Automation as an Approach for Programmatic Ads in Light of the Launch of the Metaverse Era (YouTube vs Facebook vs Google)

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ABSTRACT:

Programmatic advertising in the metaverse is emerging as a transformative force in the advertising industry. It presents a novel avenue for advertisers to reach their intended audiences. This paper presents a futuristic perspective on what programmatic advertising might look like in the metaverse, exploring potential scenarios and opportunities for (Google/YouTube/Facebook) platforms. The study problem is summarized in the following question: How can we benefit from the development of automation for programmatic social media advertising in light of the launch of the Metaverse era? The research represents a case study of users' expectations of programmatic ads uses in the Metaverse world on YouTube, Facebook and Google. In addition to analyzing the expectations of professional automated/Programmatic designers, to investigates the vast opportunities and advancements brought about by the metaverse era to push the boundaries of creativity by exploring the potential of adopting new design paradigms, enhancing technical skills, and prioritizing user experience. The research utilized an experimental approach to investigate the user expectations About the advancements in the automation of programmatic advertising in light of the launch of the Metaverse era. The research has yielded several findings, with the most significant one indicating that there are statistically significant variations in users' expectations regarding the integration of VR/AR elements in the automated advertisements. Consequently, users anticipated an immersive experience within the advertising in the metaverse ecosystem.

1- Introduction

Programmatic advertising in the metaverse presents a novel and creative avenue for advertisers to reach their intended audiences. The metaverse refers to a virtual realm that individuals can enter using immersive technologies such as virtual and augmented reality (AR). In this digital realm, programmatic advertising will entail advertising spaces in real-time within the metaverse.

The AI algorithms massive a vast amount of user data that can be used to empower the effectiveness of PA in the metaverse ecosystem. Advertisers can use this data to create a massive personalized ads tailored to user's interests and behaviors. Advertisers can design more impactful campaigns that effect the right audience at the right moment. This level of personalization and precision targeting will result in more effective advertising that resonates with users and drives better results for businesses. In general, leveraging the Metaverse ecosystem for advertising purposes holds great potential to revolutionize the advertising industry and offer businesses fresh avenues to connect with their desired audiences (Dwivedi et al 2022).

The advertising community has experienced a rise in the adoption of automation technology, resulting a lot of benefits for advertisers. Automation has become a rising technology pattern in the digital advertising world, providing various benefits to advertisers. The primary advantage of automation lies in its ability to reduce costs by automating tedious and enhance efficiency and time-consuming such as ad placement, targeting, and optimization. This, in turn, enables advertisers to allocate more resources towards strategic and creative aspects of advertising, such as crafting compelling ad content and messaging (impactmybiz) (digitalremedy).

Automated ad placement is an important advantage for advertisers. This advantage allows the ads to be placed automatically based on predetermined information, with audience demographics, time of day, interests, and location. By utilizing machine learning algorithms and data analysis tools, automation can identify audience behavior patterns and adjust ad targeting accordingly. This maximizes ad spend and yields better campaign results for advertisers. This ensures that ads reach the most relevant and receptive audiences, thereby increasing the likelihood of conversion and reducing waste (socialmediaexaminer - ibm).

Moreover, automation improves ad optimization by enabling advertisers to swiftly test and refine campaigns based on real-time data. Advertisers can monitor ad performance and adjust targeting, messaging, and other parameters to enhance results, driving more conversions and higher ROI (blogs). So, automation has become a critical tool for advertisers in digital advertising industry, enabling advertisers to achieve better results and reach their target audience more effectively (Smith 2023).

Automated Programmatic advertising in the metaverse, a virtual reality (VR), augmented reality (AR) or interactivity space where users interact in a shared digital environment, is expected to be a dynamic and immersive experience that leverages the unique characteristics of the ads in the metaverse world. In the metaverse era, we expect automated programmatic advertising to play a decisive role in the metaverse system (Johnson 2023).

Despite the promising outlook, the Metaverse and programmatic advertising encounter notable challenges due to insufficient research and a rare of subject experts. Consequently, the research problem can be succinctly summarized by addressing the following question:

How can we benefit from the development of automation for programmatic social media advertising in light of the launch of the Metaverse era? Our goal is to explore a new angle in using the potential of the Metaverse revolution in developing the role programmatic social media ads, its uses in advertisement field. The research represents a case study of users' expectations of programmatic ads uses in the Metaverse world on YouTube, Facebook and Google. In addition to analyzing the expectations of professional automated/Programmatic designers, the study also investigates the vast opportunities and advancements brought about by the metaverse era to push the boundaries of creativity by exploring the potential of adopting new design paradigms, enhancing technical skills, and prioritizing user experience.

The importance of the Metaverse is due to the fact that it is a quantum leap in how people interact with digital content, as traditional advertising methods have become ineffective. Second, automation allows for the seamless integration of Programmatic Ads into virtual worlds, ensuring a smooth and uninterrupted user experience. Third, automation enables advertisers to

produce their ads in real-time to individual users, resulting in more engaging content (Smith 2023). Finally, studying automation in the Metaverse era provides important insights into how technology can enhance the efficiency of Programmatic Ads, helping marketers stay remain competitive in a digital landscape. Absent these insights and guidance, there is a risk of facing another AI winter, as unsatisfactory results for users' expectations may lead to disappointment and negative reflections on financing and investment. It is crucial to have the knowledge to ensure that the development of AI remains aligned with user expectations. Therefore, it is essential to have a clear understanding of user desires & expectations and ensure that AI and ads automation are developed in a way that meets those expectations. The research utilized an experimental approach to investigate the user expectations About the advancements in the automation of programmatic advertising in light of the launch of the Metaverse era. A questionnaire (Appendix 1) was administered to gauge users' expectations regarding the potential impact of the metaverse world on programmatic advertising across social networking sites (Facebook - YouTube) and google search engines. The sample consisted of 450 participants (150 participants for every platform) aged between 16 and 35 years old, specifically targeting users of Facebook, YouTube, and Google search engines. The research spanned from 2022 to 2023, with the actual questionnaire administration period occurring between January 1, 2022, and April 1, 2023.

Besides delving into the opportunities and advancements arising from the metaverse era, the study also focuses on pushing the creative limits of automation designers. This is achieved by exploring the potential for adopting new design paradigms, refining technical skills, and prioritizing user experience. To test that a second questionnaire (Appendix 2) was administered to clarifies the innovative design paradigms that align with the nature of the metaverse Era in fulfilling field professionals' expectations. A total of 80 professional Programmatic advertising designer randomly selected, including both females and males, who were users of the platforms, aged between 30 and 40 years, with the actual survey measurement period from June 26, 2023, to July 5, 2023.

The research hypotheses suggests that "There will be statistically significant differences indicating a high rate of users' expectation to incorporate virtual reality and augmented reality elements in the design of automated advertisements immersed in an impressive and transformative experience within the advertising ecosystem of the Metaverse".

"There is statistical evidence indicating users' high expectations of utilizing the three-dimensional environment of the Metaverse, presenting lucrative opportunities for automated advertising on the Facebook platform, surpassing the Google engine. In comparison, the YouTube channel is relatively less preferred among these platforms."

"There is statistical significance in users' responses towards interactive advertising on the Facebook platform, demonstrating a higher level of engagement compared to the Google engine. Conversely, the YouTube channel exhibits relatively lower levels of interactivity in automated advertising during the metaverse era".

"There are significant differences in the average scores of the sample regarding the potential elimination of human intervention through automated design in the metaverse era". The research aims to test this hypothesis by gathering data on user expectations regarding the impact of the Metaverse on programmatic advertising and analysing the results to determine whether they support or refute the hypothesis.

"The launch of the Metaverse era has resulted in significant advancements in the users' expectations of automation of programmatic advertising, which can lead to increased efficiency, effectiveness, and personalization of digital advertisements".

"The statistical results demonstrate that auto-ad designers have the ability to leverage the potential of the Metaverse to craft engaging, personalized, and influential experiences. By embracing novel design paradigms, improving technical skills, and prioritizing user experience, these potentials can captivate audiences and push the limits of creativity.

2- Theoretical background
3- Metaverse:
The concept of the "Metaverse" was originally introduced in Neal Stephenson in his 1992 novel Snow

Crash, has gained popularity in the tech industry in 2021. Google Trends data indicates that searches for the term have increased since March 10, when Roblox went public, and when Nvidia CEO Jensen Huang expressed his plans to create a metaverse in April. Furthermore, on October 28, Facebook CEO Mark Zuckerberg made a significant announcement regarding the company's rebranding as "Meta," accompanied by the unveiling of a fresh logo featuring an infinity sign and a new stock ticker symbol MVRS. (Kelly 2021, Kim 2021).

The term "Metaverse" combines the term "universe" with the prefix "meta," which implies a sense of transformation. The Metaverse refers to a digitally created and interconnected environment that exists alongside the physical world. This concept was initially introduced by Neal Stephenson in his science fiction novel, Snow Crash, published in 1992, as a concept of an expansive, immersive virtual space (Joshua 2017). The Metaverse is an innovative virtual world that integrates digital and physical elements by combining extended reality (XR), web technologies, and the Internet. This convergence encompasses various technologies such as (VR), (MR), & (AR), allows for integration between the physical and digital worlds to different extents. In the Metaverse, users can immerse themselves in an alternative life through their avatars, which represent their digital personality and presence within the virtual environment (Braud et al 2021). While these technologies, such as (VR), (MR), and (AR), are often employed individually outside of the metaverse, the metaverse itself provides a scalable and interconnected environment. It allows for the utilization of these technologies in a manner that caters to a large number of users and offers them sustainable content and meaningful social experiences (Park & Kim, 2022; Papez et al., 2022).

It's worth noting that the concept of the metaverse is not a recent idea that tech companies have only recently started to explore. As early as 2007, The Metaverse Roadmap (Smart, Cascio, & Paffendorf, 2007) foresaw a future where the Internet would encompass a comprehensive digital playground. It predicted that individuals would be immersed in a constant flow of digital information, whether traversing physical spaces or engaging in virtual worlds, within the next decade (Terdiman 2007, Kim 2021). The prediction made in The Metaverse Roadmap in 2007 was not a mere fantasy but grounded in emerging technologies that were already in the developmental stage. The team responsible for the roadmap identified four key scenarios for the metaverse world: augmented reality, lifelogging, virtual worlds, and mirror worlds. In less than 15 years, prominent technology companies now recognize the potential to integrate these scenarios and build a world that surpasses reality—the metaverse (Kim, 2021).

Prominent technology companies such as Facebook (Meta), Nvidia Corporation & Microsoft are making substantial investments, amounting to millions of dollars, in the development of a digital universe aligned with the concept of the metaverse. Similarly, retail brands like Puma, Nike, Clarks, Gap, Gucci & Tommy Hilfiger (Joshua, 2017), as well as entertainment giants like Disney (Barrera & Shah, 2023), and fast-food chains including Chipotle, Wendy's, and McDonald's (Barrera & Shah, 2023), are also actively engaged in exploring and embracing the metaverse concept.

4- In-Metaverse Advertising

The field of advertising and its relationship to the world of metaverse is witnessing a remarkable development, The metaverse presents advertisers with a plethora of opportunities to engage with consumers in innovative ways, allowing them to differentiate themselves from competitors. Brands will continue to leverage the metaverse to empower trade, foster engagement, and provide unique experiences for their consumers. This virtual realm serves as a distinct and unconstrained platform for marketing activations, enabling brands to redefine their operational landscape. Established brands in the physical world can concentrate on maintaining their image in the metaverse by reinforcing their messaging, expanding their reach, and devising novel strategies to cultivate brand loyalty (Eyada, 2023).

While virtual and digital advertising have been present for a while, advertising within the Metaverse demands a fresh approach that emphasizes creativity and user experience. The advancement of advertising in the Metaverse is still in its nascent phase and necessitates further investigation and experimentation. There are some existing examples that can provide insight into how advertising can operate within the metaverse. An example of this is the partnership between Air Jordan and Fortnite, where players engage in tournaments to have a chance to win the XI Cool Gray Sneakers, watch branded videos, and explore the Air Jordan Museum within the game. The introduction of such groundbreaking brand experiences calls for advertisers to adapt their strategies towards a deliberate and captivating approach. To align with the multi-

dimensional nature of the metaverse, the creative process involved in advertising and storytelling must become more dynamic and responsive (Plomion, 2022). While the metaverse is currently an affordable advertising destination with relatively low costs for running a campaign, it also presents a potentially profitable opportunity to target new audiences. In order to effectively reach these audiences, it is crucial to embrace new advertising strategies. Traditional targeting approaches may not be as effective in this rapidly evolving technological environment, and relying solely on past consumer behavior for targeting purposes may no longer be suitable. To successfully connect with the relevant audience, advertising needs to explore innovative methods that align with the content users actively engage with in the metaverse (Eyada, 2023).

5- Metaverse Definition Evolution over years:

The term "metaverse" was first coined in 1992, and since then, various researchers have provided definitions for this concept. In 1996, Perlin and Goldberg provided a definition of the metaverse, envisioning it as a future iteration of the internet that would resemble a quasi-physical world for users. Wright et al. (2008) described it as a vast 3D networked virtual world capable of accommodating a large number of individuals concurrently for social interaction. Additionally, Frey et al. (2008) characterized the metaverse as a collection of interconnected virtual worlds, created by users and accessible through a unified interface. In 2009, Davis et al. provided a definition of the metaverse, describing it as an immersive three-dimensional virtual world where individuals engage as avatars, interacting with both other users and software agents. The metaverse is a virtual realm that employs the metaphor of the real world while surpassing its physical constraints, seamlessly integrated within a network of 3D virtual worlds. Duan et al. (2021) proposed that the metaverse is a constantly evolving domain that provides boundless scalability interoperability. Real-time 3D rendering technologies, such as (VR) & (AR), serve as the basic interface for metaverse interactions. Moreover, Lee et al. (2021) provided a definition of the metaverse, characterizing it as a VR environment that seamlessly merges physical and digital aspects, facilitated by the convergence of the web technologies, Internet, and (XR). Each user possesses their own avatar, representing their physical self, allowing them to engage in an alternative life within a VR world that symbolizes the real world (Lee et al., 2021).

