using holograms. While all of this is still a long way off and

certainly requires many more developments, there are already many possibilities offered by the Metaverse, and land plots and virtual objects in the form of NFTs have been sold so far.

To summarize, the Metaverse is not just a new technology, but rather the necessary result of the digital evolution process that began in the last decade of the last century, which could only conclude with a true digital extension of our physical reality. The Metaverse represents the next evolution of social connection, providing spaces where people can socialize, learn, collaborate, and play in ways beyond what we can imagine.

From a technical standpoint, the Metaverse is an open and shared three-dimensional virtual environment that can facilitate interactions with various digital services and other users through digital avatars. Another key concept in this context is non-fungible tokens, or NFTs, also known as innovative technological interventions. Based on a blockchain network, NFTs provide the opportunity to tokenize practically anything, including virtual or physical assets. NFT trends are quite significant in defining how they can revolutionize asset ownership (Howell, 2022).

The arrival of blockchain in the gaming industry has highlighted many promising value advantages, especially regarding control over asset ownership. Players would have control over the gameplay experiences they create in a blockchain-based game. Interestingly, NFTs have been one of the integral components of blockchain-based gaming, particularly for the ownership of collectibles and other assets. The play-to-earn or P2E revolution has induced large-scale transformations that can lay the foundation for the future of blockchain gaming with a good start (Howell, 2022).

The Metaverse can be considered as a result of the interaction between three types of technologies that are bringing about radical changes and are: “m-worlds”; virtual, augmented and mixed reality; virtual goods and the other enablers of Web 3.0 (BGC, 2022).

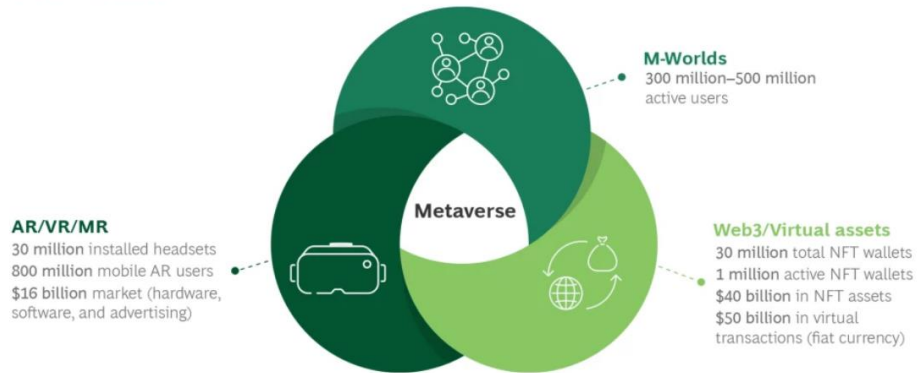


Figure 1
 “The Metaverse lies at the intersection of three technologies”
 BCG from [A Corporate’s Guide to the Metaverse | Digital Trends | BCG](#)

The “m-worlds” or metaverse worlds can be defined as immersive applications that can be accessed through browsers, VR and AR visors (a VR virtual reality visor is like a helmet, has a display with cameras and sensors, and allows the wearer to visualize a 3D environment; an AR augmented reality visor is a wearable device that superimposes a virtual layer on the real world), smartphones and have several characteristics:

- they are persistent (always accessible);
- synchronous and live (users have the possibility to live experiences in real time);
- immersive (the experiences can be highly immersive and represent a fusion of the physical and digital worlds);
- economically functional, the users have the possibility to create and sell their own digital goods.

Each world differs from the others, it has its own rules, business models and virtual communities. The best-known “m-worlds”, originated primarily as gaming platforms, have recently introduced significant new features and functionality among them:

- **The Sandbox and Decentraland.** They are virtual worlds based on the Ethereum platform, a decentralized web 3.0 platform, which has Ether as its cryptocurrency, in which NFTs allow people to own land and many other objects to customize their avatars. Their expansion in recent times is remarkable, there are many agreements with celebrities and

well-known brands that make the most of these platforms to organize events, virtual concerts and parties (BCG, 2022).

- **Roblox.** Nowadays, it is a platform where millions of people are able to enjoy immersive 3D experiences by wandering around, working, playing games, meeting other users, attending fashion shows and visiting art galleries and virtual museums (BCG, 2022).
- **Fortnite.** The popular video game launched an initiative called the *Soundwave Series* in October 2021, which hosts a series of in-game concerts by world-renowned artists. Among the most memorable shows are surely those of Ariana Grande and Travis Scott followed live by millions of people (BCG, 2022).

The trends of Metaverse: past, present and future

To talk about Metaverse trends it is necessary to refer to its potential.

Virtual concerts are a big success, especially with nearly 27 million people attending Travis Scott's virtual concert on Fortnite in 2020. The Metaverse numbers according to Bloomberg also predict that it will evolve with a market opportunity of 783.3 billion dollars by 2024 with an annual growth rate of 13.1% (Bloomberg, 2021).

With nearly 32.8 million shipments of AR and VR devices expected by 2024, adoption of the Metaverse would become smoother (Howell, 2022). In addition, major technology companies are investing huge sums of money in Metaverse development projects. All these forecasts and trends imply the possibility of a favorable basis for the growth of the Metaverse. The growth started when Facebook announced the rebranding to Meta, with the vision of developing the Metaverse. Thereafter, the rise in popularity of VR games also demonstrated the prospects of an increased public awareness.

The \$10 billion investment announced by Meta in 2021 was just the beginning, and then it has directed other huge investments towards the development of the Metaverse. Conversely, trends also focus on Microsoft's spending on Metaverse-related projects, which amount to nearly \$70 billion (for instance, Microsoft's acquisition of Activision Blizzard). In addition, it also acquired

Weta Digital for almost \$1.6 billion (Howell, 2022). The growing interest of large players and many other corporate entities in the Metaverse is a prolific indication for future developments of the Metaverse.

The future of the Metaverse will also focus on productive implications other than entertainment and relaxation. The Metaverse would offer many possibilities for collaboration in virtual workspaces. Virtual meetings are the prime example of the use cases of a Metaverse in the corporate world. Augmented reality can also play a key role in enhancing physical spaces through the rise of the Metaverse.

1.2. What are the NFTs?

Non-Fungible Tokens (NFTs) are certificates stored on blockchain, a shared and immutable electronic ledger, to verify ownership of a digital asset (Mathematics, 2022). In other words, an NFT is a unit of data, a sort of electronic record, that lives entirely in the digital world and that allows to establish the provenance of the object it represents. The storage on blockchain, in addition to certifying the authenticity of the digital object, also allows the history of the previous ownership to be traced thus making the NFT in question easily certifiable and transferable, paving the way to potentially create exchanges of assets in a variety of different markets (Kaczynski & Kominers, 2021). Non-fungible tokens are unique digital assets whose ownership is represented on a blockchain network; they are virtual tokens created to verifiably prove the authenticity and ownership of an asset, through cryptography. Each NFT is unique and unrepeatable, without the possibility of replacing it with another good. Non-fungible tokens include collectibles, digital art, gaming objects, domain names, contract ownership, and event tickets (Kaczynski & Kominers, 2021).

The technical definition of NFT depicts them as non-interchangeable units of data on a blockchain network. The representation of non-fungible tokens on a blockchain facilitates a better guarantee of security against unauthorized tampering, replication or destruction. In addition, ensuring ownership verification on a blockchain network offers extrinsic value to NFTs.

It is basically a special type of token generated through cryptographic hashing methods and leveraging blockchain technology to connect to a unique digital asset that cannot be replicated. A non-fungible token differs from important cryptocurrencies such as Monero, Ether and Bitcoin in terms of fungibility (Geroni, 2021). NFTs have unique characteristics and cannot be exchanged or replaced for identical tokens. Smart contracts within NFTs help store the unique and exclusive data that differentiates them from other tokens. NFTs are also known for their indivisibility: it is not possible to send non-fungible tokens in smaller denominations as is the case with Bitcoin. Therefore, you cannot send a portion of a particular NFT to another person (Geroni, 2021).

Consequently, non-fungible tokens play a key role in the blockchain landscape due to their uniqueness. Most importantly, they have broader significance in the context of the radical shift towards the next era of blockchain digital transformation. As businesses slowly open up to the idea

of blockchain and integrate this technology into their operations, NFTs can serve as game-changing entities (Geroni, 2021).

The Non-Fungible Token is the best example of how a token can be used to create scarcity, resulting in value creation for that token; the NFT can also be defined as "*a type of token that creates digital scarcity and can be verified without any centralized organization to authenticate it*" (101Blockchains, 2021). As Carlo Moltrasio, senior manager of the consulting firm Bain & Company, says, "*NFTs are perhaps the closest concept to the common understanding of luxury. Luxury in fashion is also based on scarcity, just as it happens with NFTs*" (La Repubblica, 2021). One can also describe the Non-Fungible Token as a type of token that creates digital scarcity and can be verified without any centralized organization to authenticate it.

In recent months, NFTs have been used a lot for this purpose. Many people create digital art or other digital objects, often nothing but useless objects, and tokenize them using NFTs to create value. However, there is a more productive use of NFTs that is becoming popular and is expected to become mainstream in the near future. It is about the tokenization of valuable physical and virtual assets, such as artworks and memorabilia, turning them into tokenized securities, thus creating a new investment opportunity. In a nutshell, by tokenizing tangible assets, investors can have more liquidity (101Blockchains, 2021).

1.3. History of NFTs

Wanting to retrace the steps that led to the success of these digital certificates, it is May 3, 2014, that marks the beginning of a fundamental change. In the conference room of the New Museum in New York, Anil Dash, entrepreneur and technologist, and Kevin McCoy, digital artist, exhibit their new project: "monetized graphics", an attempt to monetize digital art, which has always been considered worthless due to its lack of physicality (Nftnow, 2023). Thus, they present Quantum, the first NFT in history, a pixelated image of an octagon filled with concentric circles with fluorescent hues that pulsate hypnotically. Some snapshots are shown below in Figure 2:

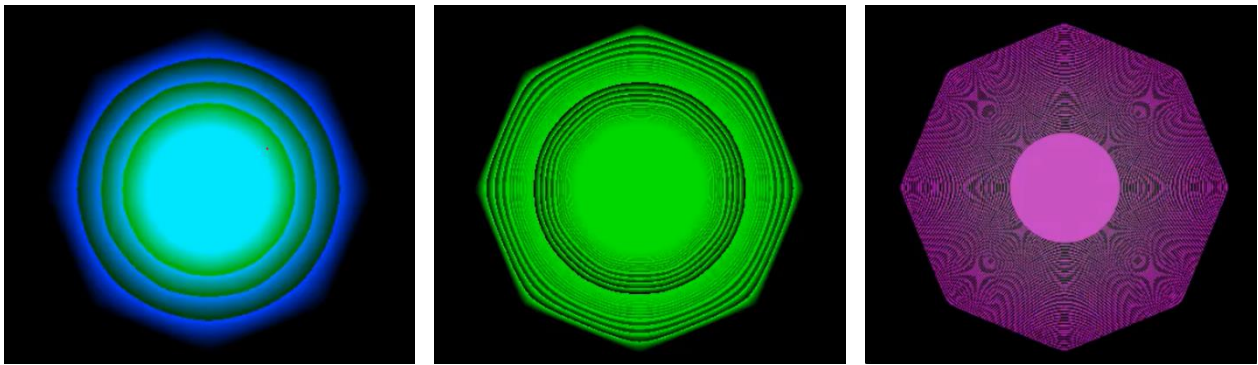


Figure 2
"Quantum" by Kevin McCoy
Sotheby's from [Quantum](#) | [Natively Digital: A Curated NFT Sale](#) | 2021 | [Sotheby's \(sothebys.com\)](#)

However, the world took notice of Non-Fungible Tokens in 2017. During this period of time, many unique collections of NFTs have emerged on the foundation of the Ethereum blockchain. Difficulties in trading NFTs and transferring ownership with previous blockchain networks had held back the expansion of NFTs. The Ethereum blockchain has offered a credible solution to the problems of NFTs, allowing for the creation, programming, storage and trading of tokens. As a result, Ethereum has enabled easier onboarding and lower barriers to entry for NFTs (Howell, 2023).

In 2020, partly due to the pandemic that accelerated digital content creation activities, the NFT market began to grow considerably, until it exploded in 2021. The COVID-19 pandemic, and the consequent restrictive lockdown measures, invited more people to connect with NFT communities on Twitter and other platforms where NFTs had gained significant dominance. The growth in NFT

sales that began in 2020 suddenly surged in the summer of 2021, growing 21,000% year-on-year, reaching a total turnover of \$17 billion in 2021 (Stentella, 2022). An important moment in the history of NFTs is represented by the digital artist Beeple, who sold the NFT “Everyday: The First 5000 Days” (Figure 3) at auction for \$69 million. Beeple was also the first digital creator to partner with a major auction house to sell NFTs. The remarkable value of Beeple's digital art has stimulated curiosity about non-fungible tokens (Bloomberg, 2021).

The history of non-fungible tokens also includes several other high-value NFT sales following the \$69 million sale by Beeple. For example, Edward Snowden created an NFT, “Stay Free”, and sold it for \$5 million. Subsequently, an NFT of the CryptoPunks was sold at auction for approximately \$11 million. Another top-selling NFT in 2021 was XCopy's "Right-click and Save As Guy," which fetched \$7 million. Digital art and collectibles have played a huge role in driving the popularity of NFTs in 2021 (Howell, 2023).

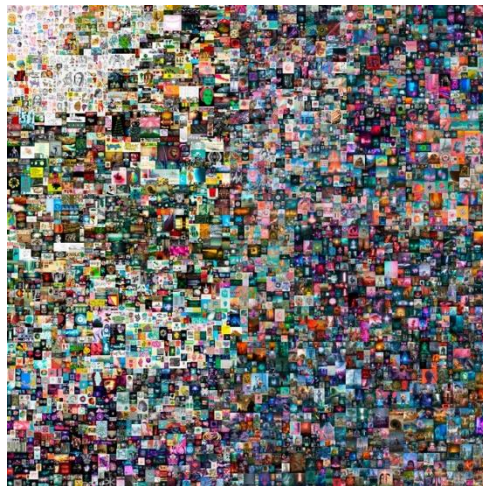


Figure 3
“Everyday: The First 5000 Days” by Beeple
The Verge from [Beeple sold an NFT for \\$69 million - The Verge](#)

Moreover, many new applications of NFTs have gained momentum in this area to draw attention to this topic. For instance, the short history of non-fungible tokens highlights popular NFT-based virtual worlds like Decentraland or NFT-based blockchain games like Axie Infinity. Another noteworthy aspect in the story of non-fungible tokens is the association of big brands with NFTs. Many well-known companies want to launch NFT projects to adapt to web3 technology and new trends. Among the most notable examples of large companies involved are Taco Bell and Coca-

Cola. Additionally, other popular brands such as Adidas, Nike, Gucci, Louis Vuitton, and Hot Wheels have shown active interest in non-fungible tokens (Howell, 2023).

1.4. NFTs' impact in the fashion industry

Probably the most disruptive trend in the field analysed in this thesis is that of the digital revolution. The pandemic has certainly had a decisive influence on the rapid adoption of digital technologies aimed at providing a valid alternative to the closure of physical stores. Just think of the countless fashion shows held in live streaming or the events organized in virtual format. In the past, the luxury sector has often been reluctant to adopt technological alternatives, considering them a sign of an excessive diffusion of the brand and potentially harmful to the image of exclusivity reserved for luxury fashion. In recent years, however, this concept has been almost abandoned, as demonstrated by the growth of brands' online presence and the greater portion of sales deriving from the digital channel. As shown in the graph below, taking into consideration the data updated to June 2023 of the G20, a group which includes the most industrialized countries and which represent 90% of world GDP, the percentage of revenues in the Luxury Fashion sector attributable to the online sales channel has grown by around 53% from 2019 to 2022, and is set to increase in the future.

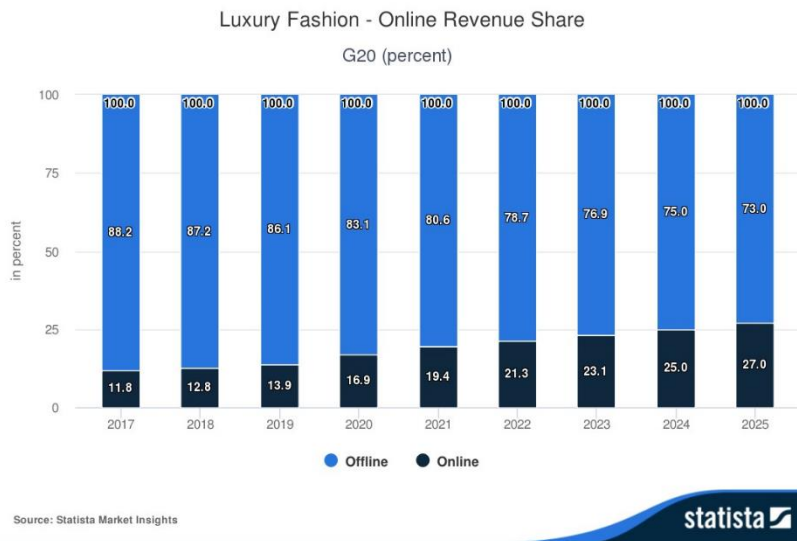


Figure 4
Luxury Fashion online revenue share - G20
Statista from [Luxury Fashion - G20](#) | [Statista Market Forecast \(escpeurope.eu\)](#)

The ongoing digital revolution, however, does not intend to undermine the aura of prestige, history and tradition that surrounds luxury fashion; but, on the contrary, to provide an additional tool

which, in a manner consistent with the history of the brand, can create unique value-added experiences, better respond to customer expectations and strengthen the image and identity of the brand. All brands that manage to make the most of the new opportunities offered by technology will be able to offer their customers unique experiences and personalized services, in other words something exclusive, exactly what consumers are looking for in a luxury brand.