6- The metaverse is formed by the combination and convergence of various technological building blocks as follow:

Multiple technology-based journals have emphasized that the architecture encompasses of the metaverse is a result of the convergence of various technological building blocks. These include Computing, Networks, 3D modeling, Natural Language Processing (NLP), Machine vision, Extended Reality (XR), Digital Twins, Internet of Things (IoT), interface devices, Blockchain, interface devices and (AI). In the following sections, we discuss each of these technological blocks:
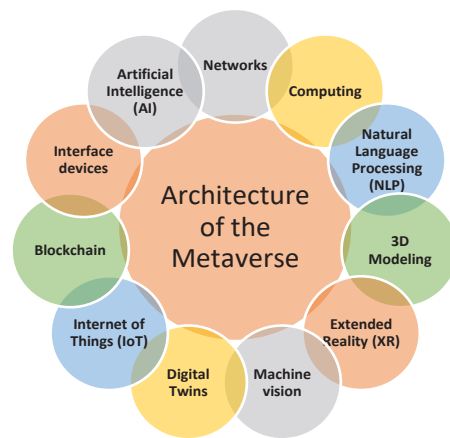

Fig (1) shows the Architecture of the Metaverse

5-1-Networks:

The Metaverse stands to benefit greatly from the integration of emerging wireless communication networks, including (5G -Fifth-Generation) and Beyond networks, as well as the upcoming (6G) Sixth-Generation networks (Bhattacharya et al. 2023). The metaverse caters to a large user base that relies on ubiquitous network connectivity through wireless networks. In the last few years, advanced technologies have surfaced to improve the efficiency and capabilities of networking systems & wireless communication. Artificial intelligence (AI) has played an important role at various layers of network architecture, which facilitate advancements in this domain (Chen et al., 2019).

The Metaverse provides a cohesive, seamless and all-inclusive immersive encounter across various new and existing services, enabling users to connect with services and people present in the Metaverse, regardless of their physical location. This demands a consistent and dependable connectivity between the physical location of individuals and the virtual location of the Metaverse. Telecommunications

networks will be responsible for ensuring this seamless connectivity, both indoors and outdoors (Muduli & Chakraborty 2021).

5-2- Computing

The convergence of mobile edge computing and the Metaverse addresses both user-side and system-side needs. For users, edge servers located near their devices can respond faster to the tasks sent to them. As the Metaverse is based on numerous virtual scenes and sensor data transmissions that rely on mixed reality, mobile edge computing can fulfill the latency requirements of Metaverse service applications. Furthermore, context-aware immersive content can be delivered to enhance user experience. Specifically, context-aware contents are distributed and cached in MEC servers based on current user contextual preferences, such as current fields of view (FOVs), view angles, and interacting actions. For the system side, MEC offloads tasks that would have been processed locally to the edge server, resolving the issue of insufficient computing resources (Liu et al 2022)

5-3- Natural Language Processing (NLP):

Computational linguistics or Natural Language Processing (NLP), encompasses various computational models and learning techniques to automatically analyze and understand human languages. It encompasses a range of domains, including speech-to-text conversion, text-to-speech synthesis, voice branding, conversation design, and considerations related to multilingualism and multiculturalism. NLP is essential in the metaverse, particularly for intelligent virtual assistants (chatbots), enabling them to comprehend complex human conversations in different dialects and tones. AI-powered chatbots in the metaverse assist users by providing detailed answers and continuously improving their responses through interaction and learning (Huynh 2023).

5-4- 3D Modeling:

To create an engaging metaverse application, it is necessary to have a lot of 3D content. This content can be obtained from different sources like modeling packages or content repositories such as NASA's 3D Resources, Google's 3D Warehouse or through unconventional means such as 3D scanning. These models exhibit a wide array of characteristics, spanning from large-scale scanned models consisting of millions of triangles and occupying hundreds of

megabytes to intricate architectural models featuring multiple materials and textures. In order for a metaverse platform to support a wide range of 3D content, it must convert these models into a format that enables real-time rendering as one among many models within a scene (Zhang et al., 2021). The use of 3D modeling is essential in the development of Digital Twins, which are precise digital copies of physical objects systems that possess high fidelity. It also allows for the creation of user-generated content by designing virtual assets and assists in designing the objects and environments within the metaverse to provide users with a lifelike and engaging experience (Zhang et al 2021).
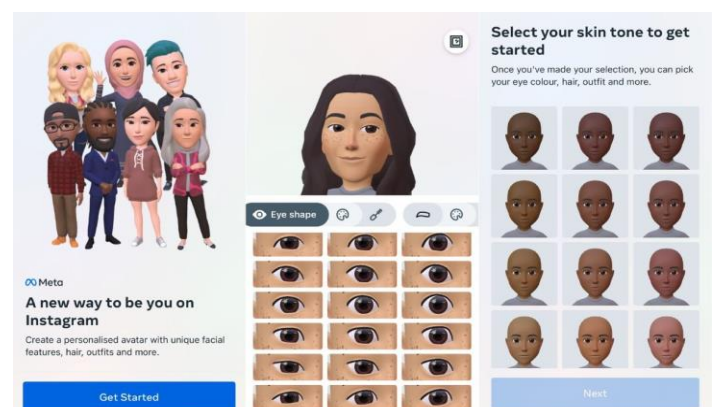

Fig (٢) Meta Launches 3D Avatars (about.fb)

5-5- Extended reality

XR is an inclusive term that encompasses various immersive technologies, including (VR), (AR), (MR),

and all the other forms that lie on the spectrum between them. Fig. ٢ illustrates the inclusive nature of XR, where VR and AR offer unique and transformative experiences, while MR bridges the gap between them. (AR) overlays graphics, holograms & video streams onto the physical world, which enhance the user perception of reality. (VR), on the other hand, offers immersive experiences within an entirely digital environment. Mixed Reality (MR) enables a seamless combination between AR and VR, allowing users to engage in diverse experiences that mix elements from both the physical and digital elements. While XR and AI are separate domains, their integration can contribute to realizing a fully immersive environment (Huynh, 2023).

Kailas and Tiwari (2021) define Extended Reality (XR) as a collection of interactive and immersive media technologies that encompass virtual reality, augmented reality, and augmented virtuality, and span across the Reality-Virtuality continuum. XR is a critical component of the Metaverse elements because it leverages 3D rendering in real-time capabilities to provide amazing user experiences throughout the spectrum of augmented reality to virtual reality (Milgram & Kishino, 1994). For example, VR can transport users to immersive virtual environments using avatars, augmented reality can superimpose computer-generated virtual content onto the physical world, and augmented virtuality enables physical objects to interact with the virtual world (Lee et al., 2021).
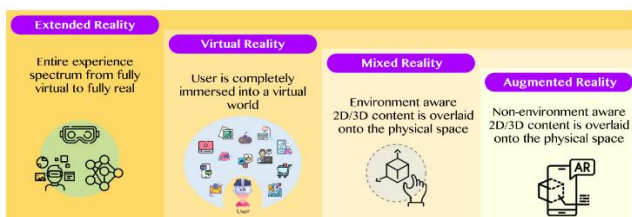

Fig (٣) shows the difference between (VR, AR, MR) under the umbrella of XR (Huynh, 2023)

5-6- Machine vision

MV, which encompasses computer vision and extended reality is a crucial technology that forms the foundation of the metaverse. It involves capturing and processing raw visual data from optical displays and video players to derive higher-level information. This processed information is then presented to users through devices like head-mounted displays, smart glasses, and smartphones. Computer vision plays a vital role in XR devices by analyzing and comprehending user actions based on visually

meaningful data. Users are represented as avatars in virtual worlds within the metaverse, allowing them to freely navigate 3D environments and interact with virtual objects (Huynh, 2023).

5-7- Digital Twins:

(DTs) are virtual representations of physical processes or objects, that can replicate some of their characteristics and attributes in a digital environment. The creation of value with DTs depends on two essential components: digital data streams, which provide a continuous flow of digital data from sensors within and detailed digital models & outside the physical object. DTs offer a range of innovative opportunities for value creation by incorporating software techniques into the physical realm (Porter & Heppelmann, 2019). Digital twins (DTs) serve as a foundational element in the metaverse, enabling users to access and experience virtual services by creating accurate replicas of the real world, complete with its structures and functionalities. These replicas are highly detailed and can encompass various levels of sophistication, ranging from descriptive and informative to predictive, comprehensive, and autonomous. For instance, technicians can manipulate 3D representations of intricate systems for purposes such as commercial customization & technical training. DTs empower app developers and service providers to recreate virtual replicas of machine, enabling remote physical analysis supported by AI technologies (Rathore et al., 2021).

5-8- Internet of things (IoT)

IoT is a network of intelligent objects that can share information and resources, equipped with sensors to respond to changes in their environment (Madakam et al., 2015). These objects serve as extensions of human senses, facilitating communication and the exchange of information between the physical and virtual worlds through their integration (Wang et al., 2022) and within blended metaverse environments (Lee et al., 2021).

5-9- Blockchains

Blockchain is a digital ledger that incorporates cryptography techniques to establish a network of interconnected recorded transactions and tracked assets (Maddikunta et al., 2022). It offers shared, and transparent & immediate information stored in an secure ledger. Access to this ledger is restricted to authorized network members, ensuring privacy and integrity of the data (Gadekallu et al., 2022).

Blockchain, a technology that is decentralized, can enhance security for user data in the Metaverse, increase transparency in transactions, and prevent single points of failure. The combination of the Metaverse and Blockchain can further improve scalability and interoperability by using sharding and cross-chain technologies to divide the entire Metaverse into multiple shards. Furthermore, Blockchain plays a vital role in allocating edge resources by granting access control and identifying different services in the virtual world. In conclusion, Blockchain is a crucial technology in the realm of edge computing that can enhance various performance aspects of the Metaverse, including computing offloading, resource allocation, and edge intelligence (Gadekallu et al., 2022).

In the metaverse, a significant volume of data, including videos, graphics and other digital content, is generated by VR, transmitted over networks, and tored in data centers, the security and privacy safeguards surrounding the data may be insufficient. This leaves them vulnerable to potential cyberattacks. However, blockchain technology, with its special features, presents a solution to address privacy concerns & security in the metaverse, particularly when combined with AI advancements (Cannavò and Lamberti, 2021).

5-10- Interface Devices

Interface devices are essential in facilitating access, interaction, and identity establishment in the metaverse for individuals and businesses. These devices can range from stationary to bodily integrated and can significantly impact the user's immersive experience by enhancing their sensorial perception. While normal & traditional input devices such as a mice & keyboards are commonly used, more advanced devices such as motion capture suits, haptic feedback gloves, and VR headsets can offer a more immersive interaction. Moreover, the development of brain computer interfaces can provide a direct communication between the user's brain and the virtual environment, which can revolutionize human interaction with the metaverse. In summary, interface devices are quintessential tools for metaverse engagement, that enhance our ability to interact with the virtual environment. (Froehle 2017).

15-11- Artificial Intelligence:

As per Kaplan and Haenlein's definition (2019), AI is a system's capability to interpret external data accurately, learn from it, and use the acquired knowledge to achieve specific goals and tasks through adaptive behavior (Chen et al., 2019). AI refers to computer systems that gather data and utilize it to perform tasks that usually necessitate human intelligence. Due to the wide range of technologies involved, Guruduth Banavar, IBM's AI research director, refers to AI as a "collection of technologies" (Kaput, 2016). These technologies have distinct functions and are advancing at different rates, but their ultimate objective is to imitate human intelligence in computers to make them "smart." There are two main categories of AI:

Artificial General Intelligence (Strong AI), refers to a type of AI that has the potential to create any task that an intelligent person can. Despite his potential, AGI remains unattained due to the complexity of human nature and our limited understanding of the workings of the human mind. On the other hand, Narrow AI or Weak AI is developed to perform specific tasks and excel in one cognitive domain such as image recognition, predictive analysis, autonomous driving, and customer segmentation. This form of AI is the most commonly used and can be found in everyday applications such as spam filters and recommendation systems like Amazon's product suggestions and Netflix's movie/TV show recommendations (Buch & Thakkar, 2021).

7- Automation and AI:
Artificial intelligence can automate several phases of the advertising process, including creation, ad placement, and media buying. Also, It can be used in self-service platforms, more profitable deals rather than smaller ones, freeing up experienced salespeople to focus on larger.

8- AI improve the adv system:
- **Ad Creation:** Artificial Intelligence (AI) has the capability to automatically generate ads by utilizing natural language generation algorithms that convert data into ad text. This can be advantageous for advertisers as it can create more personalized and relevant ad content.
- **Automated Optimization**: AI can automate the optimization of advertising campaigns, including bidding, budget allocation, and ad rotation, which can save advertisers time and allow them to focus on other aspects of their campaigns. Additionally, automated optimization can result in more reliable and precise campaign performance.
- **Ad Placement:** AI has the ability to automatically place ads by utilizing machine learning algorithms that examine customer behavior to identify the most suitable location for an ad. This can improve

ad effectiveness and minimize unnecessary ad spending.

- **Media Buying and Campaign Management**: AI can automate the process of media buying and campaign management by using algorithms to analyze data and determine the most suitable channels and publishers for an ad. This continual analysis and optimization can improve the performance of campaigns and save advertisers both time and resources.
- **Customer Service:** AI can automate customer service using technologies such as chatbots and NLP to respond to customer queries and offer personalized recommendations, which can enhance customer satisfaction and lower the costs associated with customer service. (linkedin).

9- Automation & Programmatic Advertising: How Will Programmatic Advertising Fit in the Metaverse?

Programmatic advertising in the metaverse involves targeted ads in virtual environments, where user actions and preferences can be monitored to deliver personalized advertisements. This has the abilities to change the advertising landscape by allowing brands to engage with consumers in wowing ways. Although the development of this technology, it is predicted to become a significant trend in the future, and its integration is expected to blur the boundaries between virtual & real experiences. (Goh, 2021).

The technology enables advertisers to target specific consumer groups based on their interests, and is currently utilized to showcase ads in online sports games. Within these games, ads can be placed on digital billboards customized to the interests of each individual user. In the metaverse, it's anticipated that ads will function similarly, with personalized ads appearing as users navigate through virtual environments using augmented glasses or VR. (logiq)

Programmatic Advertising (PA) is a modern advertising technique that aims to optimize the information transmission through systems that lead internet users' data, with the goal of increasing profitability and improving the return on investment of advertising strategies. This approach has attracted significant attention from researchers as a developed marketing technique for the internet. Several studies have been conducted on this topic, highlighting the growing importance and relevance of PA in contemporary advertising practices. Examples of such research include studies conducted by Lee, Jalali, and

Dasdan (2013), Ning, Liu, and Yang (2013), and Huang (2018).

According to Li (2019), intelligent advertising not only represents communication at an abstract level but also highlights its possible potential for the future of advertising. This is referred to as " Data-driven, Consumer-centered, and algorithm-mediated brand communication." PA has the potential to ensure that ads are displayed to the appropriate online audience whenever they are using their device (Lee et al 2015). Furthermore, advertising can be customized to suit various online platforms, including social networks, news platforms, and mobile applications (Palos-Sanchez et al 2019, Shan et al 2016). In contrast to conventional methods of purchasing and selling advertising space on the internet, Programmatic Advertising (PA) has introduced innovative models that consider factors such as the volume of user impressions, the cost of banner clicks, and creative ad placements. PA technology can analyze vast amounts of real-time data, allowing PA ads to accurately reflect a user's specific interests at the moment they are most likely to make a purchase. PA also has the potential to ensure that online ads are shown to the appropriate audience whenever they are using their device.

The United States has taken the lead in programmatic advertising, with global providers based in the country driving the shift towards people-focused PA. Besides many specialized programmatic advertising companies, major US-based service providers like Amazon, Google and Facebook are leading the way in global online advertising revenue by using data and programmatic automation. Large media agency networks are also using their market influence to develop global programmatic advertising models, like Xaxis. (Busch: 2016).

Google's Display Network (GDN) and Facebook Advertising have achieved successful marketing results by leveraging their large ownership of data, unique identifiers, consistent Programmatic optimization based on data, high usage rates of the online platforms, and highly investment strategies. This has led to a major shift in the advertising value chain, with data ownership, analytical expertise, and programmatic advertising infrastructure becoming increasingly important and partially replacing the core value drivers of media agencies, including purchasing power, planning expertise, and connecting advertisers and media. This has been observed by Xaxis, a major media agency network (Busch: 2016).

10- Automation Empowers Advertisers

Advertising automation is a technology-driven software process used to optimize the management, creation, and analysis of digital ads campaigns across various channels, display networks, including social media platforms, email marketing and search engines. This process enables advertisers to engage with their audience more effectively and measuring the campaign's effectiveness. Advertising automation tools typically include features such as audience segmentation, ad creation, and optimization, bidding strategies, campaign scheduling, performance tracking, and analytics reporting. Automation of these tasks enables advertisers to save time, increase accuracy, and scale their campaigns efficiently. (HubSpot, marketingautomationinsider).

Automation technology offers real-time data and ads performance analytics, which allows advertisers to make decisions and optimize their ad campaigns for optimal result. By leveraging insights into ad performance, advertisers can evaluate the effectiveness of their campaigns and make necessary adjustments. Automation can also provide predictive insights that can assist advertisers in making informed decisions on budget allocation and campaign strategy. (linkedin).

AI is becoming more and more crucial in programmatic advertising as the industry evolves. With AI at the helm, programmatic advertising becomes faster, more efficient, and more effective for marketers. Looking forward, **AI is expected to handle many aspects of programmatic advertising, such as targeting, ad placement, and optimization, as well as providing predictive analytics and insights for better decision-making. (adwisely).:**

- **Ad targeting:** Artificial intelligence (AI) can be used in programmatic advertising to analyze large sets of data and predict user behavior patterns. This allows advertisers to reaching their intended audience at the optimal time & target their ads more effectively. By using AI to analyze user data such as interests, demographics, and past behavior, advertisers can create ad campaigns that are more likely to engage the target audience. This can help advertisers optimize the advertising budget and achieve the wanted result from their campaigns. (Lim et al. 2021)
- **In programmatic advertising, AI-powered algorithms** are capable of analyzing vast amounts of data to identify patterns that can help predict potential customers' behavior. By examining data on factors such as browsing history, search queries,

and past purchases, AI can estimate the likelihood of a user engaging with a particular ad. This enables advertisers to create highly targeted ad campaigns that are more likely to generate clicks and conversions, ultimately leading to increased return on investment (Haleem, 2022). The use of AI in programmatic advertising allows for more precise and effective ad targeting, helping advertisers to reach their desired audience with greater accuracy. By utilizing AI in ad targeting, advertisers can optimize their ad spend and maximize the effectiveness of their advertising campaigns (Influencer Marketing Hub). Additionally, AI can help advertisers deliver more personalized and relevant ads to their target audience, improving the overall user experience (Geekflare).

- **Ad optimization**: AI is able to analyze ad performance data in real-time and use this information to make automatic adjustments to ad targeting, bidding, and creative elements in order to optimize performance and ROI. Real-time analysis of ad performance data is a key aspect of AI-driven ad optimization (fount). By leveraging this data, AI is able to automatically adjust various elements of ads to maximize their effectiveness and increase return on investment (ROI) (geekflare). Key performance indicators such as engagement rates, click-through rates, and conversion rates are examined by AI to evaluate the success of ads and identify areas that need improvement (productcoalition) (showheroes) (vireovideo).
- **Fraud detection**: AI is essential in identifying and preventing ad fraud in programmatic advertising platforms, as it can analyze large volumes of data and patterns to pinpoint fraudulent activity and mitigate it effectively (linkedin). The prevention of ad fraud is critical because it can cause a significant waste of an advertiser's budget, resulting in ineffective campaigns and reduced return on investment (ROI) (exoagency). AI-powered fraud detection tools can identify and block fraudulent traffic, ensuring that advertisers' budgets are spent on legitimate traffic (lunio). Furthermore, AI can continually monitor ad campaigns, detect any unusual or questionable activity, and help prevent future occurrences of ad fraud (appier). (Reference: linkedin, exoagency, lunio, appier)
- **Personalization:** AI can help advertisers personalize ad content and messaging to specific audiences, resulting in increased engagement and conversions. By analyzing user data and behavior patterns, AI algorithms can identify the preferences and actions of potential customers, allowing

advertisers to tailor their ads accordingly (pathmonk). This enables advertisers to create highly personalized ad campaigns that align with the interests and behaviors of their target audience (influencermarketinghub). Personalization strategies include customized product recommendations, individualized messaging, and targeted promotions (onlinelibrary.wiley).

- **Predictive analytics:** AI can use machine learning algorithms to predict the performance of ads and provide insights into future trends, allowing advertisers to make data-driven decisions for their ad campaigns (IBM). Predictive analytics is an essential application of AI in programmatic advertising. By utilizing machine learning algorithms, AI can forecast the performance of ads and provide insights into future trends (Analytics Vidhya). This allows advertisers to make data-driven decisions about their ad campaigns and adjust their strategies. Predictive analytics helps advertisers identify opportunities in their ad campaigns and take proactive steps to deal with them. For instance, AI-powered predictive analytics can predict which ad creatives and messaging will perform the best with specific audiences, or forecast which channels or platforms will provide the highest ROI for certain campaigns (ChannelMix). By utilizing the insights provided by predictive analytics, advertisers can optimize their ad campaigns for maximum impact and effectiveness (IBM). In the competitive landscape of programmatic advertising, where advertisers need to stay ahead of the curve to achieve success, the use of AI in predictive analytics is a crucial driver of innovation, enabling advertisers to make informed decisions and create effective campaigns (Haleem: 2022).

11- Advertisers can decide the degree of automation:
- For a low-automation scenario:
According to Chen et al. (2019), advertisers can choose the creative content for their ads and allow programmatic creative optimization (PCO) to adjust the design templates & ad copy to fit different screen sizes of digital devices.

- For the high automation scenario:
According to a study by Chen et al. (2019), PCP is responsible for selecting ad creative components based on an advertiser's strategic positioning inputs and individual consumer preferences in highly automated scenarios. Another study proposed an integrated framework called the Creative Advertising System (CAS) that utilizes computational methods to

evaluate and produce natural creativity in ad elements (Vakratsas & Wang, 2021). By combining PCP with a Demand Side Platform, advertisers can create and deliver Specific personalized messages in real-time to online users based on contextual factors at a large scale (Li et al., 2017).

12- Programmatic Advertisement examples uses Ai:
12-1-Coca-Cola utilized programmatic advertising:

During the 2018 World Cup, Coca-Cola employed programmatic advertising to deliver tailored advertisements to viewers. By analyzing user data related to their behaviors and preferences, Coca-Cola successfully delivered personalized ads to individuals in different regions and languages. This approach resulted in increased user engagement and enhanced brand visibility for Coca-Cola (adpushup).

Fig (4) Coca-Cola employed programmatic advertising in World Cup 2018 (adpushup)

12-2 - Coca-Cola Launches Creative Programmatic AI Platform
Coca-Cola has launched an innovative AI platform called "Create Real Magic" that empowers digital creatives worldwide to generate unique artwork using Coca-Cola's iconic creative assets from its archives. Developed exclusively for Coca-Cola by Open AI and Bain & Company, this platform combines the capabilities of GPT-4 and DALL-E, making it the first of its kind. GPT-4 is capable of generating text that closely resembles human language when provided with search engine queries, whereas DALL-E can generate images based on textual inputs. James Quincey, (Coca-Cola Company CEO), is excited about the potential of this emerging technology and its impact on the future of advertising felid. Coca-Cola sees great potential in leveraging advanced AI to enhance its advertisement initiatives and explore

opportunities to improve its process operations. (Coca-colacompany)

Coca-Cola launched a campaign encouraging its fans to create their own digital artwork using branded assets like the contour bottle and script logo. The best submissions were displayed on digital billboards in prominent locations such as Times Square and Piccadilly Circus. However, Coca-Cola considers this campaign as just the initial step in its AI-driven marketing endeavors. Manolo Arroyo, the global chief marketing officer of the company, believes that AI offers numerous opportunities in content creation, personalized messaging, and establishing interactive conversations with consumers. This demonstrates Coca-Cola's commitment to fully harnessing AI's potential in enhancing its marketing strategies and overall business operations. (blog.socialmediastrategiessummit)
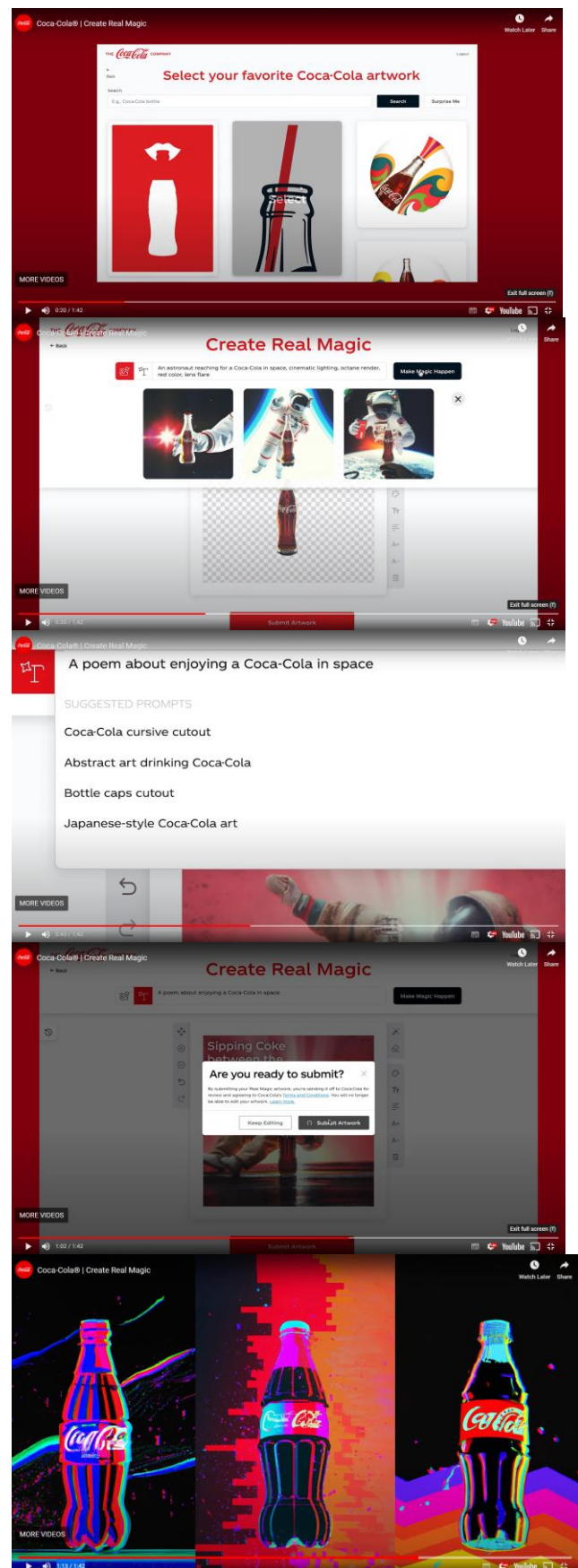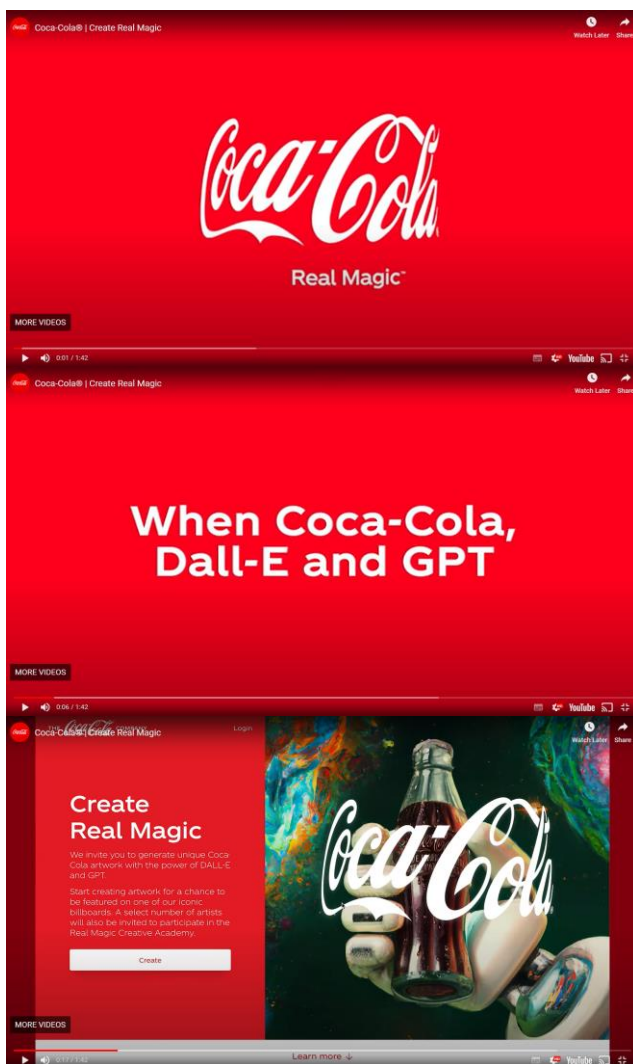
Fig (5) "Create Real Magic" is an innovative Coca-Cola's AI platform (Coca-colacompany)