Fashion Brands' approaches towards NFTs

Having realized the potential of NFTs, their use has rapidly extended from gaming to art to finally involve numerous other sectors, including the luxury fashion one, benefiting both end-users, who are always looking for new shopping experiences and creative innovations, and the brands themselves, which have involved the segment of technology enthusiasts and have extended their commercial dominance by penetrating not only virtual fashion but also collaborating with the world of art, cinema and video games. The range of solutions that can be implemented using NFTs is extremely wide. First of all, many companies are exploiting the excitement surrounding NFTs to attract public attention and increase engagement. On the other hand, as the countless articles about the latest ideas of the brands on the subject of Non-Fungible Tokens demonstrate, each new initiative attracts public opinion and in turn stimulates new projects, giving life to a creative spiral capable of feeding itself and evolving.

Among the many initiatives of the Fashion Luxury brands that focus on NFTs, Louis Vuitton for its 200th anniversary launched the video game "*Louis: The Game*", which follows the story of Vivienne, the brand's mascot, retracing in a fantasy key the story of the founder of the brand and his journey to Paris, including 30 NFTs that players will be able to collect during the game (The State of Fashion, 2022). In addition to being used purely for marketing purposes, NFTs can also serve as *product passports*, digital certificates that can guarantee the authenticity of virtual items, in an effort to increase transparency by storing and sharing product information with consumers and partners (Sup de Luxe, 2021). Such passports, which are a particularly useful tool in the fight against counterfeiting, have the potential to allow companies to differentiate themselves and at the same time strengthen customer trust, but to work on a large scale they obviously require the joint commitment of brands and the adherence to common standards. The use of NFTs as digital certificates also has the potential to keep a precise history of the holders who have had ownership

of a given asset and configure mechanisms that attribute a precise royalty to brands whenever the product in question is traded in the secondary market extending the company's control over the asset even after the sale. While it is true that NFTs can constitute passports of digital products, it is also true that they can themselves constitute collectible products. Indeed, one of the first steps taken by brands in this area was precisely to launch their own digital collections in the form of Non-Fungible Tokens, and there is no lack of indications that digital fashion can generate significant revenue, as demonstrated by the “*Genesis*” digital collection NFT-based by Dolce&Gabbana made up of 9 pieces that raised the equivalent of over \$6 million at auction (The State of Fashion, 2022). Wanting to mention the first brand that appeared on the scene of this market consisting of clothes and accessories that exist only as digital files but are sold at haute couture prices, The Fabricant, a digital fashion company, sold in 2019 for \$9,500, “*Iridescence*” (Figure 5), the first entirely digital dress on the blockchain: an iridescent digital dress worn on silver pants (Financial Times, 2021).



Figure 5
“*Iridescence*” by The Fabricant
The Fabricant from [Iridescence / The Fabricant](#)

More recently in January 2020, Chris Le, a 32-year-old Salt Lake City entrepreneur, founded his startup RTFKT Studios, which immediately received huge investments, and during the pandemic he worked with his collaborators to develop virtual sneakers to be exchanged through NFTs (Utah Business, 2021). It was October when, after only a few months, he sold his first virtual shoes for \$90,000, setting a record for the highest paying digital fashion item (Utah Business, 2021). In April of the following year, he collaborated with the 18-year-old artist Fewocious for the creation not of

a single piece, but a real collection of cyber sneakers, a total of 621 pairs of shoes sold out in just seven minutes and which earned the company about 3.1 million dollars (Financial Times, 2021). Even though limiting the potential of NFTs to simple means of representation of virtual clothes or accessories, however profitable, could lead companies to neglect a more important change. Indeed, NFTs could represent the main contact point of the company in the future digital relationship between brands and consumers, identifying not only digital assets but also real e own unique experiences. By exploiting the underlying technology it is possible to create digital identifiers that can be encoded in an NFT that can describe the journey of the real-world shopping experiences by translating them into the digital world, thus creating innovative possibilities of interaction between brands and consumers and extending, in the wake of the social media philosophy, the opportunity of show the real life in digital and virtual environments and spaces (Sundararajan, 2022).

The new luxury channel: NFTs

The previous paragraph, examining the approach of luxury fashion to the world of NFTs and the functionalities that these can offer, aimed to make an initial analysis of how NFTs can be qualified as a marketing tool as well as a direct means for translating the digital experience into profit. Having exhausted an initial examination of this aspect, this paragraph instead proposes to explore another aspect of the research in question: analyzing whether and how NFTs can configure a new conception of luxury at the time of the Digital Revolution. Although NFTs are complex and recently developed, they have good potential for introducing a new luxury into the fashion market and, according to Forbes, brands would do well to develop strategies that embrace this new digital frontier (Forbes, 2021). NFTs, in particular, activate three essential levers of luxury: authenticity, exclusivity and the ability to offer unique experiences (Sup de Luxe, 2021).

Starting from the concept of authenticity, it is important to consider that one of the aspects luxury fashion cares most about is precisely the high quality of its products, on which the brand image is based. The phenomenon of counterfeiting represents a serious threat to luxury brands, which in this way lose control over the quality of counterfeit goods traded on the secondary market, with serious risks for the perception of the brand. NFTs, on the contrary, with their functionality as product passports, have the potential to act as certificates of authenticity capable of extending the value of the physical product by reinforcing its uniqueness (Sup de Luxe, 2021). Thanks to NFTs,

therefore, buyers can acquire an irrefutable title that guarantees the real provenance of the product and facilitates its eventual resale. An example of this functionality is offered by the LVMH group which, together with the Richemont group, has developed the first international luxury blockchain: Aura Blockchain Consortium, which verifies the authenticity of the products by tracing their origin from the raw materials procurement phase, up to at the point of sale (Sup de Luxe, 2021).

Virtual fashion and the digital wardrobe

The first point of contact between Metaverse and the world of Fashion Luxury was through gaming, which proved to be fundamental for the progressive launch of the digital experiences that the new virtual world promises. Having increasingly become an extension of the real world, gaming has involved numerous fashion brands mainly through collaborations with gaming platforms aimed at designing digital fashion assets. The opportunities offered by the gaming world are many: to engage younger consumers, to attract segments that would not interact with the brand in physical format and to take advantage of the monetization of digital assets, testing the waters before more solid investments in the launch of virtual goods (The State of Fashion, 2022). Ralph Lauren, for example, has started a collaboration with the simulation app Zepeto in order to create a real virtual collection made up of 50 unique pieces with which users will be able to dress and accessorize their avatars in the virtual world of the platform and also launching interactive digital spaces inspired by the style and spirit of the brand, allowing consumers to interact with the brand in a new, interactive and engaging way (The State of Fashion, 2022). This first phase of the development of the Metaverse and of virtual fashion is therefore marked by what is defined as digital clothing, the digital fashion with which to dress one's avatars: a first starting point towards the advent of meta-fashion. Indeed, we need to consider that, despite virtual reality, younger consumers will spend more and more time interacting online and will obviously want to take care of the appearance of their avatars. Thanks to digital clothing, NFTs of sneakers or exclusive clothes are turning into truly unique garments to be used to dress your digital characters and interact within the various platforms, giving life to what is about to be the fashion of the future. According to a survey conducted by Altiant Luxury Opinions on a sample of US consumers representative of the age group ranging from Gen-Z to Gen-X, the digital garments worn by one's avatar have the same weight as the appearance of the avatar itself in the definition of individual one's digital identity (Lee, 2021). Innovation and experimentation in new virtual worlds therefore now seem to be

essential steps to be taken in order to engage the next generations of consumers. Virtual fashion isn't limited to avatars, however. In fact, the Metaverse aims to offer the possibility of wearing virtual clothes during, for example, meetings on Zoom or for a photo to be posted on social media, allowing people to show themselves online with clothes that have potentially never been touched in real life. There are many brands that are already ahead with their virtual strategy, and Dolce & Gabbana is one of them. Composed of 9 unique pieces that link together the real world and the Metaverse, Dolce & Gabbana's virtual "*Genesi*" collection was sold for around 1,886 ETH, corresponding to approximately six million dollars (Statista, 2022a).

It is a market that is now booming, so much so that Bloomberg has estimated that by 2024 the turnover in the Metaverse could reach 800 billion, also underlining how fashion brands are already on the right track for the creation of collections of garments that could in the future to be even more digital than real (Il Sole 24 Ore, 2022). On the other hand, in an era in which we spend more and more time interacting, working and experiencing online through digital representations of ourselves, virtual fashion is only a necessary consequence, and a demonstration of this was with the Decentraland Fashion Week. The Decentraland Metaverse, a platform on which both brands and individual users have long been buying digital spaces to host exhibitions, fashion shows or events, hosted its first Metaverse Fashion Week from 24 to 27 March 2022, which saw the participation of countless fashion brands and thousands of visitors (Vogue Business, 2022). It was a real global coverage event, a week of fashion shows, events, showrooms and virtual parties where someone could interact with the brand and other users, have fun and see the new relationship between fashion and Web 3.0 up close. Most of the events were free to access, with the exception of some brands which reserved front row seats at the fashion shows or access to private parties for those who already owned the brand's NFTs, in the full spirit of luxury exclusivity. During the fashion shows, virtual avatars showed off the new digital collections of the brands in the form of NFTs, simultaneously offering the public the opportunity to purchase the garments, in some cases even with the possibility of redeeming the digital product in physical form (Vogue Business, 2022). Compared to digital events which, especially during the pandemic, were conceived more as an alternative to physical events, Decentraland fashion week has a bigger goal: to position itself as a potential future destination of the official Fashion Week, because, as Tommy Hilfiger CEO Martijn Hagman states, brands are increasingly committed to being where their consumers are and meeting them on their terms (Forbes, 2022).

What is certain is that in a virtual world like the Metaverse, in which everyone expresses their identity with their own avatar, fashion cannot fail to be taken into consideration, becoming from a digital point of view what it has always been for the real world: a tool of individual expression and differentiation.

1.5. Brand awareness in the Metaverse

The seven rules of the Metaverse

This new digital reality, called Metaverse, is arousing strangeness, curiosity and confusion at the same time, as it is usually the case with any kind of novelty. There are many different ideas, some related to practice and others to actual reality. Explanations and guidelines are needed to avoid further confusion and to build a Metaverse that means maximum profit by involving the maximum number of people. This section sets out the seven rules involving the Metaverse, which are also the basis for evaluating its progress, and as a consequence the line of adoption (Parisi, 2021).

Rule No. 1: There is only one Metaverse. The Metaverse is a unique phenomenon. Links (also known as “portals”) encompass different environments, but users can move from a particular location in one environment to a particular location in another. This means that it is not necessary to leave the app of one brand and launch the app of another to reach a destination.

Rule No. 2: the Metaverse is for everyone. The Metaverse system must consider the different possible use cases and the personality of the user it is designed for. Virtual presence is not a requirement or defining characteristic. Users may or may not have an avatar to interact with within the Metaverse. It is not necessary that all use cases exist or materialise. Virtual environments are the main type of experience in the Metaverse, but are not prerequisites or defining characteristics. It integrates simple 3D objects with all types of media.

Rule No. 3: Nobody controls the Metaverse. Unlike Second Life, an early virtual world introduced in 2003, the Metaverse is not hosted by a single entity. However, full decentralization is unlikely. Large technology companies claim to already dominate. According to Forrester, 47% of online adults in the US associate Meta (formerly Facebook, Inc.) with the Metaverse. (Forrester, 2021)

Rule No. 4: The Metaverse is open. Open and interoperable technology is scalable. Closed systems and proprietary technologies have inherent limitations in scalability, while offering short-term advantages. Interoperable products allow more flexible combinations that can meet more needs. An open ecosystem of software and hardware offers a great opportunity for creators and

consumers. This great opportunity translates into more variable content, more success for creators and more opportunities for platform and tool providers, thus enabling a virtuous cycle.

Rule No. 5: The Metaverse is hardware independent. The Metaverse is characterized by spatially organized and mostly real-time 3D content. In order to make this content accessible to everyone, it must be able to be displayed on as much hardware as possible, including the devices one already owns. Content in the Metaverse can be 3D, but the display technology does not have to be 3D. It is not necessary to own a VR headset or smart glasses to experience the Metaverse.

Rule No. 6: The Metaverse is a network. Technically, the Metaverse is a computer network that provides and visualizes digital information. Its strength and novelty are the ability to present this information to users in the form of 3D spaces, objects and texts to facilitate communication in a variety of applications.

Rule No. 7: The Metaverse is the Internet. It is enhanced and updated to provide coherent 3D content, spatially organized information and experiences, and real-time synchronized communications. In contrast, the Internet is not yet a Metaverse. Today's Internet is slowly approaching its potential and will form the basis of tomorrow's Metaverse.

Consumer Metaverse adoption

Once the rules on which the Metaverse is based have been defined, it is necessary to understand how consumers switch to being adopters of the Metaverse. Forrester has developed a model on how consumers immersed in virtual reality are willing to switch to the Metaverse, becoming the ones who are said to be “forerunners” (Forrester, 2021).

As the basis of the concept, it is crucial to state some assumptions of the model. The first assumption concerns the fact that gaming and entertainment are the obvious launching point of the Metaverse. In immersive gaming platforms such as Fortnite and Roblox, users can create and customize their own avatars, attend virtual concerts and meet friends. Moreover, the social media world is investing heavily in immersive technology.

Gathering data from Forrester's November 2021 Consumer Energy Index and Retail Pulse Survey, Forrester identified four groups of adult online consumers to identify which group is most willing

to enter the Metaverse. As shown in Table 1, the segments classified are *Digital Immersive*, *Digital Socialites*, *Digital Commoners* and *Digital Disconnected*. Of these, only Digital Immersives and Digital Socialites are considered the most likely early adopters of the Metaverse.

As for *Digital Immersive*, according to Forrester's analysis, 22% of online adults in the US and the UK show intense gaming and social media behavior, which is predicted to lead to the early adoption of the Metaverse. Not only do they enjoy living online, but they also create a personalized social presence. Half of this group stated that they use VR headsets and 15% have purchased haptic rings to enhance their experience. Regarding life attitudes, 55% answered that brands help them show their personality to others.

Digital Socialites love multiplayer online games and immersive experiences, but not to the same level of adoption and strength as the Digital Immersive segment. For instance, only 13% of this segment uses VR headsets “very often”. However, they do care about their social presence: 26% often use AR filters on social media, 27% personalize their social media profile with customized banners and cover photos, and 22% use creative tools to make their content stand out. Identity, creation and customisation are important beliefs of the Metaverse.

This analysis shows that the likely adopters of the Metaverse are those who already take care of their presence in the gaming and social worlds. However, the percentages are considerable and in the *Digital Immersive* segment more than a half consider brands linked to their image as a way of expression, while in the *Digital Socialites* segment 22%, thus still a not insignificant percentage, make the same observation.


				
Gaming behaviors (do this often)	Digital Immersives (22%)	Digital Socialites (25%)	Digital Commoners (27%)	Digital Disconnected (26%)
Play multiplayer games	58%	24%	3%	2%
Use a VR headset	49%	13%	0%	0%
Use Discord to communicate with friends	56%	13%	3%	2%
Gaming behaviors (have ever done)				
Built or earned digital assets/gear that I have sold	24%	11%	4%	0%
Purchased digital assets/gear to decorate a virtual room/office	12%	8%	3%	1%
Purchased digital assets/gear to enhance my abilities in a game	23%	11%	4%	1%
Earned money through affiliate programs for creators	31%	16%	4%	2%
Set up a dedicated room in my home to play virtual reality or multiplayer games	16%	11%	2%	1%
Purchased gaming-specific furniture	26%	9%	4%	1%
Purchased a Valve headset	6%	3%	0%	0%
Purchased an Oculus headset	20%	9%	2%	1%
Purchased haptic rigs and gear	15%	5%	2%	1%
Digital behaviors (do this often)				
Use augmented reality filters/lenses on social media	51%	26%	2%	2%
Buy digital products	51%	15%	0%	0%
Social media behaviors and attitudes (agree, strongly agree)				
I frequently change my profile picture	79%	20%	20%	0%
I enjoy personalizing my profile with a custom banner image/cover photo	85%	27%	29%	0%
I like to use my app's creative tools make my content stand out	88%	22%	15%	0%
Life attitudes				
Coronavirus will have a positive long-term impact on the quality of my life	24%	11%	5%	5%
Life attitudes (describes me)				
I like to try new thing for fun	64%	39%	39%	30%
I prefer exploring new places rather than staying home	56%	32%	36%	34%
Brands help me show others who I am	55%	22%	18%	9%
Life attitudes (agree, strongly agree)				
I plan to change my job in the next six months	53%	24%	15%	11%

Table 1
Forrester's November 2021 Consumer Energy Index and Retail Pulse Survey

Brand Communication in the Metaverse

In the next five years, according to KPMG, 70% of brands will be present in the Metaverse, so it is important to have an appropriate strategy to define one's presence in this new reality (KPMG, 2022). In particular, in order to prepare a company to enter the Metaverse and create value, it is primarily necessary to establish the objectives one intends to achieve, such as building a brand community. Subsequently, it is possible to start acting by defining the first immersive experiences proposed by the brand, exploring the opportunities offered by NFTs and then digitalising products, entering virtual cities in which to create one's own environments such as, for example, one's own store; of fundamental importance for increasing brand awareness is the organization of events, concerts, fashion shows and charity auctions.