12-3- BMW programmatic advertising

In November 2018, BMW implemented programmatic advertising in their "X2 Launch" campaign, focusing on specific demographic segments. Utilizing Snapchat's Ad to AR ad unit, BMW achieved a significant milestone by being the first brand to create a 3D representation of a car using this ad format. This innovative approach allowed viewers to experience the sensation of being in a traditional showroom, enhancing their engagement with the brand (adpushup).
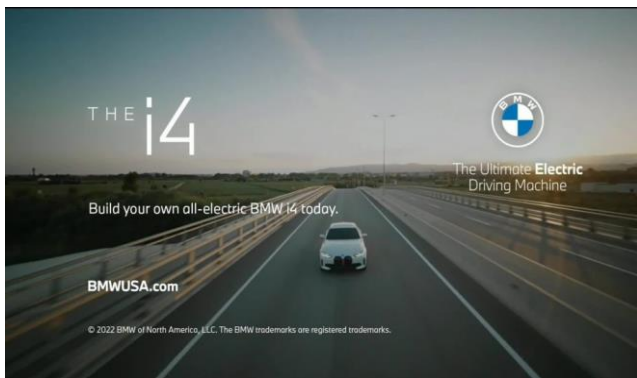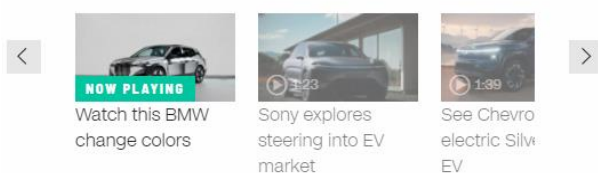

Fig (6) BMW "X2 Launch" programmatic campaign (adpushup)

12-4-How Amanda Foundation Used Programmatic Targeted Ads to Find Homes for Animals

The Amanda Foundation implemented targeted advertising to boost animal adoption rates in animal shelters located in Los Angeles. By analyzing user behavior, location and demographic data, this non-profit organization displayed ads to users who were most likely to adopt a specific type of dog or cat, based on their preferences and interests. These ads were presented as banners displayed on websites, featuring pets that were suited for each user choices. As a result of this approach, the adoption rates increased, leading to successful placements of pets in loving homes. For example, the campaign incorporated messages like "I love (insert lifestyle feature here), just like you," introducing viewers to suitable pets and highlighting the common characteristics between the viewer and the animal. (pathlabs)
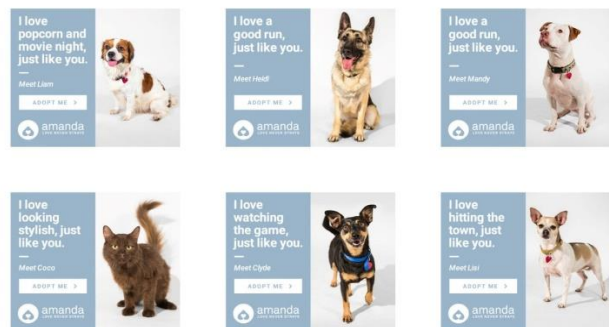
Fig (7) Amanda Foundation implemented programmatic advertising to boost animal adoption rates in animal shelters located in Los Angeles (pathlabs)

12-5-The Economist programmatic advertising:

The Economist is renowned for its clever advertisements, which captivate viewers with concise yet thought-provoking text. These ads utilize a simple design featuring a bold red background and a white serif font, conveying confidence, innovation, and intellect to the audience. This concept was developed by David Abbott, who aimed to convey the message that reading The Economist would enhance knowledge and prosperity. To connect with a younger and more progressive demographic, The Economist recognized the need to change their perception and employed programmatic digital display ads. The campaign targeted 650,000 individuals and strategically placed ads alongside articles on related subjects that their target audience was already reading, leveraging deep audience data for informed decision-making. Through testing and optimization, the

campaign achieved 50% of its subscriber target within just 9 days, utilizing a budget of 1.2 million pounds. Overall, the campaign resulted in 3.6 million people taking action, yielding a campaign return on investment (ROI) of 10:1. A subsequent phase of the campaign achieved even greater success, generating 8 million engagements (pathlabs).

Fig (8) The Economist programmatic advertising (pathlabs)

12-6-Topman programmatic advertising:

Topman, a men's fashion brand, utilized programmatic advertising to promote their latest khaki collection. The brand created ads with different images that were targeted at different segments of their market, leading to a successful campaign. For instance, the brand photographed both a casual yet trendy outfit and a more upscale look that one might see during New York City's fashion week. These photos were used as ad creatives. By using such diverse creatives, the brand was able to reach every type of shopper within their target audience (pathlabs).
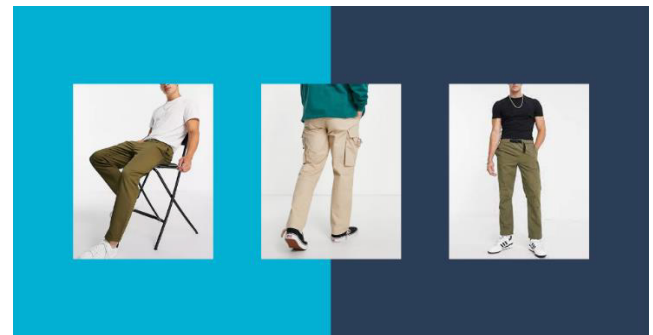
Fig (9) Topman programmatic advertising to promote their latest khaki collection (pathlabs)

12-7-Turner Sports programmatic advertising:

Turner Sports successfully utilized programmatic marketing to achieve its goals of enhancing brand awareness, fostering engagement, and building a community of sports enthusiasts. Their strategic approach yielded positive outcomes, with brand awareness increasing by 7%. As part of their campaign to promote the 2016 National Basketball Association Season Tip-Off, Turner Sports implemented a programmatic video advertising initiative, targeting a substantial viewership of six million individuals across the United States. Leveraging audience data from their previous Google Ads campaigns, Turner Sports created an initial target audience. By utilizing the Google Marketing Platform to analyze this data, they identified the most valuable audience segments for retargeting. This well-executed strategy resulted in notable success, as evidenced by a remarkable 17% increase in ad recall and a 7% boost in brand awareness specifically for "NBA on TNT,". (pathlabs)

Fig (10) Turner Sports programmatic advertising to promote National Basketball Association Season Tip-Off 2016 (pathlabs)

12-8-Google programmatic advertising

In 2014, Google implemented programmatic marketing as a means to improve the efficiency and impact of its advertising campaigns, specifically concentrating on its Google Search App. By

leveraging data, Google effectively targeted the most valuable audience segments and continuously optimized its campaigns in real-time, utilizing data-driven insights to fine-tune its overall strategy. This adoption of programmatic marketing allowed Google to maximize the effectiveness of its ad campaigns and achieve enhanced results. (pathlabs)
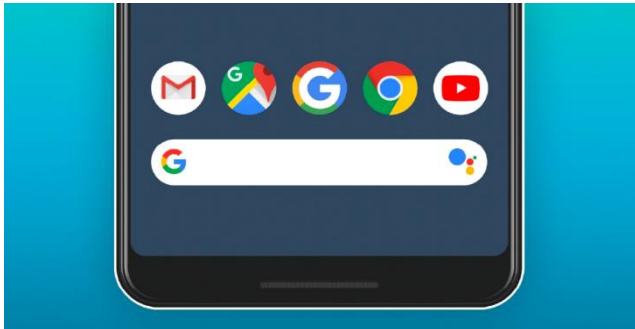

Fig (11) Google programmatic advertising 2014 to improve the efficiency and impact of its advertising campaigns (pathlabs)

12-9-Audi Programmatic Advertising

Audi, a renowned automobile manufacturer, sought to strengthen its programmatic marketing initiatives in order to promote the release of its new customizable vehicle, while staying true to its motto 'Vorsprung durch Technik'. In pursuit of this objective, Audi collaborated with Google and leveraged Display and Video 360 to analyze customer data and determine the most valuable consumer touchpoints. By adopting a data-driven approach, Audi was able to personalize its advertising campaigns and achieve optimal results. The programmatic ad by Audi attained an impressive 4x conversion rate. (gumgum)
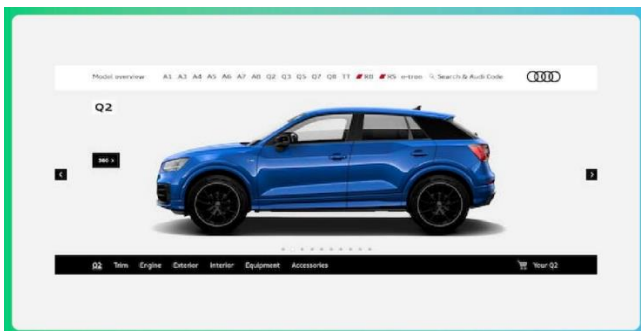
Fig (12) Audi Programmatic Advertising to promote the release of its new customizable vehicle (gumgum)

12-10-Amazon programmatic advertising

Amazon leverages programmatic advertising to deliver customized advertisements to their users based on their browsing and buying history. By examining data on user preferences and behavior, Amazon can

provide targeted ads that are more relevant and likely to lead to a sale, resulting in a boost in revenue.

12-11-L'Oreal programmatic advertising

In France, L'Oreal collaborated with Google's DoubleClick campaign to tailor online advertisements for Vichy sun cream. These ads were customized according to whether the target audience had children or not. Depending on their circumstances, either the women's product or the children's product was presented to the viewers. The objective of this initiative was to provide suitable products and messaging to women who were shopping online for themselves or for their children. (thinkwithgoogle).
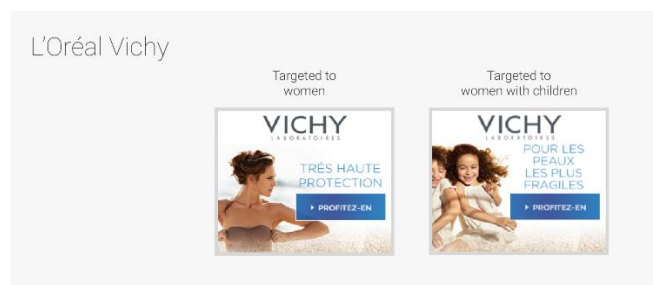
Fig (13) L'Oreal programmatic advertisements for Vichy sun cream (thinkwithgoogle)

12-12-Heinz programmatic advertising:

Heinz, in partnership with the marketing agency Rethink Ideas, has launched an advertising campaign that utilizes images generated solely through artificial intelligence (AI). To explore how AI perceives ketchup, Heinz employed the advanced image generator DALL-E 2 and prompted it with phrases like "ketchup scuba diving" and "ketchup in outer space". Surprisingly, the resulting images bore a remarkable resemblance to Heinz ketchup bottles, indicating that even AI has a preference for the brand. Furthermore, Heinz invited its fans to submit their own ideas for ketchup-related image prompts, with the best ones being used in social media and print advertisements. As a result of these initiatives, Heinz became the first company to create an advertising campaign featuring images entirely generated by AI. (rethinkideas).

Fig (14) Heinz employed the advanced image generator DALL-E 2 and prompted it with phrases like "ketchup scuba diving" and "ketchup in outer space". AI prefers Heinz." (rethinkideas) (blog.socialmediastrategiessummit)

12-13-Dept and Hello Monday Create AI-Powered "Shoe Mirror"

Dept and Hello Monday, digital agencies, have developed an innovative solution to address the issue of vacant shop fronts in city centers. Their solution involves an AI-powered "Shoe Mirror" that transforms empty stores into interactive advertisements, generating revenue in the process. The Shoe Mirror utilizes augmented reality to analyze the clothing worn by passersby and searches for shoes that complement their outfits. It also incorporates motion capture technology to track the user's movements, providing a personalized experience for each viewer. This concept goes beyond being merely creative, offering a practical and inventive approach for landlords and neighboring businesses to effectively utilize empty shop fronts. (Springwise) (deptagency):
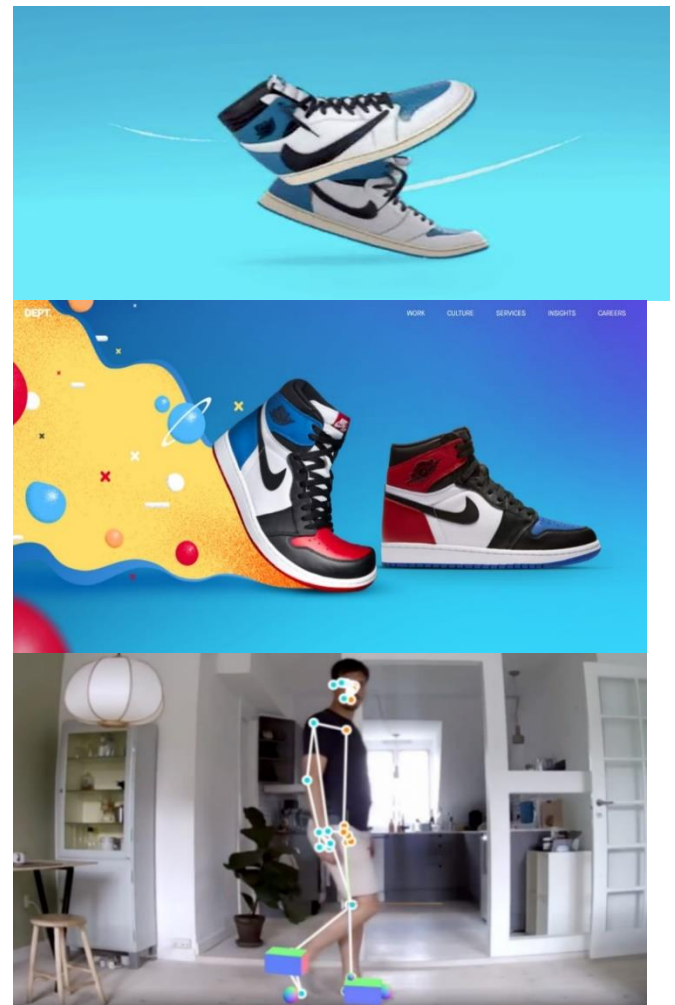
Fig (15) Dept and Hello Monday Create AI-Powered "Shoe Mirror" (deptagency)

12-13-Magnolia Market Bridges Online-to-Offline

"Magnolia Market" is a retail store owned by Joanna and Chip Gaines, has established a reputation which delivering an exceptional in-store experience. However, in order to expand their reach their level of service to online users. To elevate the online shopping experience, they developed an AR app that enables

users to view products in 3D and visualize them in their own homes or offices. This advanced technology has allowed Magnolia to showcase their products with stunning realism, offering a new selling point and empower the performance of their e-commerce business, which is crucial for their continued growth (youtube).
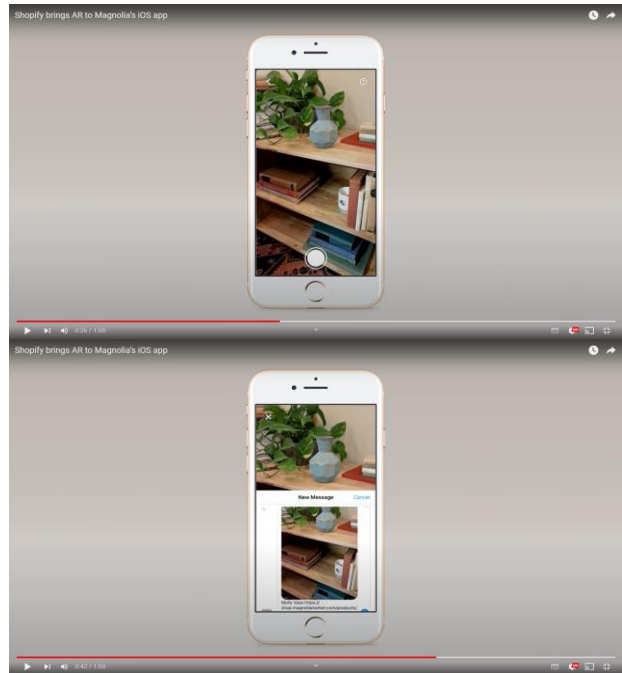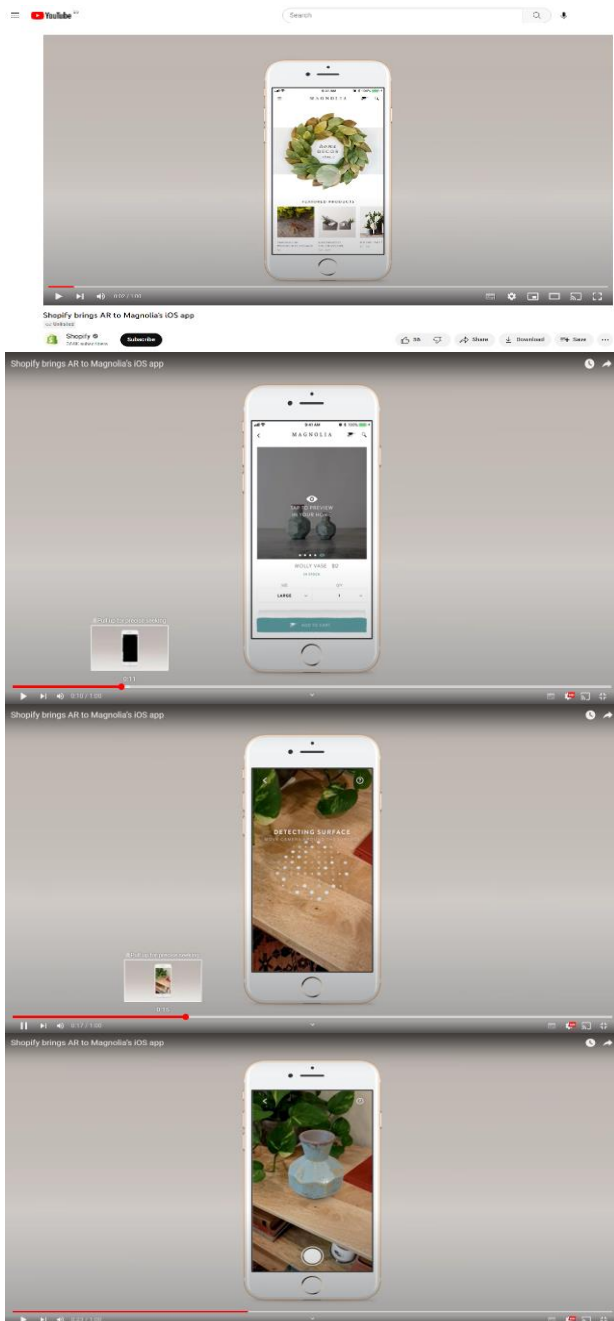
Fig (16) Magnolia Market Bridges "Online-to-Offline" programmatic ad (youtube)

12-14-Starbucks Uses Predictive Analytics to Serve Personalized Recommendations

During its Investor Day event in Manhattan, Starbucks unveiled its plans to harness the power of AI and cloud technology to fuel sales and expansion. Among the proposed advancements is an AI-driven recommendation system that will utilize customer data, including purchase history, weather information, and similar customer preferences, to provide personalized food suggestions. This feature will be accessible not only through drive-throughs but also via smartwatches and in-store cash registers.

Starbucks is utilizing predictive analytics to deliver tailored recommendations to its customers. By leveraging data collected through its loyalty card and mobile app, the company analyzes customer preferences to drive revenue growth. The introduction of personalization was initially announced in 2016, and since then, Starbucks has developed an app that tracks purchasing and usage patterns. Through the use of predictive analytics, the company sends personalized marketing messages to customers, including recommendations as they approach nearby stores and special promotions aimed at increasing their spending. Research conducted by Aberdeen, a market research firm, suggests that businesses implementing predictive analytics can achieve a 21% year-over-year increase in organic revenue, surpassing the average of

12% seen without the use of such analytics. (blog.socialmediastrategiessummit)
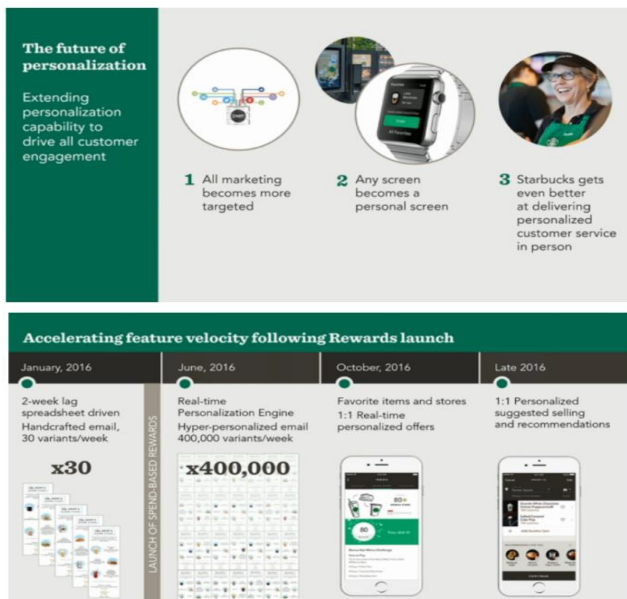
Fig (17) Starbucks Uses Predictive Analytics to Serve Personalized Recommendation
(blog.socialmediastrategiessummit)

13- Measures:

In this study, two questionnaires were adopted, the first one to study, the opinions of a sample group consisting of social media users (specifically YouTube, Facebook, and Google Search Engine), both males and females, aged between 16 and 35, were gathered and analyzed through a questionnaire (appendix 1). The goal was to understand the potential benefits of leveraging automation for automated social media advertising in the emerging metaverse era on three social networking sites. A total of 150 randomly selected users, including both females and males, who were users of the platforms, aged between 16 and 35 years for ever platform (total 450 users), were included in the study. The research was conducted between 2022 to 2023, with the actual survey measurement period from January 1, 2022, to April 1, 2023. The Second questionnaire clarifies the innovative design paradigms that align with the nature of the metaverse Era in fulfilling field professionals' expectations. A total of 80 professional advertising designer randomly selected, including both females and males, who were users of the platforms, aged between 30 and 40 years, with the actual survey measurement period from June 26, 2023, to July 5, 2023. In this study, the researcher utilized statistical analyses commonly employed in social sciences, specifically utilizing SPSS 25 software for conducting statistical analyses and applying appropriate methods for data analysis.

- Pearson correlation coefficient.
- Cronbach's alpha coefficient.
- Frequency and percentage (relative weight)
- Arithmetic mean and standard deviation.
- One way ANOVA test
- LSD test for multiple comparisons

The participants' responses in the research study were evaluated using a five-point scale. Each response was assigned a rating on a scale of one to five**.**

degree of agreement					Response
Disagree Strongly	Disagree	N/A	Agree	Strongly Agree	
١	٢	٣	٤	٥	the weight
١,٧٩ – ١	١,٨٠ – ٢,٥٩	٢,٦٠ – ٣,٣٩	٣,٤٠ – ٤,١٩	٥ – ٤,٢٠	weighted average

Table (1): Five-point scale for positive statements

degree of agreement					Response
Disagree Strongly	Disagree	N/A	Agree	Strongly Agree	
٥	٤	٣	٢	١	the weight
٥ – ٤,٢٠	٣,٤٠ – ٤,١٩	٢,٦٠ – ٣,٣٩	١,٨٠ – ٢,٥٩	١,٧٩ – ١	weighted average

Table (2): Five-point scale for negative statements.
Note: All means, standard deviations, and relative weights have been rounded to two decimal places.

14- Validity and resolution stability

15- The validity of the Internal Consistency results:

To assess the internal consistency of the questionnaire, the researcher computed the correlation coefficient between the ratings of each statement in the questionnaire and the overall ratings of the corresponding axis. The results of this analysis are presented in Table (1).

The findings related to the internal consistency of sincerity are summarized in Table 1. This table presents the correlation coefficients between the scores assigned to individual phrases in the questionnaire and the overall scores of the respective axis to which each phrase belongs.

correlation coefficient	items	Axis	correlation coefficient	items	axis

**٠,٦٩٤	٢١		**٠,٥٦٨	١	The first axis
**٠,٧٦١	٢٢		**٠,٦٦٠	٢	
**٠,٦٨٨	٢٣		**٠,٨٧٠	٣	
**٠,٨١٠	٢٤		**٠,٦٨٥	٤	
**٠,٧٦٧	٢٥	Third axis	**٠,٨٧٥	٥	
**٠,٥٨٦	٢٦		**٠,٨٠١	٦	
**٠,٥٧٤	٢٧		**٠,٨٨٠	٧	
**٠,٥٩٦	٢٨		**٠,٧٣٩	٨	
**٠,٥١٣	٢٩		**٠,٦٣١	٩	
**٠,٦٣٥	٣٠		**٠,٧٣٠	١٠	
**٠,٥٨٩	٣١		**٠,٨٤٥	١١	The second axis
**٠,٦٥٩	٣٢		**٠,٧٣٣	١٢	
**٠,٦٢٢	٣٣		**٠,٧٠٩	١٣	
**٠,٧٤٢	٣٤		**٠,٦٦٨	١٤	
**٠,٨٣٥	٣٥	fourth Axis	**٠,٧٥٦	١٥	
**٠,٧٦٢	٣٦		**٠,٧٩٥	١٦	
**٠,٦٩٤	٣٧		**٠,٦٠٩	١٧	
**٠,٨٣٦	٣٨		**٠,٦٥٧	١٨	
**٠,٦٨٧	٣٩		**٠,٨٤٥	١٩	
**٠,٦٦٧	٤٠		**٠,٧٢٧	٢٠	

Table (3) displays the correlation coefficients between the scores of the questionnaire phrases. The Significance level is 0.01.