At this early and experimental stage, it is fundamental to monitor short-term results and learn more about users by examining their behavior on different platforms. At this point, all that remains is to identify the right talents, equip oneself with the necessary technological infrastructure and tools, and integrate the Metaverse into the corporate strategy by adapting the business model. It is not only the way of interacting with the customer that will be revolutionized, but also all the operational and communication processes that take place within the company, as for instance the new ways of recruiting or learning and developing personnel and the new professional figures to be hired.

The Metaverse as stated above redefines business models and provides new ways of communication between the brand and consumers and also new worlds for branding. It represents a true showcase for a brand with a thousand potentials, corresponding to current corporate social profiles, for which it is necessary to establish its presence now and consolidate it over time. The immersive experiences that characterize the Metaverse allow for a direct emotional connection between the brand and the consumer, these in turn must be authentic and fully engage the senses in order to increase customer loyalty and boost brand advocacy. It is possible to imagine the profound transformation that brand storytelling will undergo, the user will go from being a mere spectator and reader of what is shared and made available on a website or social network to experiencing the brand up close in a new virtual space. Advertising, which has already been experimented in recent years on the most popular gaming platforms, will also be revolutionized.

According to a study conducted by Bidstack (Bidstack, 2023), the market for advertisements within this type of platforms is well established and continues growing, with 95% of players feeling a sense of greater realism thanks to ads. Most experts believe that advertising in the Metaverse will be increasingly immersive and non-invasive for users, there will be, for example, billboards in the virtual world, more and more product placement exploiting the communicative power of the new generation of virtual influencers.

In general, there is a shift from what was known in the context of Web 2.0 as interactive advertising, which involved feedback from the target audience, to increasingly behavioral advertising, which involves advertising messages in line with the user's interests and needs. By 2030, the advertising market in the Metaverse is expected to reach \$200 billion (McKinsey, 2022). With the correct strategy, it will therefore be possible to increase brand awareness, strengthen the brand identity by focusing on the experiential and emotional factor and establish an ever stronger connection with the target audience through the organization of unique events. Experiential value is fundamental in this new context "People don't buy products and services, they buy relationships, stories and magic" and this will be the starting point of the content marketing strategy (McKinsey, 2022). Experience and content shared between virtual players will be the basis of the co-creation process of shared value. Digital immersion ensures socialization, stimulates the five senses and causes the brand and its characteristics to be memorized in a very spontaneous way. Communities, made up of people represented by avatars, discussing and exchanging information with each other via the network, will play a major role in monitoring sentiment towards the brand and the marketing campaigns implemented and will enable the sharing of user experiences and the sponsoring of products and services.

As mentioned above, a brand that wants to have a monetarily relevant presence on the Metaverse must have a well-defined strategy, below I have listed a few key points that I was able to find during the research and interviews for my thesis:

1. Understand the Metaverse: First of all, it is important that the brand understands what the Metaverse is, the specific platforms on which it intends to create a presence and how they work.

2. Define objectives: The brand must clearly establish the goals it intends to achieve in the Metaverse. These goals may include increasing brand awareness, interacting with the audience, selling virtual products or even creating unique experiences.
3. Create a virtual identity: The brand should create a recognisable virtual presence within the Metaverse. This could be an avatar, a virtual structure or a place where the brand can interact with users.
4. Develop unique content and experiences: Once a brand has acquired a virtual space, it can start developing unique content and experiences. These can include virtual events, interactive games, virtual exhibitions or anything else that is relevant to its audience.
5. Promote and engage: The brand should actively promote its presence in the Metaverse through traditional marketing channels as well as through the specific channels of virtual platforms. It should also actively engage with the audience within the Metaverse to create a deeper connection.
6. Monitor and adapt: The Metaverse is an evolving environment, so the brand should constantly monitor trends and adapt its presence accordingly. This could include updating content, participating in virtual events or exploring new emerging platforms.
7. Measure results: Finally, the brand should establish clear metrics to measure the effectiveness of its presence in the Metaverse. This could include monitoring audience engagement, conversions or sales generated by activities in the Metaverse.

Brand awareness KPIs

The metrics used by brands to measure their results are confidential information, and therefore cannot be shared with outsiders. For this reason, the answers received in the interviews in the next chapters have been stripped of confidential numerical values. However, the KPIs most commonly used to measure performance in the Metaverse have been disclosed to me:

Return on investment (ROI): Calculate the ROI by comparing the costs associated with the presence in the Metaverse with the benefits obtained. These benefits can be direct (increased sales) or indirect (improved brand awareness).

Audience engagement: Monitoring audience engagement is crucial. This can include the number of users visiting the brand's virtual space, the time spent inside, the number of interactions (chats, likes, shares, etc.) and user feedback.

Conversions and sales: If the main brand objectives are to generate sales or transactions in the Metaverse, it needs to carefully monitor conversions.

Event participation: If the brand organizes virtual events, it can measure effectiveness through the number of participants, engagement during the event (questions, interactions) and post-event feedback.

Community engagement: Communities in the Metaverse can be critical to success. It is necessary to monitor the membership, involvement and feedback of virtual communities linked to the brand.

Demographic data analysis: Collecting demographic data on Metaverse users to better understand the target audience can help tailor activities and improve communication effectiveness.

Benchmarking: Compare metrics and trends with those of competitors or similar brands in the Metaverse in order to know how the brand is positioned in relation to others and if necessary implement a repositioning strategy.

Return rates and loyalty: Assess whether users regularly return to the brand's virtual space and whether they become loyal. A high return rate and loyalty are indicators of an effective presence in the Metaverse.

Sentiment Analysis: Use sentiment analysis tools to monitor how users perceive the brand in the Metaverse. This can help identify and respond to negative or problematic comments.

Adaptation and Optimisation: Based on the data collected, make changes and optimisations to the brand's presence in the Metaverse. It is crucial to keep up-to-date, test new strategies and observe how they affect key metrics.

2. RESEARCH QUESTION

The concept of the Metaverse represents as yet unexplored and little-known territory. It is a new reality that deviates considerably from the world we know. NFTs (non-fungible tokens) are a product of this emerging reality, where virtual objects can be purchased using currency, while being intangible. It is as if someone invests a considerable amount of money to purchase something they can only benefit from within a virtual environment or video game.

Given the novelty and radical nature of this reality, much of the population still manifests widespread scepticism towards the Metaverse and its implications. However, despite the common adverse view, some artists and fashion brands have taken the path towards virtual reality, investing in and approaching this new type of product.

This thesis aims to analyse the implications of investing in projects related to the Metaverse by a fashion brand in the luxury sector. Through the analysis and comparison of two case studies, Dolce & Gabbana, the first fashion brand to approach the Metaverse, and Versace, a brand that to date does not publicly have any project related to this virtual reality, I wanted to answer this question, trying to understand the added value that the presence of a brand in the Metaverse can bring in terms of brand engagement and consumer perception.

Through this analysis, this paper seeks to offer a better understanding of the opportunities, challenges and potential outcomes associated with the integration of Metaverse in the luxury industry. The various ways in which a luxury fashion brand can exploit the Metaverse, e.g. through NFT collections or events organised within this virtual context, are explored. The effects that such a presence can have on consumers' engagement with the brand and their perception of the brand itself are also analysed.

3. METHODOLOGY

Given the substantial lack of research material and quantitative data in this recently developed field of study, I decided to primarily use a qualitative research methodology that would allow for the comparison of data from different sources and the consistent development of theoretical frameworks useful for answering the research question. In particular, the multiple case study methodology was chosen, specifically a comparative analysis of two case studies, a research methodology that is appropriate for the description of new and emerging phenomena, through two interviews with influential people working in the chosen brands. The people I interviewed are Angela, Global CRM and Innovation Manager of Dolce & Gabbana, and a person from the marketing division of Versace. The choice of two case studies makes it possible to develop a more in-depth understanding of the phenomena than a single case could provide, giving overall greater rigour to the study of the phenomenon analysed. The selection of the brands to analyse was based on the fact that Dolce & Gabbana was among the first brands to enter this new world hovering between the real and the virtual, and Versace, a brand that is still foreign to the Metaverse but in the process of entering this new reality; these two brands constitute an ideal basis for a comparative analysis.

On the other hand, a quantitative research methodology has been used through the application of the sentiment analysis methodology, in order to assess the actual involvement of users in Dolce&Gabbana's Metaverse projects mentioned during the interview. This process involved an in-depth analysis of the Brand's presence, with the aim of determining whether it adds value to the brand or not.

The first research phase was based on the collection of a variety of data, including archive data, information found on company websites and additional authoritative sites, videos and images. The information obtained in this first phase was used to structure the analysis, relying on the theoretical concepts described in the first chapters and taken up in the analysis of the case studies to support the empirical findings. On the basis of the documentary information gathered and, subsequently, the material found during the interviews, the sentiment analysis was then carried out to concretely examine the Dolce&Gabbana case study, supporting the verbal information and, in a final instance, allowing the development of the consequent final considerations.

Dolce & Gabbana interview's questions

Digital presence and propensity for innovation

1. How far does Dolce&Gabbana lean towards digital?
 - Is it implementing an omnichannel approach?
 - What are the main sales channels today?
 - Do they differ from the sales channels commonly used pre Covid?
2. What is the Brand's strategic orientation towards innovation?
 - Is Dolce&Gabbana working on medium-long term projects in this area?
Which and how many of these concern the Metaverse or NFT?
3. Who is in charge of the Metaverse and NFT? Is there a team dedicated solely to Brand innovation?
4. What was the initial trigger that prompted Dolce&Gabbana to think about a product concept in the Metaverse? The motivation that prompted the Brand to invest?
5. Is there an intention to move the fashion shows from physical to digital in the Metaverse? Has this already been done? What has been the engagement rate? Has it increased compared to the physical fashion shows? How different is it from the shows in the real world?

Brand projects related to the Metaverse

“Genesi”, first NFT collection by Dolce & Gabbana

1. What is the “Genesi” Collection?
2. What was the idea behind the creation of this collection?
3. What motivated the Brand to think about this type of product?
4. How much has the engagement rate grown?

5. How much has it changed the consumer perception of the Brand?
6. What is the added value?

#DGFfamily : the first italian community of NFTs

7. What is the #DGFfamily?
8. What was the idea behind the creation of this community?
9. What motivated the Brand to think about this type of product?
10. How much has the engagement rate grown?
11. How much has it changed the consumer perception of the Brand?
12. What is the added value?

Analysis of Brand presence in the Metaverse

1. What is the target market for this type of product? Gen Z? Millennials?
2. Is the reason behind a strategy of inclusivity (targeting an emerging market) or exclusivity (scarcity), a key term in the luxury world?
3. What is the added value for the brand in investing in projects related to the Metaverse?
4. How much and in what way does this virtual world differ from the Brand's real-world presence?

Versace interview's questions

Digital presence and propensity for innovation

1. How far does Versace lean towards digital?

- Is it implementing an omnichannel approach?
 - What are the main sales channels today?
 - Do they differ from the sales channels commonly used pre Covid?
2. What is the Brand's strategic orientation towards innovation?
- Is Dolce&Gabbana working on medium-long term projects in this area?
Which and how many of these concern the Metaverse or NFT?

Brand propensity towards the Metaverse

Publicly, to date, Versace has no plans to direct the brand towards the Metaverse and consequently NFT.

1. Why has Versace not yet invested in this area?
2. Has Versace ever thought about the possibility of doing digital fashion shows in 3D? And in the Metaverse?
3. If Versace wanted to invest in projects concerning the Metaverse, what would they be? (E.g.: community, NFT collections, digital fashion shows...)
4. What would be the target market for this type of product for Versace? Gen Z? Millennials?
5. Behind it would be a strategy of inclusivity (targeting an emerging market) or exclusivity (scarcity), a fundamental term for the luxury world?
6. What would be the added value for the brand in projects related to the Metaverse?

4. CASE STUDIES

4.1. The Dolce & Gabbana case study

Digital presence and propensity for innovation

During an interview with Angela, Global CRM and Innovation Manager at Dolce & Gabbana, we explored the brand's commitment to the digital world and its inclination towards innovation. Angela pointed out that Dolce & Gabbana has adopted an omnichannel approach, focusing its efforts on digital transformation. In recent years, the company has implemented digital transformation projects, including CRM (Customer Relationship Management) systems, OMS (Order Management System) and Clienting App. The main objective of these initiatives is to ensure a consistent and unique customer experience, regardless of the contact channel or product category selected.

Concerning sales channels, Angela indicated that Dolce & Gabbana relies on several channels, including physical shops, Retailers, such as Pop up Stores, Travel Corners and Resort Stores; e-commerce, which is one for the different Fashion/Beauty/Home business lines; Outlet offline, i.e. physical, and online; and finally partnerships with influencers and other companies, an example is the Capsule Collection for MyTheresa, these can be considered actual business opportunities. However, it is important to highlight that the health emergency for Covid-19 was the accelerator to promote the digital channel as a new predominant point for customer interaction. To date, e-commerce proves to be an effective channel not only for improving sales performance, but also for consolidating customer relationships and reaching new, increasingly digital-oriented target customers, including in the luxury sector.

Regarding Dolce & Gabbana's strategic orientation towards innovation, Angela revealed that the company constantly invests in innovative projects. These projects focus on different thematic areas: 1) Digital transformation, one of the projects done during the past year concerns the review of CRM, which aimed at a more precise segmentation of the entire customer behaviour during the entire process of the approach to the purchase experience, thus not only limited to the moment of sale; 2) Metaverse, NFT and blockchain. D&G is a company that invests heavily in all issues of digital transformation and is currently scouting for opportunities on Metaverse and NFT; 3)

Sustainability: in the process of defining the new Sustainability Plan, the fashion company has identified 7 Priorities at the basis of its commitment: Net Zero Carbon, Made in Italy & Heritage preservation, Human Care & New Generations, Zero Waste, Ecosystem Collaboration, Materials & Circularity, Transparency & Traceability. Each of these will include actions and initiatives that will complement those already in place (Dolce&Gabbana, 2022); 4) Integration of the Clienteling App, which aims to provide support to in-store salespeople in guiding the customer throughout the purchasing process, e.g. the salesperson can search for customer info on the app, (this feature is available only for customers who have already purchased or that are registered on the database) thus improving customer relations and consequently increasing the likelihood of customer retention.

Talking about Metaverse and NFT, Dolce & Gabbana has set up a team dedicated to identifying new strategies in this area. The team's main activities include the research, design and development of specific projects, taking into account the scouting of market opportunities and the graphic realization of these projects. However, the post-marketing activities of these products still need to be defined for Dolce & Gabbana, as at the moment the only saleable product to date has been the “*Genesi*” collection, which was however sold at auction.

In conclusion, when discussing the trigger that prompted Dolce & Gabbana to consider a product concept in the Metaverse, Angela highlighted a strong trend of innovation in the fashion industry as an initial factor. The brand recognised the importance of adapting to new customer consumption habits and took this new challenge as an opportunity to stay ahead of the curve. Angela emphasised that although there is some caution and an in-depth study underway, Dolce & Gabbana is not sceptical about the Metaverse, but on the contrary, is carefully evaluating opportunities and market trends, while also keeping an eye on competitors' strategies, for example GCDS is implementing plans regarding the Metaverse that aim to acquire Gen Z in the China and US markets, what drives them are the strong business ideas of these markets that are attractive to fashion brands. The Brand recognises that a presence on different platforms with various marketing campaigns, including those of the Metaverse, can bring tangible benefits, increasing visibility and potential profit, even in the future. As of now, in 2023, there is a setback that Dolce & Gabbana considers ideological, as all revolutions do not come suddenly, they are characterised by an initial hype period and a subsequent stall period that serves to better understand the market.

Brand projects related to the Metaverse

“Genesi”, first NFT collection by Dolce & Gabbana

The “*Genesi*” Collection is an innovative project that lies on the borderline between the physical and metaphysical worlds. It consists of nine exclusive, unique and irreproducible creations by Dolce&Gabbana released on August 28th 2021, which were auctioned under the NFT (Non-Fungible Tokens) model for the sum of approximately \$6 million. This collection represents the first ever project in which the fashion industry engages in the realisation of creations that have both a physical and virtual presence, and which are then sold through the NFT model. The creations, invented by Dolce&Gabbana Haute Couture, Haute Tailoring and Haute Jewellery in collaboration with UNXD, an auction house for digital works of luxury and culture, are considered to be the most complex digital creations to date. Five of these creations are digital representations of physical garments designed by Dolce&Gabbana, respectively two suits, one men's suit and two tiaras, while the other four are virtual customised designs also conceived for the digital dimension. The peculiarity of the “*Genesi*” Collection lies in its hybrid nature: on the one hand, purely virtual creations, such as “The Impossible Tiara” (Figure 6), made with "gems that cannot be found on Earth", on the other hand, five garments that instead also live in their "physical" form, including the two gold and silver versions of the “Dress from a Dream” (Figure 7) (Crescenti, 2021).