Table (3) displays the correlation coefficients between the scores of the questionnaire phrases and the total scores of the corresponding axis. The coefficients range from 0.88 to 513.0 and all of them are statistically significant. These results indicate that the statements in the questionnaire accurately measure what they were intended to assess.

16- Results of the structural validity of the questionnaire.

To assess the structural validity of the questionnaire, the researcher computed the correlation coefficient between the total scores of each axis in the questionnaire and the overall score of the questionnaire. The results are presented in Table (4).

correlation coefficient	The questionnaire axes
**٠,٧٢٧	The first axis
**٠,٧٨١	The second axis

**٠,٦٦٨	Third axis
**٠,٨١١	fourth Axis

Table (4): Displays the correlation coefficients between the total scores of each axis in the resolution and the overall score of the resolution. The Significance level is 0.01.

Table (4) presents the correlation coefficients between the scores of each axis in the resolution and the overall score of the resolution, which varied from 0.66875 to 0.811. These correlations were statistically significant, suggesting the validity and consistency of the resolution axes.

17- Results of the stability of the resolution and its axes.

To assess the reliability and consistency of the resolution and its axes, the researcher employed Cronbach's alpha coefficient, and the findings are presented in Table (5).

Cronbach's Alpha Coefficient	Items	The questionnaire axes
٠,٩٠٤	١٠	The first axis
٠,٨٩٧	١٠	The second axis
٠,٨٥٧	١٠	Third axis
٠,٨٨٥	١٠	fourth Axis
٠,٩٢٨	٤٠	**The questionnaire as a whole**

Table (5): Shows the results of the Cronbach alpha test for the resolution and its axes.

Table (5) displays the stability coefficients of the resolution and its axes. The coefficients for the resolution axes ranged from 0.857 to 0.904, indicating a high level of stability. Furthermore, the overall stability coefficient for the resolution reached 0.928, which is also considered high. These results provide reassurance to the researcher regarding the reliability of the questionnaire application.

18- Results of statistical hypothesis tests:
19- Results of the first statistical hypothesis test:

The first hypothesis suggests that there are significant statistical variances between the mean scores of the research sample. These variances are attributed to the participants' elevated anticipation of integrating virtual and augmented reality elements into automated ad designs. Consequently, they have a strong expectation of immersing Internet users in a

remarkable and transformative experience within the metaverse advertising ecosystem.

To validate this hypothesis, the researcher employed the mean, standard deviation, and relative weight to estimate the level of expectations within the research sample. Additionally, one-way ANOVA (Analysis of Variance) and the LSD test were utilized for conducting multiple comparisons between the average responses of the sample based on the location used. The results of these statistical tests are summarized as follows:

degree of approval	relative weight	standard deviation	SMA	Internet websites
Strongly Agree	٩٠,٢٧٪	٠,٧٧	٤,٥١	YouTube
Strongly Agree	٩٨,٥٣٪	٠,٢٦	٤,٩٣	Facebook
Agree	٨٢,٩٣٪	٠,٨٥	٤,١٥	Google
Strongly Agree	٩٠,٥٨٪	٠,٧٥	٤,٥٣	**overall average**

Table (6): Mean Scores, Standard Deviations, and Relative Weights of Sample Responses Regarding Predictions of Using Automated Ads in the Metaverse Era.

Table (6) displays the response levels of the sample regarding their expectations of utilizing automated ads in the Metaverse era. YouTube users' responses align with the "strongly agree" level, with an arithmetic mean of 4.51 and a relative weight of 90.27%. Similarly, Facebook users' responses also fall in the "strongly agree" level, with a mean of 4.93 and a relative weight of 98.53%. On the other hand, Google Search Engine users' responses are classified under the "agreement" level, with a mean of 4.15 and a relative weight of 82.93%. The overall arithmetic mean is 4.53, indicating a very high level of agreement, with a relative weight of 90.58%.

Sig	F	Mean Squares	df	Sum of Squares	Source
		٢٢,٨٤	٢	٤٥,٦٨	Between Groups
٠,٠٠١	٤٨,٩٩	٠,٤٧	٤٤٧	٢٠٨,٤٤	Within Groups
			٤٤٩	٢٥٤,١٢	Total

Table (7) presents the results of the one-way analysis of variance (ANOVA) test, which identifies the differences between the arithmetic means of the sample responses based on the site used.

Table (7) demonstrates that there are statistically significant variations between the arithmetic means of the samples' responses depending on the site used. The obtained value of "F" was 48.99, with a significance level of 0.001, indicating a strong statistical significance.

Facebook	Facebook	YouTube	Internet websites
*٠,٣٦٧	*٠,٤١٣-	-	YouTube
*٠,٧٨٠	-	-	Facebook
-	-	-	Google

Table (8) presents the results of the Least Significant Difference (LSD) test, which was conducted to identify the specific differences between the sites used and their respective directions. There is a statistically significant finding at a significance level of 0.05.

Table (8) reveals a significant statistical distinction between the Facebook site and both the YouTube site and the Google site. The results favor the Facebook site, indicating that there are notable variations between Facebook and the other two sites in terms of the respondents' responses.

Figure (18) shows that :
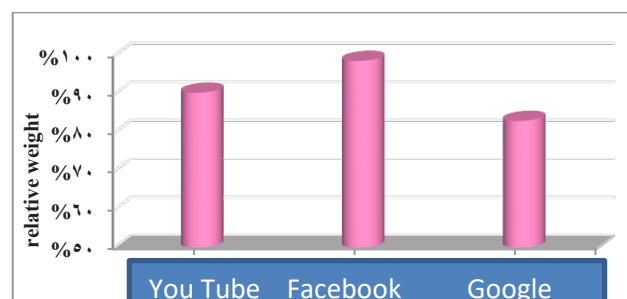
Fig (18) illustrates the distribution of the sites used based on the relative weights of the sample responses assigned to each of them.

Based on the results presented in Tables (3), (4), and (5), as well as the observations from Figure (1), it is evident that the first hypothesis of the research has been confirmed or fulfilled.

20- Results of the second statistical hypothesis test:

The second hypothesis suggests that there are significant differences in the mean scores of the research sample regarding their expectations of using the 3D environment of the metaverse, which presents valuable opportunities for real-time automated advertising within an immersive setting. To verify the validity of this hypothesis, the researcher employed the arithmetic mean, standard deviation, and relative

weight to estimate the level of expectations among the research sample members. Additionally, one-way ANOVA and the LSD test were utilized for multiple comparisons between the average responses based on the social networking site used. The findings are summarized in Table (9), which presents the arithmetic means, standard deviations, and relative weights of the respondents' responses towards their expectations of utilizing the three-dimensional environment of the metaverse.

degree of approval	relative weight	standard deviation	SMA	Internet websites
Strongly Agree	٪٨٩,٣٣	٠,٧٩	٤,٤٧	YouTube
Strongly Agree	٪٩٨,٤٠	٠,٢٧	٤,٩٢	Facebook
Agree	٪٨٣,٨٧	٠,٨٠	٤,١٩	Google
Strongly Agree	**٪٩٠,٥٣**	**٠,٧٣**	**٤,٥٣**	**overall average**

Table (9) displays the response levels of the respondents regarding their expectations of utilizing the three-dimensional environment of the Metaverse.

YouTube users' response falls within the "strongly agree" level, with an arithmetic mean of 4.47 and a relative weight of 89.33%. Similarly, Facebook users' response also aligns with the "strongly agree" level, with a mean of 4.92 and a relative weight of 98.40%. On the other hand, Google site users' response is classified under the "agree" level, with a mean of 4.19 and a relative weight of 83.87%. The overall arithmetic mean is 4.53, indicating a very high level of agreement, with a relative weight of 90.53%.

Sig	F	Mean Squares	df	Sum of Squares	Source
٠,٠٠١	٤٥,٢١	٢٠,٢١	٢	٤٠,٤١	Between Groups
		٠,٤٥	٤٤٧	١٩٩,٧٧	Within Groups
			٤٤٩	٢٤٠,١٨	Total

Table (10) presents the results of the one-way analysis of variance (ANOVA) test, which assesses the differences between the arithmetic means of the respondents' responses based on the site used.

Table (10) indicates that there are statistically significant variations between the arithmetic means of the respondents' responses based on the site used. The calculated value of "F" was 45.21, with a significance

level of 0.001, indicating a strong statistical significance.

Table (11) presents the results of the Least Significant Difference (LSD) test, which was conducted to identify the specific differences between the sites used and their respective directions.

Google	Facebook	YouTube	Internet websites
*٠,٢٧٣	*٠,٤٥٣-	-	YouTube
*٠,٧٢٧	-	-	Facebook
-	-	-	Google

Table (11) displays the results of the LSD (Least Significant Difference) test, which was conducted to identify the differences between the sites used and their respective trends There is a statistically significant finding at a significance level of 0.05

Table (11) reveals a statistically significant difference between the Facebook site and both the YouTube site and the Google site, favoring the Facebook site. This observation is further supported by Figure (19), which visually represents the significant distinction between the sites in terms of the respondents' responses.

Fig (19) illustrates the distribution of the sites used based on the relative weights assigned to the respondents' responses for each site.

Based on the findings presented in Tables (9), (10), and (11), as well as the observations from Figure 10, it is evident that the second hypothesis of the research has been confirmed or fulfilled.

21- Results of the third statistical hypothesis test:

The third hypothesis suggests that there are statistically significant differences in the mean scores of the research sample regarding their opinions of the need for a relatively high interactive rate in automated advertising in the Metaverse era. To verify the validity of this hypothesis, the researcher utilized the arithmetic mean, standard deviation, and relative weight to estimate the level of expectations among the research sample members. Additionally, one-way

ANOVA and the LSD test were employed for multiple comparisons between the average responses based on the social networking site used. The findings are summarized in Table 12, which presents the arithmetic means, standard deviations, and relative weights of the respondents' responses towards the need for a relatively high interactive rate in automated advertising in the Metaverse era.

degree of approval	relative weight	standard deviation	SMA	Internet websites
Strongly Agree	٩٠,٢٧٪	٠,٧٦	٤,٥١	YouTube
Strongly Agree	٩٧,٧٣٪	٠,٣٢	٤,٨٩	Facebook
Agree	٨٢,٠٠٪	٠,٩٢	٤,١٠	Google
Strongly Agree	٩٠,٠٠٪	٠,٧٨	٤,٥٠	**overall average**

Table (12) displays the response levels of the respondents regarding the need for a relatively high interactive rate in automated advertising in the Metaverse era.

YouTube users' response falls within the "strongly agree" level, with an arithmetic mean of 4.51 and a relative weight of 90.27%. Similarly, Facebook users' response also aligns with the "strongly agree" level, with a mean of 4.89 and a relative weight of 97.73%. On the other hand, users of the Google Engine site's response are classified under the "agree" level, with a mean of 4.10 and a relative weight of 82.0%. The overall arithmetic mean is 4.50, indicating a very high level of agreement, with a relative weight of 90.0%.

Sig	F	Mean Squares	df	Sum of Squares	Source
		٢٣,٢٣	٢	٤٦,٤٥	Between Groups
٠,٠٠١	٤٥,٩٣	٠,٥١	٤٤٧	٢٢٦,٠٥	Within Groups
			٤٤٩	٢٧٢,٥٠	Total

Table (13) presents the results of the one-way analysis of variance (ANOVA) test, which assesses the differences between the arithmetic means of the respondents' responses based on the site used.

Table (13) demonstrates that there are statistically significant disparities between the arithmetic means of the respondents' responses based on the site utilized. The calculated value of "F" was 45.93, with a

significance level of 0.001, indicating a highly significant outcome.

Table (14) presents the outcomes of the Least Significant Difference (LSD) test, which was employed to identify the specific variations between the sites used and their corresponding directions.

Google	Facebook	YouTube	Internet websites
٠,٤١٣*	-٠,٣٧٣*	-	YouTube
٠,٧٨٧*	-	-	Facebook
-	-	-	Google

Table (14) displays the results of the LSD (Least Significant Difference) test, which was conducted to identify the differences between the sites used and their respective trends. There is a statistically significant finding at a significance level of 0.05.

Table (14) reveals a statistically significant difference between the Facebook site and both the YouTube site and the Google site, favoring the Facebook site. This observation is further supported by Figure (20), which visually represents the significant distinction between the sites in terms of the respondents' responses .
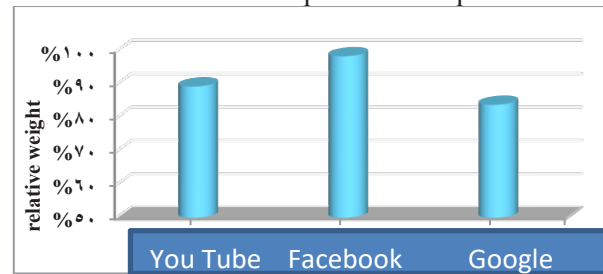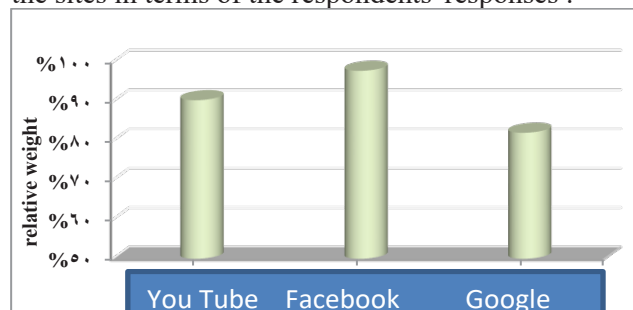

Fig (20) illustrates the distribution of the sites used based on the relative weights assigned to the respondents' responses for each site.