Figure 6

“The Impossible Tiara” by Dolce&Gabbana
from [Dolce & Gabbana: asta milionaria per la collezione virtuale in NFT | Vogue Italia](#)



Figure 7

“Dress from a Dream”, silver version, by Dolce&Gabbana from [Dolce & Gabbana: asta milionaria per la collezione virtuale in NFT | Vogue Italia](#)



Figure 8

“The Glass Suit” by Dolce&Gabbana from [Dolce & Gabbana: asta milionaria per la collezione virtuale in NFT | Vogue Italia](#)

This Collection was created by two world-renowned designers Domenico Dolce and Stefano Gabbana, guaranteeing the high artistic quality and attention to detail that distinguishes them. The creations are one of a kind and go beyond expectations, exceeding the limits of a simple digital rendering. Each piece in the “*Genesis*” Collection is a digital work of art that cannot be duplicated, giving NFT owners a sense of exclusivity. Furthermore, the complete tracking of the product's history thanks to blockchain technology is an added value. This tracking makes it possible to follow the product's path from its creation, through raw material, sale and all the way to its resale. Thanks to *product passports*, digital certificates that can guarantee the authenticity of virtual items (as already mentioned in the section “NFTs' impact in the fashion industry”), to guarantee the authenticity and to defeat the phenomenon of counterfeiting.

The ultimate goal of this initiative is to increase the consumer loyalty to the brand. By capturing detailed data on the consumer and their purchases, Dolce&Gabbana can offer a more personalised shopping experience. In addition, the brand can benefit from royalties on the resale of the creations, offering an incentive for both consumers and the brand itself.

In summary, the added value of the “*Genesis*” Collection lies in the combination of artistic talent, uniqueness of the creations, complete tracking of the product's history and the possibility of creating a closer and more personalised connection with consumers. This initiative represents a

significant evolution in the fashion industry, opening up new perspectives of digital luxury and immersive experiences in the Metaverse.

The first Metaverse fashion show by Dolce & Gabbana

Dolce&Gabbana was one of the first fashion brands to enter the Metaverse with a digital fashion show. During the Metaverse Fashion Week, in March 2022, hosted on Decentraland, a Metaverse platform, and in partnership with UNXD, a leading luxury NFT marketplace, Dolce&Gabbana presented a collection of 20 looks wearable in the Metaverse, especially created to celebrate the creativity and innovation of this new dimension. Since the end of the fashion show, the looks have become the protagonists of an exclusive Dolce&Gabbana pop-up store within the Luxury Fashion District of Decentraland. This initiative marks the brand's presence in the Metaverse and pushes DGDNA and the art of Dolce&Gabbana towards new horizons. In addition to the collection, the brand officially launched the DGFamily, an exclusive NFT community. DGFamily offers numerous benefits to its owners, including access to exclusive drops, physical and digital events and collaborations, confirming the uniqueness of DGDNA 3.0 in transcending reality and embracing the Metaverse. The 20 looks of the collection presented during Metaverse Fashion Week are available exclusively to DGFamily Box holders. The engagement rate of the fashion show was very positive, certainly since it was done during an initial period of approach to the Metaverse, it was characterised by great curiosity and interest around the event.



Figure 9

First fashion show in the Metaverse by Dolce&Gabbana
from [Dolce&Gabbana enters the Metaverse \(dolcegabbana.com\)](https://www.dolcegabbana.com)

#DGFfamily: the first italian community of NFTs

The #DGFfamily is an exclusive NFT (Non-Fungible Token) community created by Dolce&Gabbana in collaboration with UNXD, digital culture and luxury marketplace, it focuses on the collection and exchange of NFTs created by Dolce & Gabbana. These NFTs can represent digital artwork, virtual clothing or other brand-related digital objects. This community offers its members an ecosystem of benefits in both the physical universe and the Metaverse. Members of the #DGFfamily have access to special drops, unique collaborations and the chance to participate in exclusive events organised by Dolce&Gabbana, as already mentioned in the paragraph above. The community was launched after the “*Genesi*” Collection. The goal of the #DGFfamily is to offer an experience of belonging and sharing for the Brand’s fans, both through the digital and physical experiences related to fashion and luxury.

The motivation that prompted Dolce&Gabbana to create this community is linked to the significant changes that are taking place in the relationship between luxury consumers and the concept of luxury itself. Technological, generational and social changes, accelerated by the pandemic, require a new approach by luxury brands in their relationship with their customers. The fragmentation of the luxury concept into different cultural subgroups has made the intangible aspect of the luxury experience, such as knowledge sharing and community building, increasingly important. Consumers are not only looking to purchase high quality products, but also desire a sense of belonging, identity and an authentic connection to the brand. The creation of the #DGFfamily allows Dolce&Gabbana to offer its customers an exclusive environment where they can feel part of a community that shares common passion and values, both in the physical world and in the Metaverse. This community represents a new form of consumer engagement that extends beyond the boundaries of physical reality and leverages the potential offered by new technologies to create a unique and engaging experience.

Analysis of Brand presence in the Metaverse

The target market for this type of products in the Metaverse, such as NFTs, is mainly Generation Z, people born between the mid-to-late 1990s and around 2010, especially individuals with high purchasing power, indeed they are the ones who have a strong influence on this type of trend. This

segment of people can be found in the US and Chinese markets; as Angela said based on a survey done by D&G's team: around 70 per cent of US consumers from Gen-Z to Gen-X rate their digital identity as 'rather important' or 'very important', while in China 70 per cent of this target consumers have purchased or will consider purchasing virtual assets.

The investment in NFT offers significant added value for a brand in the Metaverse, according to Dolce & Gabbana. NFTs become a powerful tool for marketing and branding policies as they focus not only on the functional benefit of the product, but on the ability to attribute status and prestige. Audience engagement becomes essential to create an emotional connection and make customers feel part of an exclusive niche of selected ones. Through NFTs, the brand can offer reserved experiences in the Metaverse and complement the offer with physical products or real experiences. This new concept of luxury is based on the feeling of being part of an elite group and offers access to exclusive events or products. This can lead to the retention of loyal customers, strengthening the bond and relationship between the brand and its target audience. Furthermore, NFTs are used by Dolce & Gabbana as storytelling tools to convey the values and essence of the brand to the audience. This form of storytelling in the Metaverse helps to create an engaging and authentic experience for consumers.

Overall, Dolce & Gabbana is investing in NFTs in the Metaverse to bring greater brand attractiveness, customer loyalty and, as a result, increased revenue and business performance.

4.2. The Versace case study

Digital presence and propensity for innovation

Versace demonstrates a strong leaning towards digital and innovation to keep up with the evolution of the industry and meet its customers' expectations. The company has developed an omnichannel strategy to improve the customer experience, offering benefits even when purchasing through non-physical channels. In physical stores, Versace collects customers' personal data, such as email addresses, phone numbers and gender information, which is used by the Brand to conduct surveys and to contact the so-called "special customers", those who are identified by a high rating. These

customers, based on a rating system that takes into account the number and value of purchases, receive exclusive benefits, such as invitations to preview events to view the collections in the stores.

Currently, Versace's main sales channels include retail stores, outlets just physical, because the Brand does not sell online discounted garments, and dedicated home line stores. Moreover, there have been collaborations with selected partners such as Mytheresa for the creation of capsule collections. In particular, Versace's atelier plays a significant role in sales, as wealthy customers purchase haute couture garments for special occasions, which are then made to order and created on the basis of the customer's wishes. During the period of the COVID-19 pandemic, Versace also adopted virtual showrooms, where collections were presented digitally through 3D renderings. However, the brand does not believe in fully digital fashion shows and prefers to organise physical events to present the collections and the brand's distinctive spirit.

Compared to the pre-pandemic period, Versace experienced a significant increase in e-commerce sales during the lockdown, but now online sales have been stabilised, so it is not a trend the Brand expects to grow. Versace attributes this to its customers' preference to physically see and touch the garments to appreciate their distinctive quality.

Taking in consideration Versace's strategic orientation towards innovation, the company is working on medium to long-term projects that embrace new technologies. For example, collections, special projects and sales openings are previewed online only, through a platform dedicated to wholesale buyers. The garments are made available in a digital format, similar to the one of NFTs (non-fungible tokens), allowing customers to view them and decide whether to purchase them. This approach was adopted for projects such as the special “Chinese New Year” collection, dedicated to the Chinese New Year and sold through designer sketches and 3D renderings. In this way, buyers can view the collection digitally and not touch it and see it physically in the showroom as they can for traditional collections, so the product office has direct access to put the garments into production once they have been selected; about 80 pieces per type have already been sold with this new sales approach.

The Brand is also developing innovative projects related to sustainability, such as reusing stock materials to create an exclusive capsule. The garments are made using a patchwork technique that

combines different fabrics, featuring Versace's iconic prints, and each garment becomes a limited edition.

Regarding the Metaverse and NFTs, Versace has planned to invest in these areas from 2024. The budget earmarked for 2023, which also included projects related to the Metaverse, has been allocated to other projects such as the collaboration with Dua Lipa for the "La Vacanza" collection, the autumn-winter 2023 fashion show in Los Angeles and the fashion show that will be held in September 2023. Versace's goal is therefore to enter the Metaverse next year, exploring the opportunities offered by this new digital dimension.

Brand propensity towards the Metaverse

Versace, publicly, currently has no specific plans related to the Metaverse and NFTs. However, during the interview it emerged that the brand is aware of the strong market trend towards innovation in the fashion industry and recognises the importance of keeping up with customers' new consumption habits. The Brand is carefully considering how to enter the Metaverse, but for the 2023 it has preferred to invest the budget in other projects, such as the "La Vacanza" collection in collaboration with Dua Lipa, the autumn-winter 2023 fashion show in Los Angeles and the fashion show scheduled for September 2023.

Regarding fashion shows, the possibility of adopting 3D digital formats and potentially holding them in the Metaverse is being considered. Nevertheless, Donatella Versace considers the fashion shows as an opportunity to show not only the collections, but also the unique spirit of the brand, creating real performances. Therefore, for the time being, the Brand plans to keep the fashion shows in a physical format.

If Versace decides to invest in the Metaverse, projects could include the design of NFTs collections and digital fashion shows. One innovative project that the Brand is considering is the creation of a digital influencer using artificial intelligence. This digital influencer will represent all three brands of the Capri Holding group, attending fashion shows, taking selfies with celebrities and becoming a sort of "Versace idol". Her role will be to preview all the collections, in order to stimulate consumer interest and drive purchase.

Versace's target market, mainly focused on Generation Z in China and the US, is a significant advantage for future product sales in the Metaverse, as it would already make it perfectly positioned. Moreover, the Brand already serves these markets significantly. China in particular associates Versace with Italian taste, appreciating the exuberant style that characterises the Brand. This has led to greater popularity and sales abroad than in Italy itself.

In conclusion, Versace is carefully evaluating the opportunities offered by the Metaverse and NFTs, taking into account market trends and customer expectations. Although no specific projects have been launched at the moment, the brand is aware of the importance of remaining at the forefront of the fashion industry and adapting to new consumer habits. In addition, it has the medium to long term goal of achieving 100% digital collections and of packaging and producing only those pieces that are actually already sold through a digital vision in advance, in order to save time and money, particularly in terms of human resources.

5. SENTIMENT ANALYSIS

5.1. Introduction

Sentiment analysis, also known as opinion mining, is a method used to acquire information and opinions on a wide range of topics, including products and services placed on the market, projects set up and other topics of interest. This field of study involves several disciplines and aims to extract, process and synthesize opinions expressed through people's language.

Opinions, along with other concepts such as emotions, attitudes, evaluations and feelings, form the core of sentiment analysis studies. However, the increasing proliferation of social media, including forums, online discussions, blogs, reviews and, above all, social networks, has led this methodology to experience rapid expansion. Social media are virtual platforms that allow users to create, publish and share content in an open manner, distinguished by their lack of barriers compared to traditional media. In particular, social networks represent virtual places where specific users are interconnected and can interact through private messages, public comments and re-sharing.

Sentiment analysis, as defined by Danneman, is the field of study that focuses on analyzing people's opinions, feelings, evaluations, attitudes and emotions based on what is written in a text (Danneman, 2015). This methodology helps people understand their perceptions and reactions by examining digital texts from websites and social networks. In the context of Dolce&Gabbana's innovative projects related to the Metaverse, sentiment analysis emerges as a fundamental tool to understand how the community perceives and reacts to the projects analyzed in the previous chapters.

The key steps to successfully perform sentiment analysis include data collection, data pre-processing, feature selection and extraction, sentiment detection and classification execution using either simple computational methods or machine learning approaches.

Twitter is one of the leading micro-blogging sites, to date it is estimated to have a total 528 million monetizable monthly active users, generating around 200 billion tweets per day (Shewale, 2023). With such a large audience, Twitter has consistently attracted users to air their opinions and perspectives on any issue, brand, company or any other topic. For this reason, Twitter is used as

an information source by many organizations, institutions and companies. On Twitter, users can share their opinions in the form of tweets, this leads people to express themselves using slang, abbreviations, emoticons, short forms, etc. It is therefore justified to define Twitter's language as unstructured. To extract sentiment from tweets, sentiment analysis is used. The results of this analysis can be used in many areas, such as analyzing and monitoring changes in sentiment in relation to an event, sentiment related to a particular brand or product release, public opinion analysis on government policies, etc.

For these reasons, I decided to analyse the sentiment of the three Dolce & Gabbana projects under analysis on Twitter, in order to have results that are as close as possible to what the brand community really thinks.

5.2. Indexes and metrics

To determine whether Dolce & Gabbana's presence in the Metaverse is effective or not in terms of sentiment, I considered the metrics listed below:

- **Overall Sentiment:** Measures the overall sentiment towards Dolce & Gabbana in the Metaverse.
- **Frequency of mentions:** Counts how often the brand is mentioned or discussed in the Metaverse. A more active presence may indicate greater audience engagement.
- **Type of content:** Assess the type of content associated with the brand in the Metaverse. For example, consider whether mentions are mainly associated with events, products, services or other brand activities.
- **Specific feedback:** Analyses comments and reviews to identify a positive or negative sentiment. This can help identify areas where the brand is succeeding or needs improvement. In the case under analysis, I decided to survey sentiment on a project-by-project basis, thus analysing separately the projects that emerged during the interview with the brand (the “Genesis” collection, the first fashion show in the Metaverse and the virtual community #DGFfamily).

To develop the analysis, I considered two parameters: *subjectivity* and *polarity*. Subjectivity varies in a range from 0 to + 1, where 0 means totally objective, and 1 totally subjective. Polarity varies in a range from -1 to +1, where -1 means that the opinion expressed is totally negative, 0 if it is considered neutral and +1 if it is totally positive.

- **Audience engagement:** Monitors user engagement with the brand's content in the Metaverse. This can include likes, shares, comments and other interactions.

5.3. Data collection and feature extraction

The first phase of the analysis is data extraction, which means using a method that allows to have data available from the sources one has previously selected. There are many possibilities and many tools available, which have their merits and drawbacks. It is a fundamental step, because the analysis software that will act later will have this input data as its basis.

I have chosen for the collection of data on Twitter the technique of web scraping, a method of extracting texts that involves neither a manual approach nor APIs. This term identifies a set of techniques that uses web addresses, i.e. HTTPs, with the aim of transforming the content of the site into information that can be analysed later. Scraping can take data from all HTML pages on the web.

I used Apify, an advanced web scraper and automation software that digs up information from various sites and organizes it in a structured way allowing it to be downloaded in the form of an excel or csv file.

5.4. The sentiment survey

Dolce&Gabbana Metaverse, NFTs

In order to analyse the general sentiment associated with Dolce&Gabbana within the Metaverse, I conducted an extensive data collection covering a significant period of time, investigating the presence and perception of the Brand in the virtual world.

The first set of data taken into analysis is necessary for a general observation of Dolce&Gabbana's presence in the Metaverse. This investigation aims to assess how the brand was perceived and engaged in virtual environments. To collect reliable data, I extracted 772 records, each corresponding to a tweet specifically associated with Dolce&Gabbana in the context of the Metaverse; the time window considered for this analysis spans the period from early 2022 to September 2023. This time interval of approximately two years allows us to understand the dynamics and evolution of brand-related perceptions and opinions during a significant period of activity in the Metaverse.

In Table 1 of the Appendix, is displayed an excerpt of the Excel file representing a part of the data collected during this study. This table provides the basic information associated with each tweet including the user who posted the tweet, the date of posting, the content of the messages, the number of likes, retweets and comments.

In order to obtain a visual idea of the Metaverse and NFT keywords associated with the Dolce&Gabbana brand during the analysis period, I used a Python language application to create a word cloud (Table 6 in the Appendix). This visual representation, shown in the figure 10, highlights the most frequent and significant words used in tweets associated with Dolce&Gabbana, allowing an immediate view of the main trends that emerged within the Metaverse.



Figure 10
Word Cloud of Dolce&Gabbana presence in the Metaverse

The words that are mentioned most frequently are obviously “Dolce&Gabbana” and “Metaverse fashion week”, and the word "Decentraland", the virtual reality platform that hosted the first Brand's fashion show in the Metaverse, is also recurrently present.

The analysis of the sentiment associated with Dolce&Gabbana in the Metaverse offers an in-depth insight into the perception of the Brand and the conversations taking place within this virtual reality. In the course of this chapter, we will examine the results of this analysis in detail, exploring the opinions, emotions and trends emerging from the data collected in relation to the three projects previously analysed, thus providing an understanding as complete as possible of Dolce&Gabbana's presence in the Metaverse.

Dolce&Gabbana "Genesi" Collection

In order to conduct a detailed sentiment analysis on Dolce&Gabbana's “Genesi” collection, released in the Metaverse in collaboration with the UNXD platform, I carried out data collection through the use of Apify, as previously mentioned. In total, 408 records were extracted, each corresponding to a tweet expressing an opinion or referring in some way to the “Genesis Collection”, with a time window ranging from July 2021 to September 2023 (an extract of the excel file is represented in Table 3 in the Appendix).

To quantify the sentiment of the tweets, I adopted an evaluation based on two main parameters: *Subjectivity* and *Polarity*. Subjectivity was measured on a scale from 0 to +1, while Polarity was assessed on a scale from -1 to +1, as described in the previous section. The extracted data was provided as input to the Python code, thanks to the use of the TextBlob library and the two functions Subjectivity and Polarity the code was able to assign a Subjectivity value and a Polarity value to each record (Table 7 in the Appendix).

To analyse the subjectivity of the comments, I decided to divide the range into two classes. The comments with a Subjectivity value between 0 and +0.5 were considered mainly objective, while those with a value between +0.5 and +1 were classified as subjective, thus representing genuine user opinions. Of the total number of tweets, 90 were considered subjective, while 318 were categorized to be objective. This means that 22% of the comments were considered subjective and

therefore represent the basis for assessing users' opinions on the “Genesis Collection”. The objective comments mainly reported on the release of the collection or provided comments of an informative nature.

To analyze the polarity of the comments, I divided the range into three bands. The comments with a Polarity between -1 and -0.3 were considered mainly negative, those with a value between -0.3 and +0.3 were classified as neutral, while those with a Polarity between +0.3 and +1 were considered sufficiently positive. In the sample analyzed, 5 were categorized as negative, 339 neutral and 64 were classified as positive. Consequently, out of all the Twitter users who tweeted about the Genesis Collection, 1% expressed negative opinions, while approximately 16% shared positive opinions.

As a result of this analysis, I report below some of the most significant opinions expressed by the Twitter user community, both the more clearly negative and the more markedly positive ones:

Text	Subjectivity	Polarity	"Subjectivity"	"Polarity"
Dolce & Gabbana Collezione Genesi NFT Auction - Alta Sartoria Auction Ends With @adridadou The Winner/Owner Of The Velvet & Mosaic Impossible Jackets for an impressive amount of money. satchel.me.uk/2021/09/dolce-...	1	-0,66667	Subjective	1 Negative
Dolce & Gabbana Collezione Genesi NFT Auction - Alta Gioielleria Auction Ends With Banksy @pranksy The Winner/Owner Of The Impossible Tiara for an impressive amount of money. satchel.me.uk/2021/09/dolce-...	1	-0,66667	Subjective	1 Negative

Text	Subjectivity	Polarity	"Subjectivity"	"Polarity"
Wish I had gotten a chance to preview the @dolcegabbana Collezione Genesi #NFT collection that's launching on the @UNXD_NFT platform. It looks breathtaking! #NFTfashion #DolceGabbana #DolceGabbanaNFT #virtuofashion #Direct2Avatar #D2A	1	1	Subjective	1 Positive
In September, Dolce & Gabbana stepped into the #NFT metaverse with Collezione Genesi, a one-of-a-kind nine-piece collection and immediately had some achievements. impressive	1	1	Subjective	1 Positive
Wearing the iconic Doge Crown bought by @RED__DAO & designed by Dolce & Gabbana during @NFT_NYC at the official event featuring the D&G Collezione Genesi #NFT collection (which I covered for @Cointelegraph) loved seeing the #NFTs in person! #NFTNYC	0,65	0,6875	Subjective	1 Positive

Proportionally, the positive comments had the most likes, comments and retweets, below is the table with the relevant numerical values:

Subjectivity		%						
Subjective	90	0,220588235						
Objective	318	0,779411765						
Polarity		%	# likes	# comments	# retweet	% # likes	% # comments	% # retweet
Negative	5	0,0122549	17	2	4	3,4	0,4	0,8
Neutral	339	0,830882353	6468	656	1588	19,079646	1,935103245	4,684365782
Positive	64	0,1568627	1770	174	446	27,65625	2,71875	6,96875

Dolce&Gabbana Metaverse fashion show

For the analysis of the sentiment related to the Metaverse Fashion week and thus to the first Dolce&Gabbana Fashion Show in the Metaverse, broadcast live on Decentraland, I followed the same methodology used previously to assess the perception and opinions relating to the "Genesis collection".

A total of 324 records were extracted from Twitter, each representing a tweet expressing opinions, comments or referring in some way to the project under analysis (an extract of the excel file is represented in Table 4 in the Appendix). To each record was assigned a Subjectivity value on a scale of 0 to +1 and a Polarity value on a scale of -1 to +1, allowing a classification of the tweets expressed (the Python code is represented in Table 8 in the Appendix).

In terms of subjectivity, 60 subjective comments were identified, while 264 were found to be objective. Consequently, 19% of the comments were classified as subjective and represent the appropriate basis for assessing users' opinions on the Metaverse Fashion Show. The objective comments, on the other hand, mainly informed the public about the event or provided comments of a descriptive nature.

With regard to the polarity of the comments, it is interesting to note that no clearly negative expressions were found among the 324 tweets analyzed. In particular, 271 comments were classified as neutral and 53 as positive. Consequently, out of all the Twitter users who tweeted about Dolce&Gabbana's Metaverse Fashion Show on Decentraland, 16% expressed positive opinions.

I reported some of the most significant opinions, classified as positive, expressed by the Twitter user community:

Text	Subjectivity	Polarity	"Subjectivity"	"Polarit"
This year's #Metaverse Fashion Week boasts participation from an impressive constellation of luxury brands including #Dolce & Gabbana, #Gucci, #Balmain, #Coach, and #Tommy Hilfiger.				
#CryptoNews #Bitcoin #fashionweek #META #STEM blockchainbeat.co/metaverse-...	1	1 Subjective		1 Positive
Dolce & Gabbana embrace the metaverse at Milan fashion week. They did so, fabulously! theguardian.com/fashion/2022...	1	0,5 Subjective		1 Positive
Cool space in Dolce Gabbana! #Decentraland #MFW22 #metaverse #fashionweek	0,65	0,4375 Subjective		1 Positive
Make sure to check out all the recaps from the first ever Metaverse Fashion Week... fascinating! Some of the major brands that attended were Tommy Hilfiger, Dolce & Gabbana, Forever 21, DKNY, and Estee Lauder.	0,643055556	0,421875 Subjective		1 Positive

Proportionally, positive comments have about the same number of likes as those classified as neutral; whereas the number of comments and retweets is not significant. Below is the table with the relevant numerical values:

Subjectivity		%							
Subjective	60	0,185185185							
Objective	264	0,814814815							
Polarity		%	#likes	#comments	#retweet	% #likes	% #comments	% #retweet	
Negative	0	0,0000000	0	0	0	0	0	0	0
Neutral	271	0,836419753	1678	353	441	6,191882	1,302583026	1,627306273	
Positive	53	0,1635802	312	22	66	5,886792	0,41509434	1,245283019	

The sentiment analysis associated with the Dolce&Gabbana Metaverse Fashion Show on Decentraland reflects a predominantly positive reaction from the online community. These results are a key to understand the reception of the event and the positive impact it had on the perception of the brand within the Metaverse.

Dolce&Gabbana #DGFfamily

The analysis of sentiment relating to the Dolce&Gabbana #DGFfamily virtual community followed the same methodology applied previously to assess user perceptions and opinions in detail.

The same classification procedure previously used was applied to the extraction of data relating to the #DGFfamily community. A total of 529 records were extracted from Twitter, each representing a tweet containing opinions, comments or mentions referring to this virtual community (an extract of the excel file is represented in Table 5 in the Appendix). During the interview with the Dolce&Gabbana representative, which I reported in the previous chapter, she already revealed a high degree of positive sentiment within the #DGFfamily, but through the sentiment analysis, it was possible to explore these opinions more in depth.

For each record, a Subjectivity value was assigned, through a Python code, on a scale from 0 to +1 and a Polarity value on a scale from -1 to +1, allowing for an accurate classification of the tweets expressed (the Python code is represented in Table 9 in the Appendix).

In terms of subjectivity, it was interesting to note that 42% of the comments were classified as subjective, a significantly higher percentage than in previous analyses. This suggests a high user engagement in the #DGFfamily community and a strong propensity to express personal opinions. Objective comments, representing 58%, provide informative and descriptive information about the community.

Regarding the polarity of the comments, it is noteworthy that only 4 tweets were classified as negative, while 325 were neutral and 200 were considered positive. These results indicate that, among Twitter users who tweeted about the #DGFfamily community, 38% shared positive opinions, confirming a generally favorable sentiment towards this virtual community.

As a result of this analysis, I report below some of the most significant opinions expressed by the Twitter user community, both the more clearly negative and the more markedly positive ones:

Text	Subjectivity	Polarity	"Subjectivity"	"Polarity"
Dolce&Gabbana launches Nft community: (Adnkronos). Isn't it too innovative? - Dolce&Gabbana launch #DGFfamily, an Nft (Non-Fungible Token) community, in collaboration with the marketplace for digital culture and luxury Unxd. The community provides an ecosystem of advantages for... dlvr.it/SKNlw0	0,5	-0,375	Subjective	1 Negative
I expected more from the #DGFfamily, there is not too much integration, it is all about people's purchasing power.				
#DolceGabbana #DGFfamily #JamyJamess #JMMLABEL	0,876666667	-0,333333333	Subjective	1 Negative

Text	Subjectivity	Polarity	"Subjectivity"	"Polarity"
Received mine too. Superb quality! #DGFfamily #UNXD	1	1	Subjective	1 Positive
The best and it's not close. See you guys tonight @dolceandgabbana @UNXD_NFT #DGFfamily ❤️	0,3	1	Objective	1 Positive
You can tell Dolce & Gabbana are creating a family everywhere they go!! This warms my heart so much! Happy April Fools weekend #MVF23 #Dolceandgabbana #DGFfamily #Decentraland #digitalfashion #NFTartists @UNXD_NFT @dolceandgabbana @decentraland @katyagarnet	1	0,8	Subjective	1 Positive

Proportionally, neutral comments have a higher number of likes, retweets and comments than positive comments; these are therefore irrelevant metrics.

Subjectivity	%	#likes	#comments	#retweet	% #likes	% #comments	% #retweet
Subjective	220	0,415879017					
Objective	309	0,584120983					
Polarity	%	#likes	#comments	#retweet	% #likes	% #comments	% #retweet
Negative	4	0,0075614	0	0	0	0	0
Neutral	325	0,61436673	1678	353	441	5,163077	1,086153846
Positive	200	0,3780718	312	22	66	1,56	0,11

These results consolidate the image of an engaged and passionate #DGFfamily, with a strong propensity to share positive opinions and sentiments about the community.

5.5. Final remarks

In general, the results obtained from the analysis indicate a positive trend, with a few or no negative comments. This suggests that the brand is able to maintain an overall favorable image in the online community. However, it is important to note that positive comments do not always translate into increased engagement in the form of likes, retweets and comments.

The three projects analyzed represent completely different categories within the Metaverse: a virtual collection composed by garments on sale, a fashion show where viewers can have a unique experience and finally the community where users can interact with each other and exchange NFTs. The “Genesi Collection” recorded a very low percentage of negative tweets, while the positive ones can be considered significant in number, taking into account the luxury and niche nature of the product. This suggests that users are more cautious about expressing positive opinions without having directly purchased a garment from the collection.

Regarding the Dolce&Gabbana Metaverse fashion show, the absence of negative comments could indicate that relatively few people had the opportunity to attend the event, and those who did shared positive opinions, while others did not express any comment.

The users involved in the #DGFfamily seems highly participative and inclined to share opinions and feedback. This involvement is of great value to the Brand as it demonstrates a deep connection with its community. This project could be a promising source of positive engagement and Dolce&Gabbana should consider investing further in it, or similar projects in the Metaverse, where users can interact with each other instead of perhaps projects related to the release of NFT products where the user experience is linked to the purchase. The use of AR and VR devices to enhance the audience experience could help to successfully introduce augmented reality to users, for instance by creating a unique experience of interaction with other users.

It needs to be emphasized that sentiment analysis is a useful tool for assessing brand perception and the effectiveness of projects within the Metaverse. However, it is crucial to consider that it alone may not be sufficient to capture the full range of community opinions and perceptions. Therefore, the use of other data and qualitative as well as quantitative analysis may help to gain a more exhaustive view.

Looking towards the future, I would recommend the brand to continue to actively monitor sentiment analysis and use the results obtained to further adapt and improve community engagement projects and strategies in the Metaverse. This approach will ensure that Dolce&Gabbana remains at the forefront of the rapidly evolving world of the Metaverse.

6. INNOVATION FRAMEWORKS

In this chapter, I will analyse what kind of innovation characterises the Metaverse phenomenon in relation to the Luxury Fashion industry.

Innovation can be defined as “the economic exploitation of an invention” (Roberts, 1987). In simple terms, society moves from *invention* to innovation when an invention is commercialised and purchased. This means that a producer is able to develop an artefact that provides customers with a utility beyond the cost of production, and to offer it at a certain price and in such a way that customers are actually able to recognise this value. The difference between invention and innovation is much deeper than people think. In fact, most people mistakenly attribute the invention of important artefacts not to the inventors who gradually and incrementally worked on them, but to the innovator who first succeeded in creating a successful business. In some cases, innovation may occur decades after the original invention, in completely different environments and circumstances. Innovation is followed by *diffusion*, the process by which the market gradually adopts the new technology and makes it mainstream. Depending on the sector, deployment can last from months (e.g. mobile messaging applications) to decades (e.g. industrial machinery). This wide variation in diffusion times makes the financial attractiveness of innovations in different sectors very different (Cantamessa and Montagna, 2016).

When discussing technological innovation, the first important question to be answered is that of its causes, or determinants. Over the years, two possible conflicting determinants have been identified. According to the proponents of “technology push”, innovation occurs when a technological development is generated independently of a specific market need and is eventually deployed in a specific sector, thus responding to a latent demand. Conversely, “demand orientation” assumes that companies observe the demand for better products coming from the market and society at large and explicitly direct the development of technology to meet these needs. The debate between these two determinants has been quite active, until scholars realised that technological innovation can be due to either one, depending on the stage and type of innovation. This conclusion stems from the observation that technology does not follow a linear process but is subject to distinct and alternating phases of evolutionary and revolutionary progress (Cantamessa, 2016).

The objective of this chapter is to understand the different types of technological innovation, their determinants and implications for individual companies and industries in order to identify which type of innovation the phenomenon analysed in this thesis belongs to.

6.1. A taxonomy for Technological Innovation

Innovations can also be classified according to a number of other perspectives, depending on the types of innovation:

- Innovations can be defined as *incremental* or *radical*, looking at the technical characteristics of the product (its functions and performance) and, more specifically, whether the innovation significantly changes the technical trade-offs that define it. In general, both manufacturers and customers view products as 'packages' of functions and performance indicators, where trade-offs can be easily identified. An incremental innovation consists of a product improvement that does not significantly alter these trade-offs. Conversely, a radical innovation will result in products that introduce completely new functions or a set of performance values that clearly distinguish them from their predecessors, breaking the established trade-offs (Dutton and Thomas, 1984).
- Innovations can be either *sustaining* or *disruptive* when considering their impact on the industry. A sustaining innovation will not lead to significant changes in competitors' market positions and shares, while a disruptive innovation will lead to major changes. With disruption, market leaders may lose ground or even exit the industry, while leadership may be achieved by companies that previously played a minor role, new entrants or even start-ups (Christensen, 1997).

This taxonomy can also be viewed from a more complex perspective by looking at two axes, on the one hand the underlying technology and on the other hand the product architecture (Henderson and Clark, 1990). To explain this concept, it is first necessary to define the product architecture. It is possible to state that product architecture is defined by the main components that make up the product and their mutual relationships, relationships that may be due to functional interactions, physical proximity or even unintentional influences. Based on these concepts, four types of innovations can be identified:

- *Incremental innovation*: neither the basic technology nor the product architecture changes. This type of innovation may be costly to implement, in terms of effort, but it is not difficult to manage, as it fully replicates the experience gained with previous products.
- *Modular innovation*: the underlying technology changes in one or more functional elements, but not the product architecture. In this case, innovation in the affected modules may be significant and difficult to pursue, since it requires changing the skills used. However, the problems will be limited to the affected modules and the development of the complete product will then be relatively easy.
- *Architectural innovation*: the underlying technology does not change, but the relationships between the components do. Architectural innovation is generally difficult to manage, as the organisational routines that enable the development of a coherent product will not be immediately available but will take time to develop. This will be particularly true if the new pattern of relationships between components is known ex-ante. In some cases, architectural innovation may catch companies 'by surprise' because seemingly minor innovations unexpectedly change the relationships between components.
- *Radical innovation*: in which both the basic technology and the product architecture change. This type of innovation is obviously the most difficult to pursue, even though it is not very common, and companies face problems when they come across it.