Based on the information presented in Tables (12), (13), and (14), along with the corresponding results, and considering the insights provided in Figure (20), it is evident that the third hypothesis of the research has been supported and verified.

22- Results of the fourth statistical hypothesis test:

To evaluate the validity of the fourth hypothesis, which states that there are significant differences in the mean scores of the sample concerning the indispensability of human intervention in automated design during the metaverse era, the researcher employed various statistical measures. These

measures included calculating the arithmetic mean, standard deviation, and relative weight to estimate the level of expectations among the research sample. Additionally, one-way ANOVA and the LSD test were conducted to facilitate multiple comparisons between the average responses based on the social networking site utilized by the participants.

degree of approval	relative weight	standard deviation	SMA	Internet websites
Strongly Agree	٩١,٦٠٪	٠,٧٤	٤,٥٨	YouTube
Strongly Agree	٩٨,٠٠٪	٠,٣٠	٤,٩٠	Facebook
Agree	٨٣,٣٣٪	٠,٨٦	٤,١٧	Google
Strongly Agree	**٩٠,٩٨٪**	**٠,٧٤**	**٤,٥٥**	**overall average**

Table (15) displays the arithmetic means, standard deviations, and relative weights of the respondents' responses regarding the necessity of human intervention in automated design within the metaverse era. This table provides a summary of the sample's opinions and the level of agreement or disagreement with the idea of human intervention in automated design.

Table (15) presents the levels of the respondents' responses regarding the indispensability of human intervention in automated design within the metaverse era. The table includes the responses from YouTube users, Facebook users, and Google engine site users. The respondents from YouTube expressed a strong agreement, with an arithmetic mean of 4.58 and a relative weight of 91.60%. Facebook users also showed a strong agreement, with an arithmetic mean of 4.90 and a relative weight of 98.0%. On the other hand, users of the Google engine site indicated an agreement, with an arithmetic mean of 4.17 and a relative weight of 83.33%. The overall arithmetic mean for all respondents was 4.55, with a relative weight of 90.98%, indicating a very high degree of agreement.

Sig	F	Mean Squares	df	Sum of Squares	Source
٠,٠٠١	٤٤,٢٤	٢٠,٢٨	٢	٤٠,٥٥	Between Groups
		٠,٤٦	٤٤٧	٢٠٤,٨٧	Within Groups
			٤٤٩	٢٤٥,٤٢	Total

Table (16) also presents the results of the one-way analysis of variance test, which indicates the differences between the arithmetic means of the respondents' responses based on the site used.

Table (16) indicates that there are statistically significant differences between the arithmetic averages of the respondents' responses based on the site used, as evidenced by an "F" value of 44.24 and a significance level of 0.001. Table (17) displays the results of the LSD test, which was conducted to identify the specific differences between the sites and their respective directions.

Google	Facebook	YouTube	Internet websites
٠,٤١٣*	-٠,٣٢٠*	-	YouTube
٠,٧٣٣*	-	-	Facebook
-	-	-	Google

Table (17): Results of the LSD test to determine the differences between the sites used and their trend. There is a statistically significant finding at a significance level of 0.05.

Table (17) & Figure (21) clearly indicates that there is a significant statistical difference between the Facebook site and both the YouTube site and the Google site, favoring the Facebook site .
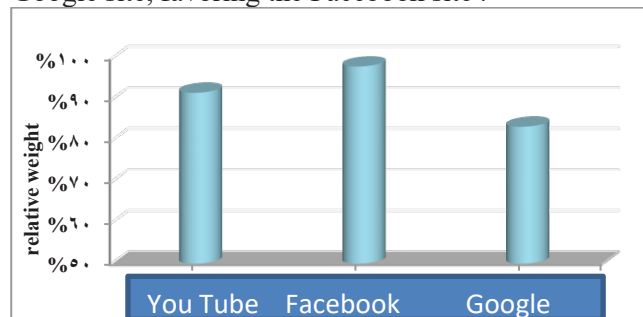
Fig (21) illustrates the distribution of sites used based on the relative weights of the respondents' responses. Considering the findings presented in Tables (12), (13), and (14), along with the corresponding Figure (4), it is evident that the research's fourth hypothesis has been confirmed.

23- Results of the fifth statistical hypothesis test (the General hypothesis):

The results of the fifth statistical hypothesis test, which examines the main hypothesis, are as follows: The hypothesis states that the introduction of the Metaverse era has resulted in significant advancements in user expectations for automated advertising. These advancements are expected to enhance the efficiency, effectiveness, and personalization of digital advertising. To investigate this hypothesis, the researcher analyzed the arithmetic mean, standard deviation, and relative weight of the

respondents' expectations. Additionally, one-way ANOVA and the LSD test were conducted to compare the average responses across different social networking sites used by the research sample.

Table (18) presents the arithmetic means, standard deviations, and relative weights of the respondents' responses regarding their expectations of automated advertising automation. These expectations are related to the potential for increased efficiency, effectiveness, and personalization of digital advertisements.

degree of approval	relative weight	standard deviation	SMA	Internet websites
Strongly Agree	٪٩٠,٣٧	٠,٤٠	٤,٥٢	YouTube
Strongly Agree	٪٩٨,١٧	٠,١٤	٤,٩١	Facebook
Agree	٪٨٣,٠٣	٠,٤٥	٤,١٥	Google
Strongly Agree	٪٩٠,٥٢	٠,٤٧	٤,٥٣	**overall average**

Table (18) presents the respondents' levels of agreement regarding their expectations of automating automated ads, which aim to enhance efficiency, effectiveness, and personalization of digital ads.

The table includes the response data from Facebook users, who strongly agree with a mean score of 4.91 and a relative weight of 98.17%. On the other hand, Google engine website users expressed agreement with a mean score of 4.15 and a relative weight of 83.03%. The overall arithmetic mean was 4.53 with a relative weight of 90.52%, indicating a high level of agreement. Table (19) showcases the results of the one-way analysis of variance test, which examines the differences in the arithmetic means of respondents' responses based on the site they used.

Sig	F	Mean Squares	df	Sum of Squares	Source
		٢١,٤٨	٢	٤٢,٩٥	Between Groups
٠,٠٠١	١٦٧,٥٤	٠,١٣	٤٤٧	٥٧,٣٠	Within Groups
			٤٤٩	١٠٠,٢٦	Total

Table (19) demonstrates that there are significant statistical variances among the arithmetic means of respondents' responses based on the site they used, as indicated by an "F" value of 167.54 and a significance level of 0.001.

Google	Facebook	YouTube	Internet websites
*٠,٣٦٧	*٠,٣٩٠-	-	YouTube
*٠,٧٥٧	-	-	Facebook
-	-	-	Google

Table (20) provides the outcomes of the LSD test, which was employed to identify the specific variations and their respective directions between the sites used. There is a statistically significant finding at a significance level of 0.05.

Table (20) indicates a statistically significant distinction between the Facebook site and both the YouTube site and the Google site, favoring the Facebook site. This observation is further illustrated
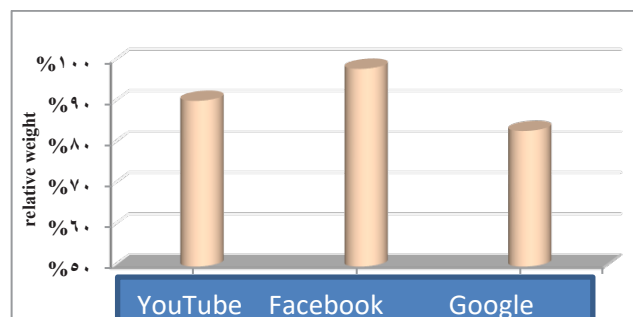

Fig (21) visually represents the distribution of the sites used based on the relative weights assigned to the respondents' responses for each site.

By considering the data presented in Tables (18), (19), and (20), along with the corresponding results displayed in Figure (21), it can be concluded that the main hypothesis (the fifth hypothesis) of the research has been supported and proven. The findings indicate that the launch of the Metaverse era has resulted in significant advancements in user expectations regarding automated advertising automation, leading to increased efficiency, effectiveness, and personalization of digital ads.

24- **Validity and resolution stability for the six statistical hypotheses:**

25-1-The validity of the Internal Consistency results:

To assess the internal consistency validity of the questionnaire, the researcher computed correlation coefficients between the scores of individual questionnaire items and the overall scores of the questionnaire. The correlation coefficients are presented in Table (21) below:

Axes	Phrase number	Correlation coefficient	level of significance
Axis 1	١	٠,٦٥	٠,٠١
	٢	٠,٦٠	٠,٠١
	٣	٠,٦٦	٠,٠١
Axis 2	٤	٠,٦٤	٠,٠١
	٥	٠,٧٣	٠,٠١
	٦	٠,٧٨	٠,٠١
Axis 3	٧	٠,٧١	٠,٠١
	٨	٠,٧٢	٠,٠١
	٩	٠,٦٨	٠,٠١
Axis 4	١٠	٠,٨٤	٠,٠١
	١١	٠,٥٧	٠,٠١
	١٢	٠,٣٧	٠,٠٤٧
Axis 5	١٣	٠,٥٧	٠,٠١
	١٤	٠,٥٠	٠,٠١
	١٥	٠,٤٢	٠,٠٢٢
Axis 6	١٦	٠,٨١	٠,٠١
	١٧	٠,٥٦	٠,٠١
	١٨	٠,٥٢	٠,٠١
Axis 7	١٩	٠,٨١	٠,٠١
	٢٠	٠,٦٦	٠,٠١
	٢١	٠,٤٥	٠,٠١٣
Axis 8	٢٢	٠,٤٨	٠,٠١
	٢٣	٠,٤٩	٠,٠١
	٢٤	٠,٣٨	٠,٠٤٧
Axis 9	٢٥	٠,٤١	٠,٠٢٣
	٢٦	٠,٥٢	٠,٠١

Axis 10	٢٧	٠,٤٢	٠,٠٢١
	٢٨	٠,٤٨	٠,٠١
	٢٩	٠,٦٣	٠,٠١
	٣٠	٠,٤٦	٠,٠١
Axis 11	٣١	٠,٦٩	٠,٠١
	٣٢	٠,٦٨	٠,٠١
	٣٣	٠,٧٣	٠,٠١
Axis 12	٣٤	٠,٧٣	٠,٠١
	٣٥	٠,٧٩	٠,٠١
	٣٦	٠,٧٨	٠,٠١
Axis 13	٣٧	٠,٧١	٠,٠١
	٣٨	٠,٧٢	٠,٠١
	٣٩	٠,٧٧	٠,٠١
Axis 14	٤٠	٠,٨٤	٠,٠١
	٤١	٠,٥٧	٠,٠١
	٤٢	٠,٣٧	٠,٠٤٧
Axis 15	٤٣	٠,٥٧	٠,٠١
	٤٤	٠,٥٠	٠,٠١
	٤٥	٠,٤٢	٠,٠٢٢
Axis 16	٤٦	٠,٧٥	٠,٠١
	٤٧	٠,٥٦	٠,٠١
	٤٨	٠,٥٤	٠,٠١
Axis 17	٤٩	٠,٨١	٠,٠١
	٥٠	٠,٧٨	٠,٠١
	٥١	٠,٥٠	٠,٠١
Axis 18	٥٢	٠,٦٢	٠,٠١
	٥٣	٠,٤٥	٠,٠١٣
	٥٤	٠,٥٨	٠,٠١

	٥٥	٠,٦٢	٠,٠١
Axis 19	٥٦	٠,٦٤	٠,٠١
	٥٧	٠,٥٨	٠,٠١
	٥٨	٠,٧٠	٠,٠١
Axis 20	٥٩	٠,٧٢	٠,٠١
	٦٠	٠,٦٨	٠,٠١
	٦١	٠,٦٩	٠,٠١
Axis 21	٦٢	٠,٦٨	٠,٠١
	٦٣	٠,٨٦	٠,٠١

Table (21) displays the correlation coefficients between the scores of each statement in the questionnaire and the overall scores of the questionnaire. These coefficients ranged from 0.86 to 0.37.

To assess the constructive validity of the questionnaire, the researcher computed correlation coefficients between the total scores for each axis of the questionnaire and the overall score for the questionnaire. The results are presented in Table (22) below:

Axes	Correlation coefficient	level of significance
Axis 1	٠,٨١	٠,٠١
Axis 2	٠,٨٦	٠,٠١
Axis 3	٠,٨٩	٠,٠١
Axis 4	٠,٧٤	٠,٠١
Axis 5	٠,٥٨	٠,٠١
Axis 6	٠,٨٠	٠,٠١
Axis 7	٠,٨٦	٠,٠١
Axis 8	٠,٥٥	٠,٠١
Axis 9	٠,٥٨	٠,٠١
Axis 10	٠,٧٦	٠,٠١
Axis 11	٠,٨٤	٠,٠١

Axis 12	٠,٨٦	٠,٠١
Axis 13	٠,٩١	٠,٠١
Axis 14	٠,٧٤	٠,٠١
Axis 15	٠,٥٨	٠,٠١
Axis 16	٠,٧٨	٠,٠١
Axis 17	٠,٨٨	٠,٠١
Axis 18	٠,٧١	٠,٠١
Axis 19	٠,٨٠	٠,٠١
Axis 20	٠,٨٨	٠,٠١
Axis 21	٠,٨٨	٠,٠١

Table (22) presents the correlation coefficients between the scores of each questionnaire axis and the overall score of the questionnaire. These coefficients ranged from 0.55 to 0.91, and they were all statistically significant. These findings indicate the validity and consistency of the questionnaire axes.