Relationships between components	Do not change	Change
Reference technologies		
Change	Modular innovation (e.g. high capacity batteries in cell phones)	Radical innovation (e.g. PCs vs typewriters)
Do not change	Incremental innovation (e.g. faster spinning hard drives)	Architectural innovation (e.g. rear-wheel vs front-wheel drive cars)

Figure 11

The taxonomy by Henderson and Clark

From Cantamessa, M., Montagna, F. (2016). *Management of Innovation and Product Development*.

From this classification, the case under analysis, the presence on the Metaverse of fashion brands, falls into the class of "modular innovation" characterised by technology changing in one or more elements while the architecture of the product does not change. The Dolce&Gabbana projects analysed in the previous chapter (the Genesi hybrid collection, the #DGFfamily virtual community and the Metaverse fashion show) are not totally new products but instead products with a recognised and existing architecture in the physical world and completely new technology.

With regard to the first classification, the phenomenon certainly does not fall under “disruptive innovation” as it is not a disruptive innovation but mostly a managerial fashion in which brands are studying each other to see what strategy to adopt in the Metaverse.

6.2. S-curve and Rogers and Moore Segmentation

A S-curve can be drawn representing the diffusion of innovation in the market. Diffusion can be defined as the fraction of potential users who, at a given point in time, have decided to adopt the technology. When proceeding along the S-curve, it is customary to define three main phases, called *incubation* (during which both performance and diffusion have yet to “take off”), *diffusion* (when performance and diffusion grow significantly) and *maturity* (when they approach saturation), respectively (Cantamessa and Montagna, 2016).

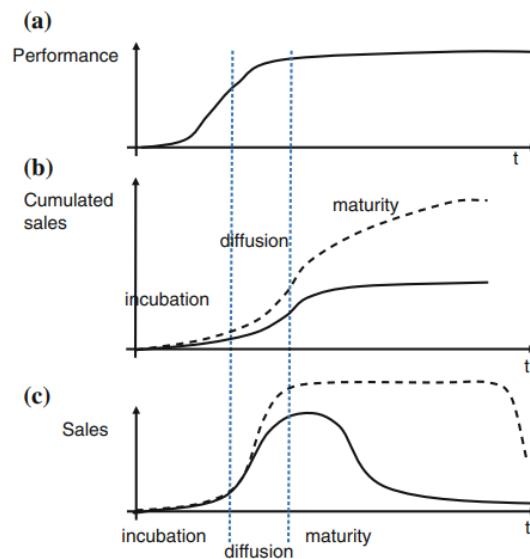


Figure 12

Performance and diffusion S-curves

From Cantamessa, M., Montagna, F. (2016). *Management of Innovation and Product Development*.

The incubation period of a technology's life cycle is quite critical and interesting. In this period, the technology is still immature, and its diffusion is limited. However, awareness of the new technology is likely to be quite widespread and the promises associated with it may be expressed in exaggerated terms. After the appearance of a technology (*technology trigger*), markets will tend to “fall in love” with it and expectations will grow until they become unrealistic (*peak inflated expectations*). When these expectations do not materialise, the market will quickly lose interest in the technology and consider it a failure (*disillusionment peak*). At this point, the technology will slowly mature and realistic applications will emerge (*enlightenment slope*), until the technology becomes firmly established (*productivity plateau*) (Cantamessa and Montagna, 2016).

In relation to the phenomenon under analysis, it can be considered that the innovation is in the initial “incubation phase” and subsequent to the step of the appearance of the technology trigger; moreover, it appears that the initial hype period has been overcome and that brands are analysing and monitoring the phenomenon, thus not resulting in a loss of interest in the Metaverse.

Related to the representation of the S-curve is the segmentation proposed by Rogers, which classifies customers according to the points in time at which they adopt along the product life cycle (Rogers, 1962). For this purpose, the sales spread curve can be approximated to a normal distribution curve, and then divided at the midpoint and -2, -1 and +1 standard deviations. The segments he identified are *Innovators*, *Early Adopters*, *Early Majority*, *Late Majority*, and *Laggards* (Figure 13). Studying this segmentation, Moore proposed the existence of a very significant gap between the Early Adopters and Early Majority segments. Customers in the former segment adopt because they “look to the future” and are therefore prepared to accept a relatively immature technology. In contrast, the latter will only adopt a mature product that fully satisfies them. Therefore, a product that is highly successful with Early Adopters is likely to be unsuccessful when the majority segment comes into play. Companies that are market leaders in the early stages of the product life cycle may therefore fail to understand the new user requirements that characterise the early majority segment and fall behind when trying to “cross the chasm” (Moore, 1991).

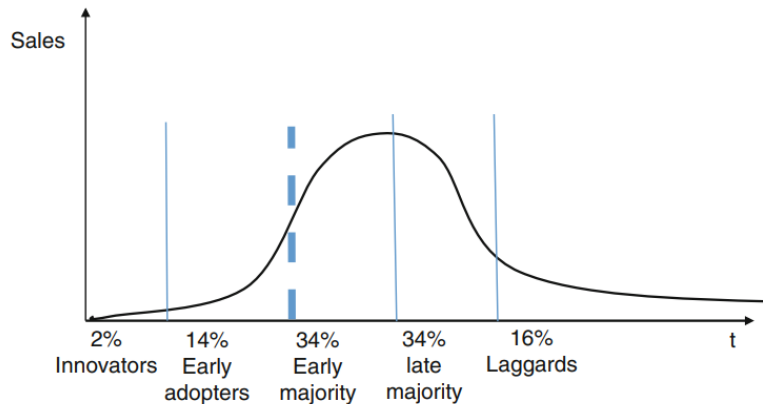


Figure 13

Market segments along the technological lifecycle

From Cantamessa, M., Montagna, F. (2016). *Management of Innovation and Product Development*.

Nowadays, it is too early to analyse the diffusion of innovation related to the Metaverse since we are only at the beginning of the S-curve so only the segments of Innovators and Early Adopters has been touched by the phenomenon, if the adoption will run its course, cross the chasm and reach the Laggards then according to the degree of adoption of the phenomenon it will be possible to classify according to the S-curve and at what stage it will have reached and therefore what segment.

6.3. Business Model Innovation

The phenomenon of presence in the Metaverse for fashion brands, in my opinion, referring to the taxonomies presented above, can fall exclusively into the class of "modular innovation" in first analysis; since the products already released by brands in the Metaverse (NFT collections, Metaverse fashion shows, virtual communities, digital influencers and brand stores) are not totally products but rather are transported from the physical world to the virtual world through a new technology. However, it is necessary to take into consideration that at the moment it is too early to predict whether this will be a real innovation or not; for this reason, to date it can be evaluated as an innovation of the business model of luxury brands.

A business model represents a "conceptual, rather than financial, model of a company" and is therefore aimed at representing the building blocks of a company and their consistency, rather than its profitability (Teece, 2010). The key elements of a business model concern the major strategic

choices that define a company, the resources that enable it to create value, the company's positioning in its value network, and a high-level definition of cost and revenue structures. At the same time, the elements of the business model cover both sides of the supply side (i.e., what is offered and how it will be produced by the company and its suppliers and partners) and the demand side (i.e., who the customer is and how they can be reached).

The *Business Model Canvas* is a qualitative and informal tool for structuring business models (Osterwalder and Pigneur, 2010). The Canvas can be considered as a concise, structured and static map of a subset of the key elements that make up the business model. However, it does not fully explicate the relationships among the elements, nor does it represent the dynamic behavior of the company's business model within its larger value system.

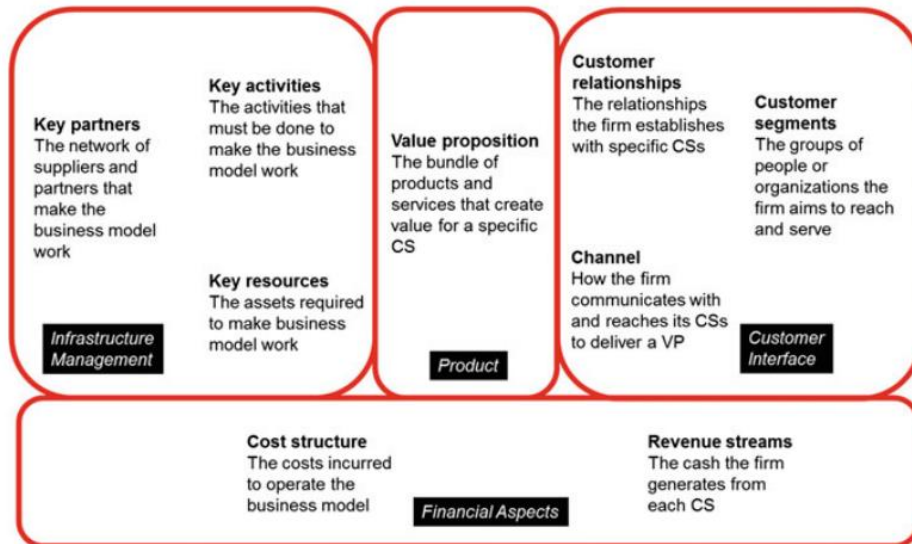


Figure 14

The Business Model Canvas

From Cantamessa, M., Montagna, F. (2016). *Management of Innovation and Product Development*.

As can be seen from Figure 14, the Canvas is characterized by four main areas: the product and the infrastructure (which cover the "offer" side of the business model), the customer interface (which covers the "demand" side), and the associated financial aspects, based on the costs that characterize the side of "offer" and the revenues derived from the side of "demand." Subsequently, these macro areas are divided into nine sections. The sections related to the presence in the Metaverse of luxury fashion brands are reported below by going on to identify the differences with the traditional business model.

- **Customer Segments.** The customer segments do not differ significantly from the current target market of brands in the physical world, rather they are a niche within this segment. The target market of interest will therefore be the result of a cross between the segments of Forrester's Model in section 1.5 (*Digital Immersives* and *Digital Socialities*), thus those who are inclined toward new technologies, and the high spenders of Gen Z and Gen X.
- **Customer Relationships.** Customer relationship management represents an area of greater value than the traditional model. As can be seen from the results of the sentiment analysis, the project that has brought D&G the greatest increase in brand awareness and user engagement is the #DGFAMILY community, this means that the best strategy to adopt is to launch projects on the Metaverse that go to improve customer interaction in a way that creates a sense of belonging to the brand and that establishes a relationship with both the brand itself and other customers.
- **Channels.** The distribution channels in the Metaverse differ significantly from the physical world. As described in the previous section, the phenomenon is characterized by a change in technology (“modular innovation”), going into detail this translates into a change in the way content brought to the Metaverse is enjoyed. Whether it is an actual collection composed by virtual clothes on blockchain or a fashion show streamed around the world, the go-to-market process of virtual products and services requires collaborations with immersive platforms, namely the "m-worlds" described in Chapter 1.1.
- **Key Partners.** As just mentioned in the point above, in the Metaverse, brands need to establish new partnerships with immersive platforms and virtual technology providers. For a brand to enter virtual reality, it is necessary to partner with an immersive platform such as Decentraland where they can make their projects usable to the community. In addition, suppliers vary from those in the traditional business model. In the real world the suppliers are many, just think of the meticulous search for raw materials for a luxury brand that goes up to a hundred suppliers each specializing in each fabric and processing; and this is only a small percentage of what the suppliers can be to get to have a physical product as a result. In the virtual world the search for materials and processing is creative so the suppliers become those who provide the technologies to work on and those who provide the programs to make these kinds of non-fungible products.

- **Key Resources.** The key resources needed to launch projects on the Metaverse are many; certainly, human resources are the basis for integrating this type of innovation into the traditional business models of luxury brands, indeed Dolce&Gabbana has created a team dedicated to identifying new strategies in the area of the Metaverse and NFTs. Another type of resources are technological resources, but these are not too different from those already in use by the brands; the most complex type of product to implement is the one that involves the creation of digital garments, but many of the brands already develop 3D renders for each collection item.
- **Key activities.** There are many activities that need to be completed to make the business model work. The D&G representative expressed that the main tasks performed by the dedicated team include "research, design and development of the specific projects, taking into account the scouting of market opportunities and the graphic realization of each project, which can differ from one to another."
- **Cost Structure.** Cost sources for products related to the Metaverse differ greatly from those for traditional products. As the Dolce&Gabbana representative exposed to me during the interview, "as you can imagine, behind a physical luxury product there is a lot of research and great processing, this leads to a relatively substantial cost item. For virtual products, all the cost items related to the research and processing of raw materials and then the production of the garment are no longer incurred. Another cost item that is going to be cut with the creation of a virtual product is that of inventory, although already for us it is not one of the highest source costs; this is because being a luxury brand we produce collections with limited number of pieces that are then sold within the season."
- **Revenue Streams.** The revenue numbers were not reported to me during the interview because they are sensitive data, however, from what we know from the analysis we can make assumptions related to each project. The data we are aware of are those related to the auction sale of the Genesi collection to the tune of about \$6 million and the market prices of the boxes related to the #DGFfamily community. Users can choose from four purchasable boxes: Glass, Black, Gold and Platinum; the Glass box which is the cheapest one is sold for about \$1 million. What can be assumed is that since the costs are lower than those related to products sold in the real world and the prices in the market instead are very high, the revenues in proportion for each customer are higher than those related to the sale of a

physical product. Obviously, this consideration must be made in the long run and over a sufficient amount of the target market reached, so it would be appropriate to make it afterwards the innovation has "crossed the chasm."

- Value Proposition: In conclusion, what is created for the customer is a new value proposition through a totally new and expanding channel; a new logic of interaction between brand and customer through content creation and projects such as the three presented by Dolce&Gabbana: the Genesi collection, the Metaverse fashion show and the #DGFAMILY virtual community.

The business model innovation under analysis, having as its basis the business models of brands that have already entered the Metaverse with projects already launched, such as Dolce&Gabbana, represents a variant of the traditional business model of luxury brands, presents a new value proposition to consumers. This type of innovation may be only a managerial fashion subsequently to the period of strong hype of 2021 and the technological trigger or it may take a second path in which the phenomenon will fade away by not crossing the chasm and not reaching a sufficient target market share to hold.

7. CONCLUSIONS

The analysis of market trends currently shows a steady state, following the period of strong hype in 2021, with sporadic peaks during 2022 (Google Trends). This situation can be interpreted in different ways depending on the perspective adopted. On the one hand, it can be viewed positively, as D&G is doing, by using this timeframe to analyse the market and obtain precise feedback on projects already launched in the Metaverse. On the other hand, a more sceptical view, like the one adopted by Versace, involves an in-depth analysis of opportunities and constant monitoring of trends. In this way, the brand, as Versace, can assess year by year when it is appropriate to go to market with projects related to the Metaverse and decide which one to pursue and which to discard. This constant attention and flexibility allow it to adapt to changing market needs and make informed decisions to maximise the impact and success of initiatives in the Metaverse.

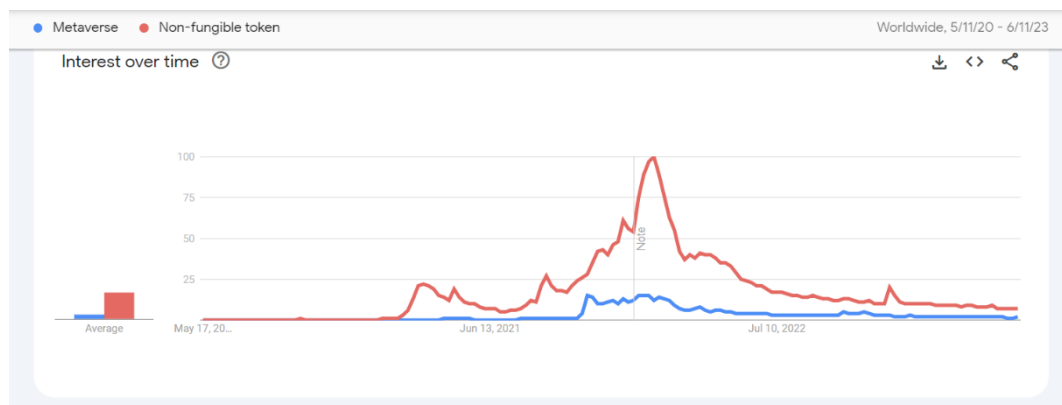


Figure 15
Metaverse and NFTs market interest trends
Google trends from [Metaverse, Non-fungible token - Explore - Google Trends](#)

The added value for brands in the context of innovation lies in following market trends and meeting customers' needs in the best possible way. However, according to Versace, it is important to distinguish between the adoption of digitisation in general and the adherence to specific Metaverse trends. Versace believes that the Metaverse concept is an extreme version of digitalisation and may be premature for the global market. Therefore, it needs to be carefully assessed whether there is sufficient demand for such a product. It is true that Dolce&Gabbana and Versace, with their style and market position, are already well positioned to serve the Generation Z market in China and the US through their physical collections; however, a broader assessment suggests that other

brands with a style more associated with made in Italy, elegance and simplicity might find it more difficult to enter such markets. In some cases, the target market may not be large or profitable enough to justify the investment in the Metaverse.

Consequently, each brand must consider its own differentiating factors, target market and existing opportunities to determine whether adherence to Metaverse trends represents added value for its business strategy. Careful and considered analysis of the associated opportunities and risks is crucial for making informed decisions in the area of innovation and market trends.

Another key aspect to be analysed concerns the strategy of the brand's approach to the Metaverse in terms of the type of projects developed. In this context, Dolce&Gabbana is differentiating its offer with three distinct products: a collection, an exclusive community and a virtual fashion show. This offer diversification strategy was conceived with the aim of analysing customer feedback and orienting future strategies in the context of the Metaverse. Currently, D&G is in the process of analysing the results and planning future actions based on this data. As previously mentioned in the sentiment analysis, it emerges that the project that has generated the most positive engagement with the brand is the #DGFAMILY community, a virtual community offering users the opportunity to interact with each other and exchange NFTs. This feedback should be carefully considered by brands wishing to enter the Metaverse or expand their offer in virtual reality. Therefore, investing in projects that foster interaction between users could prove more effective than focusing on projects related to the purchase of NFTs. Versace, on the other hand, presents several opportunities that could be exploited. As far as NFT collections are concerned, it already has a solid base from which to start with 3D renders, so it would only need to increase development and implement blockchain technology. Taking into consideration fashion shows, a key requirement for Donatella Versace is to present the collections with great entertainment, like the Los Angeles fashion show. Moving the fashion shows into the Metaverse could offer an opportunity to freely express creativity and create an even greater and positively surprising impact.

Finally, *product passports* represent an element linking the physical and virtual worlds, providing authenticity and historical product traceability. This duality can be an interesting starting point for a luxury brand that has not yet approached the Metaverse. *Product passports*, with their

characteristic of guaranteeing authenticity and exclusivity, respond to the fundamental concepts of the luxury world, which are sought after by customers.

In summary, brands need to carefully assess which products in the Metaverse can offer the greatest added value, taking into account their own special features, customer desire and market opportunities. Analysing different options, such as NFT collections, virtual fashion shows, communities and product passports, can enable brands to create engaging and successful experiences in the Metaverse.

It is important to specify that from the analysis of innovation frameworks we are not really witnessing unprecedented innovation in the fashion world as so many in the industry say, but mostly a new value proposition for customers. As analyzed in Chapter 6, as of today it is not correct to talk about disruptive innovation or incremental innovation but rather about revisiting the traditional business model. For brands to enter the Metaverse, with a sustainable strategy, can lead to a significant increase in brand awareness and user engagement by adding a new channel of interaction with their community.

The line between the real and virtual worlds is getting thinner and thinner, and luxury brands seem poised to erase it altogether.

8. APPENDIX

username	likes	quotes	replies	retweets	text	timestamp	url	trad
@sandergansen	13	0	0	1	I'm already excited to learn more how they want	05/09/2023 13:21	https://twitter.com/sandergansen/status/1648111111	I'm already excited to learn more how they want to implement web3 within Dolce & Gabbana!
@nftvaluations	0	0	0	0	New Collection SupportedWe have added Dolce	31/08/2023 16:00	https://twitter.com/nftvaluations/status/1648111111	New Collection SupportedWe have added Dolce&Gabbana Realta Parallela (@UNXD_NFT) colle
@marcb_xyz	1	0	2	0	Interest in NFT from big brands is at all-time lows	28/08/2023 15:09	https://twitter.com/marcb_xyz/status/1648111111	Interest in NFT from big brands is at all-time lows! Adidas's monthly NFT volume is \$1k, down fr
@degenzamin	1	0	1	0	Where and how brands navigate their digital effo	28/08/2023 09:25	https://twitter.com/degenzamin/status/1648111111	Where and how brands navigate their digital efforts will be interesting in the midst of crypto w
@ForbesItalia	3	0	0	0	Questo under 30 segue i progetti legati a NFT e m	26/08/2023 07:30	https://twitter.com/ForbesItalia/status/1648111111	This under 30 follows the projects related to NFT and metaverso for Dolce&Gabbana divr.it/SvGI
@pabeurnardeau	1	0	2	0	Dolce & Gabbana: Merged the physical and digita	26/08/2023 07:30	https://twitter.com/pabeurnardeau/status/1648111111	Dolce & Gabbana: Merged the physical and digital with their Collezione Genesi. Their innovat
@TheFutureLab	0	0	0	0	Weekly Debrief : L'Oréal Professionnel expands	25/08/2023 18:01	https://twitter.com/TheFutureLab/status/1648111111	Weekly Debrief : L'Oréal Professionnel expands its metaverse presence, meet the AI believers,
@FalynnCaruther2	0	0	0	0	Dynamic nfts can be used for cross-promotions, g	20/08/2023 13:57	https://twitter.com/FalynnCaruther2/status/1648111111	Dynamic nfts can be used for cross-promotions, gamification, fashion, and music collaborati
@NikaylaOttinger	1	0	0	0	Dynamic nfts can be used for cross-promotions, g	17/08/2023 19:33	https://twitter.com/NikaylaOttinger/status/1648111111	Dynamic nfts can be used for cross-promotions, gamification, fashion, and music collaborati
@ShayneKwok	1	0	0	0	Dynamic nfts can be used for cross-promotions, g	17/08/2023 19:33	https://twitter.com/ShayneKwok/status/1648111111	Dynamic nfts can be used for cross-promotions, gamification, fashion, and music collaborati
@dupuis_jailynn	0	0	0	0	Dynamic nfts can be used for cross-promotions, g	17/08/2023 12:32	https://twitter.com/dupuis_jailynn/status/1648111111	Dynamic nfts can be used for cross-promotions, gamification, fashion, and music collaborati
@nmkenji	33	0	2	5	MIYAVI Virtual Live 7.0の下見にいらっ	04/08/2023 10:17	https://twitter.com/nmkenji/status/1648111111	went to preview MIYAVI Virtual Live 7.0. @MIYAVI_OFFICIAL #Decentraland #MIYAVI #OASIS_MI
@nftvaluations	0	0	0	0	New Collection SupportedWe have added Dolce&	02/08/2023 17:00	https://twitter.com/nftvaluations/status/1648111111	New Collection SupportedWe have added Dolce&Gabbana: DGFamily (@dolcegabbana) collect
@crazyartstyles	3	0	2	0	I enjoyed is fashionable NFTs are now in style, s	02/08/2023 14:59	https://twitter.com/crazyartstyles/status/1648111111	I enjoyed is fashionable NFTs are now in style, such as RTFKT, Gucci, and Dolce & Gabbana. The
@CanessaDCL	2	0	0	0	For instance, there are NFT pfp projects that onc	27/07/2023 20:13	https://twitter.com/CanessaDCL/status/1648111111	For instance, there are NFT pfp projects that once you buy the NFT, you get a wearable to matc
@_MKXXIII	0	0	0	0	@dolcegabbana @UNXD_NFT Dolce&Gabbana yo	25/07/2023 12:20	https://twitter.com/_MKXXIII/status/1648111111	@dolcegabbana @UNXD_NFT Dolce&Gabbana you are the latest experience in web3, never gc
@PawntOfficial	3	0	1	0	(7/22)Other big brands also forayed into web3 w	19/07/2023 16:09	https://twitter.com/PawntOfficial/status/1648111111	(7/22)Other big brands also forayed into web3 with NFTs, including Coke-Cola, Dolce & Gabb
@OxOBIX	1	0	2	0	Nike, Dolce & Gabbana, Tiffany, Gucci, Adidas, B	14/07/2023 13:00	https://twitter.com/OxOBIX/status/1648111111	Nike, Dolce & Gabbana, Tiffany, Gucci, Adidas, Budweiser and TIME have collectively generat
@ogurin91	1	0	1	0	世界初のデジタルファッションに特化した	12/07/2023 02:35	https://twitter.com/ogurin91/status/1648111111	I have summarized the world's first DAO specializing in digital fashion "Red DAO" (@RED_DAO
@CryptoMentions	1	0	1	0	Discover how leading fashion brands are merging	12/07/2023 00:45	https://twitter.com/CryptoMentions/status/1648111111	Discover how leading fashion brands are merging style with technology through NFTs and the i
@ski_039	1	0	2	0	Decentraland のコラボは、3月29日のMe	08/07/2023 23:00	https://twitter.com/ski_039/status/1648111111	The Decentraland collaboration took place at Metaverse Fashion Week on March 29th. This
@andreas12985	2	0	1	0	After Nike, Adidas, Dolce & Gabbana and Gucci, L	30/06/2023 07:40	https://twitter.com/andreas12985/status/1648111111	After Nike, Adidas, Dolce & Gabbana and Gucci, Lacoste is releasing their NFT collection O #NF
@GMGuyNews	2	0	5	1	Earn points for leaderboard rankings, boosting N	30/06/2023 00:10	https://twitter.com/GMGuyNews/status/1648111111	Earn points for leaderboard rankings, boosting NFT rarity. Fashion giants like Nike, Adidas, Dolo
@harry_forj	20	0	3	5	[NFT Adoption x Global Brands]Total NFT collect	26/06/2023 19:49	https://twitter.com/harry_forj/status/1648111111	[NFT Adoption x Global Brands]Total NFT collections Released by Major company Nike - 14 0 Ti
@EvanLuthra	158	4	30	78	The Metaverse market is worth \$416.02 Billion.H	24/06/2023 11:53	https://twitter.com/EvanLuthra/status/1648111111	The Metaverse market is worth \$416.02 Billion. It's expected to grow for \$3,409 billion by 2027.H
@Web3France	3	0	1	0	3/Les métaverses, ces mondes virtuels en ligne,	19/06/2023 19:20	https://twitter.com/Web3France/status/1648111111	Metaverses, these online virtual worlds, are the new El Dorado for fashion brands. This is wh
@Lively_verse	4	0	0	0	Brands are exploring the metaverse and NFTs to	19/06/2023 18:29	https://twitter.com/Lively_verse/status/1648111111	Brands are exploring the metaverse and NFTs to connect with new audiences! Starbucks, Dolce
@Lively_verse	2	0	0	0	Las marcas están explorando el metaverso y las	19/06/2023 18:28	https://twitter.com/Lively_verse/status/1648111111	Brands are exploring the metaverse and NFTs to connect with new audiences! Starbucks, Dolce
@Yukippa_NFT	1	0	1	0	DOLCE&GABBANAらしいお	17/06/2023 16:50	https://twitter.com/Yukippa_NFT/status/1648111111	DOLCE&GABBANA style
@ogurin91	1	0	1	0	③Dolce&Gabbana2022年2月、@UNXD_NFTと	12/06/2023 01:37	https://twitter.com/ogurin91/status/1648111111	③Dolce&Gabbana in February 2022, we announced the limited NFT community "DGFamily" in J
@solidmax	0	0	1	0	Top NFT Brand Revenue : 1. Nike 2. Dolce & Gabb	12/06/2023 15:37	https://twitter.com/solidmax/status/1648111111	Top NFT Brand Revenue : 1. Nike 2. Dolce & Gabbana
@solidmax	0	0	1	1	Brand NFT Project: interesting facts 📈(Nike, Tiffa	12/06/2023 15:37	https://twitter.com/solidmax/status/1648111111	Brand NFT Project: interesting facts 📈(Nike, Tiffany, Dolce & Gabbana ...)Here is the 1st one : O

Table 2
Extraction of the file Excel related to the D&G presence in the Metaverse

username	text	replies	retweets	likes	timestamp	trad	Subjectivity	Polarity	"Subjectivity"	"Polarity"
@nickgon	Introducing UNXD, a curated #NFT marketplace for digi	0	0	1	2021-07-14 13:06	Introducing UNXD, a curated #NFT marketplace for digi	0,25	0,25	Objective	Neutral
@nickgon	Introducing UNXD, a curated #NFT marketplace for digi	0	0	1	2021-07-14 13:06	Introducing UNXD, a curated #NFT marketplace for digi	0,25	0,25	Objective	Neutral
@News_Of_Alq	MATIC: Polygon powered NFT Platform UNXD announc	0	0	1	2021-07-14 13:13	MATIC: Polygon powered NFT Platform UNXD announc	0	0	Objective	Neutral
@News_Of_Alq	MATIC: Polygon powered NFT Platform UNXD announc	0	0	1	2021-07-14 13:13	MATIC: Polygon powered NFT Platform UNXD announc	0	0	Objective	Neutral
@OxPolygonLal	1/n @DolceGabbana reveals an exclusive #NFT collect	34	100	448	2021-07-14 13:14	1/n @DolceGabbana reveals an exclusive #NFT collect	0	0	Objective	Neutral
@OxPolygonLal	1/n @DolceGabbana reveals an exclusive #NFT collect	34	100	448	2021-07-14 13:14	1/n @DolceGabbana reveals an exclusive #NFT collect	0	0	Objective	Neutral
@hamzaumer3	@DolceGabbana reveals an exclusive #NFT collection,	0	0	3	2021-07-14 16:00	@DolceGabbana reveals an exclusive #NFT collection,	0	0	Objective	Neutral
@hamzaumer3	@DolceGabbana reveals an exclusive #NFT collection,	0	0	3	2021-07-14 16:00	@DolceGabbana reveals an exclusive #NFT collection,	0	0	Objective	Neutral
@BhargaviKoth	@DolceGabbana reveals an exclusive #NFT collection,	0	0	2	2021-07-14 18:16	@DolceGabbana reveals an exclusive #NFT collection,	0	0	Objective	Neutral
@BhargaviKoth	@DolceGabbana reveals an exclusive #NFT collection,	0	0	2	2021-07-14 18:16	@DolceGabbana reveals an exclusive #NFT collection,	0	0	Objective	Neutral
@webnowcom	Milan-headquartered Italian luxury fashion house Dolci	0	0	0	2021-07-15 00:24	Milan-headquartered Italian luxury fashion house Dolci	0,25	0,25	Objective	Neutral
@webnowcom	Milan-headquartered Italian luxury fashion house Dolci	0	0	0	2021-07-15 00:24	Milan-headquartered Italian luxury fashion house Dolci	0,25	0,25	Objective	Neutral
@reviewpunk	Milan-headquartered Italian luxury fashion house Dolci	0	0	1	2021-07-15 02:19	Milan-headquartered Italian luxury fashion house Dolci	0	0	Objective	Neutral
@reviewpunk	Milan-headquartered Italian luxury fashion house Dolci	0	0	1	2021-07-15 02:19	Milan-headquartered Italian luxury fashion house Dolci	0	0	Objective	Neutral
@coinshots	Milan-headquartered Italian luxury fashion house @do	0	0	0	2021-07-15 07:20	Milan-headquartered Italian luxury fashion house @do	0	0	Objective	Neutral
@coinshots	Milan-headquartered Italian luxury fashion house @do	0	0	0	2021-07-15 07:20	Milan-headquartered Italian luxury fashion house @do	0	0	Objective	Neutral
@CryptoCat_N	Dolce and Gabbana has announced the launch of an ex	0	0	0	2021-07-15 09:46	Dolce and Gabbana has announced the launch of an ex	0	0	Objective	Neutral
@crypto_trail	The fashion brand's debut NFT collection will be namec	1	0	0	2021-07-15 10:36	The fashion brand's debut NFT collection will be namec	0	0	Objective	Neutral
@crypto_trail	Other NFTs in the Collezione Genesi collection will be r	0	0	1	2021-07-15 10:37	Other NFTs in the Collezione Genesi collection will be r	0,4375	0,1875	Objective	Neutral
@CathyHackl	Wish I had gotten a chance to preview the @dolcegabi	1	6	23	2021-09-06 22:30	Wish I had gotten a chance to preview the	1	1	Subjective	Positive
@BitFinanzas	Genesi Collection: Dolce & Gabbana entra al mercado	0	5	18	2021-07-15 16:15	Genesi Collection: Dolce & Gabbana enters the NFT m	0	0	Objective	Neutral
@BitFinanzas	Genesi Collection: Dolce & Gabbana entra al mercado	0	5	18	2021-07-15 16:15	Genesi Collection: Dolce & Gabbana enters the NFT m	0	0	Objective	Neutral
@alexa_osmas	The D&G fashion house has announced the launch of a	0	0	2	2021-07-15 17:35	The D&G fashion house has announced the launch of a	0,7	0,166667	Subjective	Neutral
@GraySearch	NFT is increasing its hold over the fashion industry. Dok	0	0	0	2021-07-15 18:58	NFT is increasing its hold over the fashion industry. Dok	0	0	Objective	Neutral
@RevolveGam	Luxury brand Dolce & Gabbana will launch a non-fungit	0	3	5	2021-07-15 20:27	Luxury brand Dolce & Gabbana will launch a non-fungit	0	0	Objective	Neutral
@RevolveGam	Luxury brand Dolce & Gabbana will launch a non-fungit	0	3	5	2021-07-15 20:27	Luxury brand Dolce & Gabbana will launch a non-fungit	0	0	Objective	Neutral
@insiderrankin	#NFT NEWS FLASH @dolcegabbana NFT collection will	0	0	0	2021-07-16 03:14	#NFT NEWS FLASH @dolcegabbana NFT collection will	0	0	Objective	Neutral

Table 3
Extraction of the file Excel related to the D&G Genesi collection

username	text	replies	retweets	likes	timestamp	trad	Subjectivity	Polarity	"Subjectivity"	"Polarity"
@NeverFindOut	@boulevardksa : #mensfashion #MetaverseDolce&	0	0	0	2016-05-01 21:40:0	@boulevardksa : #mensfashion #MetaverseDolce&	0	0	Objective	Neutral
@_vdigimarks	Metaverse will soon have a fashion show with alm	0	0	1	2021-12-29 12:26:0	Metaverse will soon have a fashion show with alm	0,5	0,166666667	Subjective	Neutral
@cavrhl	Il n'y a pas que Roblox qui développe les partenariat	1	2	1	2022-01-02 10:07:0	It's not just Roblox that is developing partnerships	0,333333333	0,25	Objective	Neutral
@FAfied32	"It has to look like the future" - "What about glass?"	0	0	1	2022-01-18 16:04:0	"It has to look like the future" - "What about glass?"	0,327777778	-0,05	Objective	Neutral
@Lideria4	Próximo gran evento entre el 24 y 27 de marzo sobr	0	0	1	2022-01-20 09:38:0	Next big event between March 24 and 27 about the	0,277777778	0,083333333	Objective	Neutral
@LatiMetaverse	#fashion and #luxury brands Paco Rabanne, Dolce &	0	0	3	2022-02-24 20:52:0	#fashion and #luxury brands Paco Rabanne, Dolce &	0	0	Objective	Neutral
@RibbeFelipe	Día 24/03 omega o Metaverse Fashion Week (MVF)	0	1	4	2022-02-25 20:13:0	On March 24th, Metaverse Fashion Week (MVF)	0,484848485	0,077651515	Objective	Neutral
@icoquality	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:31:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@HackPosts	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:32:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@jamieCrypto	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:32:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@MoneyMakerGroi	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:32:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@CryptoBreakNew	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:32:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@bitcoinagle	Decentraland to Host Metaverse Fashion Week Wit	2	1	3	2022-02-25 21:32:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@DerekTMKinney	#knownews #bitcoin #eth Decentraland to Host Me	0	0	0	2022-02-25 21:32:0	#knownews #bitcoin #eth Decentraland to Host Me	0	0	Objective	Neutral
@faisalscrypto	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:37:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@TradingCodes	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:35:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@LatestcryptoN	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:35:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@TheGemHodlers	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:36:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@Dimiantreez	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:36:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@CapcoinsCrypto	Decentraland to Host Metaverse Fashion Week Wit	1	0	0	2022-02-25 21:37:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@bitcorom	Decentraland to Host Metaverse Fashion Week Wit	0	1	1	2022-02-25 21:37:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@INewseverything	Decentraland to Host Metaverse Fashion Week Wit	1	0	0	2022-02-25 21:38:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@MoneyStacks19	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:40:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@OGLifeOGL	This year's #Metaverse Fashion Week boasts partici	1	5	9	2023-03-30 17:24:0	This year's #Metaverse Fashion Week boasts	1	1	Subjective	Positive
@webtradelatalk	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:52:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@Crypto88888	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:54:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral
@HeraldAfrican	Decentraland to Host Metaverse Fashion Week Wit	0	0	0	2022-02-25 21:55:0	Decentraland to Host Metaverse Fashion Week Wit	0	0	Objective	Neutral

Table 4
Extraction of the file Excel related to the D&G Metaverse fashion show

username	text	replies	retweets	likes	timestamp	trad	Subjectivity	Polarity	"Subjectivity"	"Polarity"
@BSpinozzi	Luxurious, alluring Stella Aminova for the #DGA	0	0	2	2023-08-27 14:35	Luxurious, alluring Stella Aminova for the	0	0	Objective	Neutral
@BSpinozzi	♥Sylvia Mantella graced the #DGAItaGioielleria	0	0	1	2023-09-04 13:34	♥Sylvia Mantella graced the #DGAItaGioielleria	0	0	Objective	Neutral
@BSpinozzi	Gui Siqueira and Eduardo Sierra graced the #DG	0	0	1	2023-09-11 15:18	Gui Siqueira and Eduardo Sierra graced the	0	0	Objective	Neutral
@eunj11808931	ลูกแม่เก่งที่สุด แม่รอหนูอยู่นะ#DGAItaSartoriaI	0	0	0	2023-07-10 17:26	Mother's daughter is the best. Mom is w	0,3	1	Objective	Positive
@BSpinozzi	Stefano Gabbana, Doyoung and Luca Santonast	0	0	2	2023-09-07 08:48	Stefano Gabbana, Doyoung and Luca Sar	0	0	Objective	Neutral
@BSpinozzi	♥Mario Iozzino e Sylvia Mantella graced the #I	0	0	2	2023-09-11 08:25	♥Mario Iozzino and Sylvia Mantella grac	0	0	Objective	Neutral
@deardoyoung1	Doyoung just being part of the #DGFamil, seein	0	1	0	2023-06-17 09:54	Doyoung just being part of the	0,8	1	Subjective	Positive
@BSpinozzi	Gui Siqueira, Bryanboy and Bruno Astuto graced	0	0	2	2023-09-09 08:58	Gui Siqueira, Bryanboy and Bruno Astuto	0	0	Objective	Neutral
@BSpinozzi	Romantic, deluxe iaralondon (IG) for the #DGA	0	0	1	2023-08-21 16:17	Romantic, deluxe iaralondon (IG) for the	0,7	0,3	Subjective	Neutral
@BSpinozzi	Glam dolcevitato and erling.haaland for the #I	0	0	1	2023-08-26 08:22	Glam dolcevitato and erling.haaland fo	0	0	Objective	Neutral
@BSpinozzi	Glam stellaaminova, dolcevitato, siqueiragui (I	0	0	1	2023-08-27 08:42	Glam stellaaminova, dolcevitato, siquei	0	0	Objective	Neutral
@BSpinozzi	Victoria Shelyagova graced the #DGAItaGioieller	0	0	1	2023-09-08 14:12	Victoria Shelyagova graced the #DGAIta	0	0	Objective	Neutral
@BSpinozzi	Sylvia Mantella, Mona Patel and Bryanboy grac	0	0	1	2023-09-05 08:47	Sylvia Mantella, Mona Patel and Bryanb	0	0	Objective	Neutral
@gf404notfound	You are the perfect example of God's creation f	0	0	0	2023-06-17 12:56	You are the perfect example of God's cre	1	1	Subjective	Positive
@BSpinozzi	Doyoung and Bryanboy graced the #DGAItaGioi	0	0	1	2023-09-06 07:20	Doyoung and Bryanboy graced the #DGA	0	0	Objective	Neutral
@BSpinozzi	Chic, romantic, seductive jaimebellekennedy (I	0	0	1	2023-08-21 07:35	Chic, romantic, seductive jaimebelleker	0,5	0	Subjective	Neutral
@Digits3Web	10) Dolce & Gabbana- Launched its NFT collecti	0	0	1	2022-12-02 10:02	10) Dolce & Gabbana- Launched its NFT	0,333333333	0,25	Objective	Neutral
@dolcegabanna	Dolce&Gabbana & @UNXD_NFT's highly anticip	6	20	87	2022-02-22 12:02	Dolce&Gabbana & @UNXD_NFT's highly	0,247142857	0,143333333	Objective	Neutral
@clubrare_nft	Metaverse Fashion Week is back in Decentra	1	2	8	2023-03-16 16:00	Metaverse Fashion Week is back in Dece	0,041666667	0	Objective	Neutral
@7NewyorkNew	dolcegabanna: Dolce&Gabbana & @UNXD_NFT	0	0	0	2022-02-22 12:41	dolcegabanna: Dolce&Gabbana & @UN	0,247142857	0,143333333	Objective	Neutral
@7NewyorkNew	dolcegabanna: 1/Dolce&Gabbana and @UNXD_	0	0	0	2022-02-21 15:41	dolcegabanna: 1/Dolce&Gabbana and @	0,256571429	0,132	Objective	Neutral
@jmp_verse	Received mine too. Superb quality! #DGFamil	0	0	2	2023-05-17 10:43	Received mine too. Superb quality! #DGF	1	1	Subjective	Positive
@BlockScoopsN	Dolce & Gabbana expand into the MetaverseLu	0	0	0	2022-03-07 18:30	Dolce & Gabbana expand into the Metav	0	0	Objective	Neutral
@swisstradingne	10/ Dolce & Gabbana- Launched the NFT c	0	0	0	2022-12-01 19:17	10/ Dolce & Gabbana- Launched the NFI	0,333333333	0,25	Objective	Neutral
@Blockworks_10	/ Dolce & Gabbana- Launched the NFT collec	1	1	17	2022-12-01 14:02	/ Dolce & Gabbana- Launched the NFT	0,333333333	0,25	Objective	Neutral
@dolcegabanna	1/Dolce&Gabbana and @UNXD_NFT announce	49	144	557	2022-02-21 14:57	1/Dolce&Gabbana and @UNXD_NFT an	0,256571429	0,132	Objective	Neutral
@MattMaltepes	The best and it's not close. See you guys tonigh	2	1	10	2023-04-13 21:27	The best and it's not close. See you	0,3	1	Objective	Positive

Table 5
Extraction of the file Excel related to the #DGFamil community

```

[ ] import pandas as pd
import numpy as np
trans = Translator()
from textblob import TextBlob
from wordcloud import WordCloud
import re
import matplotlib.pyplot as plt

Matplotlib is building the font cache; this may take a moment.

[ ] data = pd.read_csv('Twitter - Dolce&Gabbana Metaverse, Dolce&Gabbana NFT_Trad.csv', sep = ',')
data.head()

[ ]

[ ] #data['trad'] = data['text'].apply(lambda x: trans.translate(x, src='auto', dest='en').text)

[ ] #data.to_csv('Twitter - Dolce&Gabbana Metaverse community, Dolce&Gabbana #DGFamil_Trad.csv')

[ ]

[ ] def cleanText(text):
    text = re.sub(r'@[A-Za-z0-9]+', '', text)
    text = re.sub(r'#', '', text)
    text = re.sub(r'RT[\s]', '', text)
    text = re.sub(r'https?:\//\S+', '', text)

[ ] data['textp'] = data['trad'].apply(cleanText)

[ ] data['textp'].head()

0    None
1    None
2    None
3    None
4    None
Name: textp, dtype: object

▶ allWord = ' '.join([twts for twts in data['trad']])
wordCloud = WordCloud(width = 800, height = 500, random_state = 21, max_font_size = 119).generate(allWord)

plt.imshow(wordCloud, interpolation = "bilinear")
plt.axis('off')
plt.show()

```

Table 6
Extraction of the Python code related to the D&G presence in the Metaverse


```
[ ] from googletrans import Translator
import openpyxl as op
import pandas as pd
import numpy as np
trans = Translator()
from textblob import TextBlob
from wordcloud import WordCloud
import re
import matplotlib.pyplot as plt
```

```
[ ] data = pd.read_csv('Twitter - Dolce&Gabbana Genesi, Genesi collection.csv', sep = ';')
data.head()
```

	tweet_avatar	images[0]	username	text	in_reply_to/0	in_reply_to/1	in_reply_to/2	in_reply_to/3	in_reply_to/4
0	https://pbs.twimg.com/profile_images/159590292...	NaN	@akai_hedge	Build on dolce & gabbana's debut nft release, ...	NaN	NaN	NaN	NaN	NaN
1	https://pbs.twimg.com/profile_images/150524505...	NaN	@BorgesDonnie	Build on dolce & gabbana's debut nft release, ...	NaN	NaN	NaN	NaN	NaN

```
[ ] def getSubjectivity(text):
return TextBlob(text).sentiment.subjectivity

def getPolarity(text):
return TextBlob(text).sentiment.polarity
```

```
[ ] data['Subjectivity'] = data['trad'].apply(getSubjectivity)
data['Polarity'] = data['trad'].apply(getPolarity)
```

```
[ ] data.head()
```

	tweet_avatar	images[0]	username	text	in_reply_to/0	in_reply_to/1	in_reply_to/2	in_reply_to/3	in_reply_to/4
0	https://pbs.twimg.com/profile_images/159590292...	NaN	@akai_hedge	Build on dolce & gabbana's debut nft release, ...	NaN	NaN	NaN	NaN	NaN
1	https://pbs.twimg.com/profile_images/150524505...	NaN	@BorgesDonnie	Build on dolce & gabbana's debut nft release, ...	NaN	NaN	NaN	NaN	NaN

Table 7
Extraction of the Python code related to the D&G Genesi collection

```
[ ] from googletrans import Translator
import openpyxl as op
import pandas as pd
import numpy as np
trans = Translator()
from textblob import TextBlob
from wordcloud import WordCloud
import re
import matplotlib.pyplot as plt
```

```
[ ] data = pd.read_csv('Twitter - Dolce&Gabbana Metaverse fashion week, Dolce&Gabbana Metaverse fashion show.csv', sep = ';')
data.head()
```

	tweet_avatar	images[0]	username	text	in_reply_to/0	in_reply_to/1	in_reply_to/2	replies	retweets	quot
0	https://pbs.twimg.com/profile_images/766267043...	NaN	@FNW_BR	Dolce & Gabbana apoia jovens estilistas digita...	NaN	NaN	NaN	0	0	
1	https://pbs.twimg.com/profile_images/148864976...	NaN	@NftDropsCal	4/ @decentraland's Metaverse Virtual Fashion W...	@NftDropsCal	@ecosapiensxyz	@RalphLauren	2	0	
2	https://pbs.twimg.com/profile_images/162253190...	NaN	@_BlockLegal	Strut your stuff in the virtual world! Decentr... The blockchain-	NaN	NaN	NaN	0	0	

```
[ ] def getSubjectivity(text):
    return TextBlob(text).sentiment.subjectivity

def getPolarity(text):
    return TextBlob(text).sentiment.polarity
```

```
[ ] data['Subjectivity'] = data['trad'].apply(getSubjectivity)
data['Polarity'] = data['trad'].apply(getPolarity)
```

```
[ ] data.head()
```

	tweet_avatar	images[0]	username	text	in_reply_to/0	in_reply_to/1	in_reply_to/2	replies	retweets	quot
0	https://pbs.twimg.com/profile_images/766267043...	NaN	@FNW_BR	Dolce & Gabbana apoia jovens estilistas digita...	NaN	NaN	NaN	0	0	
1	https://pbs.twimg.com/profile_images/148864976...	NaN	@NftDropsCal	4/ @decentraland's Metaverse Virtual Fashion W...	@NftDropsCal	@ecosapiensxyz	@RalphLauren	2	0	
2	https://pbs.twimg.com/profile_images/162253190...	NaN	@_BlockLegal	Strut your stuff in the virtual world! Decentr... The blockchain-	NaN	NaN	NaN	0	0	

Table 8
Extraction of the Python code related to the D&G Metaverse fashion show

```
[ ] from googletrans import Translator
import openpyxl as op
import pandas as pd
import numpy as np
trans = Translator()
from textblob import TextBlob
from wordcloud import WordCloud
import re
import matplotlib.pyplot as plt

[ ] data = pd.read_csv('Twitter - Dolce&Gabbana Metaverse community, Dolce&Gabbana #DGFamil.csv', sep = ';')
data.head()
```

	tweet_avatar	images[0]	username	text	in_reply_to/0	in_reply_to/1	in_reply_to/2	replies	retweets	quotes	...	tweet_hasht
0	https://pbs.twimg.com/profile_images/146165252...	NaN	@BSpinozzi	Luxurious, alluring Stella Aminova for the #DG...	NaN	NaN	NaN	0	0	0	...	
1	https://pbs.twimg.com/profile_images/146165252...	NaN	@BSpinozzi	♥Sylvia Mantella graced the #DGAItaGioielleria...	NaN	NaN	NaN	0	0	0	...	
2	https://pbs.twimg.com/profile_images/146165252...	NaN	@BSpinozzi	Gui Siqueira and Eduardo Sierra graced the #DG...	NaN	NaN	NaN	0	0	0	...	
3	https://pbs.twimg.com/profile_images/146165252...	NaN	@BSpinozzi	Elegant, feminine, glam Jaimee Belle Kennedy f...	NaN	NaN	NaN	0	0	0	...	
4	https://pbs.twimg.com/profile_images/146165252...	NaN	@BSpinozzi	Stefano Gabbana, Doyoung and Luca Santonastaso...	NaN	NaN	NaN	0	0	0	...	

5 rows × 47 columns

```
[ ] def getSubjectivity(text):
return TextBlob(text).sentiment.subjectivity

def getPolarity(text):
return TextBlob(text).sentiment.polarity

[ ] data['Subjectivity'] = data['trad'].apply(getSubjectivity)
data['Polarity'] = data['trad'].apply(getPolarity)

[ ] data.head()
```

Unnamed: 0	tweet_avatar	images[0]	username	text	in_reply_to/0	in_reply_to/1	in_reply_to/2	in_reply_to/3	in_reply_to/4	...	tweet_h
0	0 https://pbs.twimg.com/profile_images/159590292...	NaN	@akai_hedge	Build on dolce & gabbana's debut nft release, ...	NaN	NaN	NaN	NaN	NaN	...	
1	1 https://pbs.twimg.com/profile_images/150524505...	NaN	@BorgesDonnie	Build on dolce & gabbana's debut nft release, ...	NaN	NaN	NaN	NaN	NaN	...	
2	2 https://pbs.twimg.com/profile_images/169509496...	NaN	@ozithread	2/5 lnOn the product side, we	NaN	NaN	NaN	NaN	NaN	...	

Table 9
Extraction of the Python code related to the #DGFamil community

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