To assess the stability of the questionnaire and its axes, the researcher employed the Cronbach alpha coefficient method. The results of the Cronbach's alpha test for the questionnaire and its axes are presented in Table (23) below:

Axes	number of phrases	Cronbach's alpha coefficient
Axis 1	٣	٠,٦٧
Axis 2	٣	٠,٧٧
Axis 3	٣	٠,٧١
Axis 4	٣	٠,٧٢
Axis 5	٣	٠,٧٧
Axis 6	٣	٠,٦٨
Axis 7	٣	٠,٦٢
Axis 8	٣	٠,٧٣
Axis 9	٣	٠,٦٧
Axis 10	٣	٠,٦١

Axis 11	٣	٠,٧٧
Axis 12	٣	٠,٨٨
Axis 13	٣	٠,٧٣
Axis 14	٣	٠,٧٢
Axis 15	٣	٠,٧٧
Axis 16	٣	٠,٧١
Axis 17	٣	٠,٦٩
Axis 18	٣	٠,٦٥
Axis 19	٣	٠,٦٤
Axis 20	٣	٠,٧٣
Axis 21	٣	٠,٧٩
The questionnaire	٦٣	٠,٨٨

Table (23) displays the reliability coefficients of the questionnaire and its axes. The reliability coefficients ranged from 0.61 to 0.88 for the questionnaire axes, and the reliability coefficient for the entire questionnaire was 0.88. These coefficients indicate acceptable stability ratios, providing reassurance to the researcher regarding the questionnaire's application and reliability.

25- Results of the Six statistical hypothesis test:

The results of the field study involved analyzing the perspectives of 80 professional automated/ Programmatic designers who specialize in social networking ads (YouTube, Facebook, Google Drive). The sample consisted of an equal number of male and female designers, all within the age range of 30 to 40 years. The research utilized a questionnaire titled "The Availability of the Metaverse Age: Many Opportunities for Programmatic Advertising Designers to Differentiate and Push the Boundaries of Creativity by Embracing New Design Paradigms, Enhancing Technical Skills, and Focusing on User Experience." The objective of the study was to explore the potential of leveraging automation advancements in social networking programmatic advertising within the context of the emerging metaverse era. The participants' responses were evaluated using a five-point rating scale.

The opinion	degree of approval				
	Strongly Agree	Agree	N/A	Disagree	Strongly Disagree

the weight	5	4	3	2	1
weighted average	٤,٢٠ – ٥	٣,٤٠ – ٤,١٩	٢,٦٠ – ٣,٣٩	١,٨٠ – ٢,٥٩	١ – ١,٧٩

Table (24) Note: The means, standard deviations, and relative weights have been rounded to two decimal places in the analysis.

The hypothesis test results were obtained to assess the validity of the sixth hypothesis. The researcher utilized the arithmetic mean, standard deviation, and relative weight to measure the extent of expectations among the research sample. The results are presented in Table (25), which displays the arithmetic means, standard deviations, and relative weights of the respondents' responses regarding their expectations of the Metaverse era offering numerous opportunities for automated advertising designers to excel and push the limits of creativity by embracing new design models, improving technical skills, and prioritizing user experience.

Axes	SMA	standard deviation	relative weight	degree of approval	arrangement
١	٤,٨٠	٠,٣٨	٩٥,٩٣٪	S. Agree	١
٢	٤,٧٨	٠,٤٣	٩٥,٥٤٪	S. Agree	٢
٣	٤,٦٤	٠,٤٩	٩٢,٧٧٪	S. Agree	٩
٤	٤,٦٢	٠,٤٩	٩٢,٤١٪	S. Agree	١٠
٥	٤,٧٦	٠,٥٠	٩٥,١٣٪	S. Agree	٣
٦	٤,٧٥	٠,٤٤	٩٥,٠٠٪	S. Agree	٤
٧	٤,٦١	٠,٥٥	٩٢,٢٢٪	S. Agree	١١
٨	٤,٦٨	٠,٤٧	٩٣,٦١٪	S. Agree	٦
٩	٤,٥٤	٠,٥٠	٩٠,٨٦٪	S. Agree	١٣
١٠	٤,٤٥	٠,٥٠	٨٨,٩٥٪	S. Agree	١٧
١١	٤,٦٠	٠,٥٠	٩٢,٠٣٪	S. Agree	١٢
١٢	٤,٥٢	٠,٦٧	٩٠,٤٩٪	S. Agree	١٤
١٣	٤,٤٣	٠,٥٠	٨٨,٦٨٪	S. Agree	١٨
١٤	٤,٦٩	٠,٤٧	٩٣,٨٧٪	S. Agree	٥
١٥	٤,٥١	٠,٥٠	٩٠,٢٧٪	S. Agree	١٥
١٦	٤,٦٥	٠,٤٨	٩٣,٠٩٪	S. Agree	٨
١٧	٤,٤١	٠,٦٢	٨٨,١٩٪	S. Agree	١٩
١٨	٤,٦٧	٠,٤٧	٩٣,٣٨٪	S. Agree	٧
١٩	٤,٤٠	٠,٧٨	٨٨,٠٥٪	S. Agree	٢٠
٢٠	٤,٥٠	٠,٧١	٩٠,٠٢٪	S. Agree	١٦

٢١	٤,٤٠	٠,٦٢	٨٨,٠٣٪	S. Agree	٢١
The general arithmetic mean	٤,٥٩	٠,٥٣	٩١,٨٣٪	S. Agree	

Table (26) presents the respondents' levels of agreement regarding their expectations that the Metaverse era offers ample opportunities for automated advertising designers to excel and push the boundaries of creativity through the adoption of new design models, enhancement of technical skills, and focus on user experience.

The respondents' overall average rating reached 4.59, indicating a strong agreement, with a relative weight of 91.83%. Furthermore, all axes of the questionnaire received a "strongly agree" response from the participants. The average values for the axes ranged from 4.40 to 4.80, and the relative weights ranged from 88.03% to 95.93%. The first axis, concerning the innovation rate in automated advertising for metaverses, attained the highest average of 4.80 and the highest relative weight of 95.93%. The second axis, focusing on the interactivity of automated advertising, ranked second with an average of 4.78 and a relative weight of 95.54%. The fifth axis, involving the use of automated virtual fashion shows, secured the third position with an average of 4.76 and a relative weight of 95.13%. Following that, the sixth axis, centered on the utilization of automated virtual real estate ads, held the fourth position with an average of 4.75 and a relative weight of 95.0%. The fourteenth axis, which pertains to virtual or enhanced user experiences, achieved an average rating of 4.69 and a relative weight of 93.87%, positioning it in fifth place. The remaining axes follow in descending order based on their respective relative weights. These findings are illustrated in Figure (22).
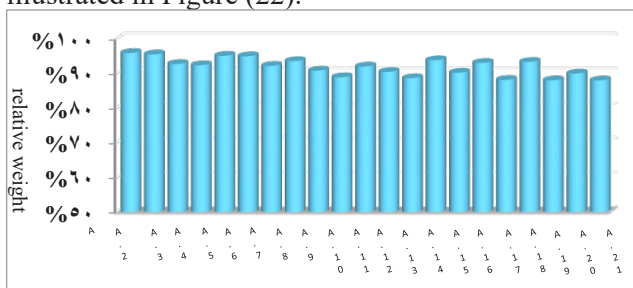

Fig (22) displays the relative weights of the questionnaire axes

Based on the results presented in Table (26) and the corresponding Fig (22), it is evident that the hypothesis has been confirmed. The respondents' expectations align with the belief that the metaverse era will offer numerous opportunities for automated advertising designers to excel and push the limits of creativity through the adoption of new design models, enhancement of technical skills, and a focus on user experience.

Respondents' expectations align with the belief that the metaverse era presents ample opportunities for auto ad creators to excel and broaden their creative horizons. This can be achieved by adopting new design paradigms, improving technical skills, and a strong focus on enhancing the user experience. These goals can be pursued through the implementation of various creative methods identified in the study, as shown:

26- **Adopting innovative design paradigms that align with the nature of the metaverse:**
- **Innovative Advertising and Marketing:** In the realm of advertising and marketing, embracing innovative strategies unlocks a wealth of possibilities for designers to conceive fresh and inventive ideas for virtual reality ad experiences. Within these immersive environments, users are granted the exciting opportunity to venture into branded virtual worlds, actively interact with products, and receive customized offers and incentives tailored precisely to their individual preferences and behaviors. This heightened level of interactivity and personalization serves to significantly enrich the overall user experience, fostering a deeper sense of engagement and connection with the brand being showcased. By wholeheartedly embracing these groundbreaking approaches, designers are empowered to captivate and engross audiences within the ever-evolving realm of virtual reality advertising.
- **Interactive Brand Experiences:** Brands can create interactive ad experiences where users can engage with the brand's products or services. This can include virtual try-on experiences for fashion or beauty brands, interactive demos for tech products, or virtual test drives for automotive brands. Also, the designer can craft a virtual store where users can explore and interact with products, try them on virtually, and make purchases seamlessly.
- **QR Codes uses:** Users can scan a QR code in the physical world and see a virtual representation of a product with additional information or interactive features.
- **Chatbots or virtual assistants:** The Metaverse fosters collaboration between designers, developers, and users from different disciplines and backgrounds. Designers can collaborate with AI specialists to create intelligent chatbots or virtual assistants that provide personalized ads &

recommendations and assistance to users within the Metaverse.

- **Cross-Platform Design Integration:** Designers can explore ways to integrate design elements across different platforms and devices, ensuring a seamless and consistent user experience as users transition between virtual reality headsets, smartphones, and computers.

- **Virtual Fashion Design / Show:** In the Metaverse, designers have the opportunity to create virtual fashion collections and accessories for avatars. Virtual fashion shows and events allow designers to showcase their creativity in the virtual realm, exploring unique designs that may not be feasible in the physical world.

- **Virtual Real Estate Design:** In the Metaverse, virtual real estate is a valuable asset. Designers can specialize in creating virtual environments and landscapes for virtual properties, including futuristic cities, fantasy realms, or serene natural landscapes.

- **Virtual Event Design:** The Metaverse offers endless possibilities for event design, from virtual conferences and concerts to exhibitions and social gatherings.

- **Digital Sculpture and 3D Modeling:** Designers can explore digital sculpting and 3D modeling to create intricate and visually stunning virtual sculptures or artifacts. These can be displayed in virtual galleries, museums, or even as part of virtual storytelling experiences.

- **Metaverse Branding and Identity:** Brands operating in the Metaverse will require designers to develop unique virtual identities and branding strategies that resonate with the digital audience.

- **Virtual Reality Game Design:** Designers can venture into the realm of virtual reality game design, creating captivating and immersive gaming experiences. This involves designing game characters, environments, and interactive elements that engage players in the virtual world.

- **In-Game Advertising:** Ads can be integrated seamlessly within virtual games, ensuring brand exposure to the vast number of players in the Metaverse. A brand logo could appear on billboards within a virtual city or a virtual character could use a branded product within a game.

- **Virtual Events and Sponsorships:** Brands can sponsor virtual events or create their own virtual experiences. This can include hosting virtual conferences, concerts, or exhibitions where users can engage with the brand and its offerings in a virtual setting. For instance, a sports brand could sponsor a virtual esports tournament or a music brand could partner with a virtual concert.

- **Virtual Influencer Marketing:** Brands can collaborate with virtual influencers or avatars who have a significant following in the Metaverse. The virtual influencers can promote and endorse products or services through virtual social media platforms or virtual events.

- **Native Advertising within Virtual Environments:** Brands can integrate their messaging and content seamlessly within virtual environments.

- **A virtual cityscape**: It Gives feature virtual billboards showcasing ads relevant to the virtual world, creating an immersive and realistic advertising experience.

- **Virtual Reality Brand Experiences:** Brands can create virtual reality (VR) experiences that allow users to immerse themselves in branded environments or narratives. This could include virtual brand showrooms, virtual travel experiences, or virtual brand-sponsored adventures.

- **Data-Driven Ad Optimization:** In the Metaverse, brands can leverage data analytics and real-time insights to optimize their ads for better performance. This includes analyzing user interactions, engagement metrics, and conversion rates to continuously refine and improve ad campaigns. With the use of data analytics and user profiling, ads in the Metaverse can be highly personalized and targeted to individual users.

- **Virtual Brand Stores:** Brands can create virtual stores within the Metaverse, offering users the opportunity to browse and purchase products in a virtual environment. These virtual stores can be designed with immersive and interactive elements, providing users with a unique shopping experience.

- **Augment your self-strategy:** Beauty and fashion brands can utilize augmented reality technology to allow users to try on virtual makeup, hairstyles, or clothing items. Users can use their smartphones or AR devices to virtually visualize how the products would look on them before making a purchase decision.

- **Interactive Product Demonstrations:** Brands can create interactive ad experiences where users can interact with virtual versions of their products. For example, an automotive brand can allow users to explore a virtual car, change its features, and even take it for a virtual test drive.

- **Location-Based Advertising:** Brands can target users with location-based ads within the Metaverse. For example, a restaurant brand could display virtual ads to users in specific virtual neighborhoods or venues, enticing them to visit the virtual version of their establishment.
- **Personalized Recommendations**: Using data analytics and user profiling, brands can deliver personalized ad recommendations to users based on their interests, preferences, and behaviors within the Metaverse. This allows for more targeted and relevant advertising experiences.

27- Discussion and Conclusion

Based on the research findings, it can be concluded that users have high expectations regarding the integration of virtual and augmented reality elements in automated ad designs. This integration enhances the immersive experience of Internet users within the metaverse advertising ecosystem. The researcher attributes this phenomenon to the metaverse world's ability to provide a virtual environment that offers transformative experiences, potentially replacing the need for physical shopping. Users can make purchase decisions in real-time within the immersive metaverse experience. Furthermore, the preference of users for the Facebook metaverse environment, in terms of programmatic advertising automation, can be attributed to its alignment with the metaverse system. Mark, the owner of the meta platform, announced the launch of the metaverse era for his platforms, including the introduction of user avatars. This indicates that avatars will play a pivotal role in representing individuals within the metaphysical world. Additionally, Facebook is the most commonly used platform among the selected sample category, as previous studies have shown its high usage rates in Egypt.

On the other hand, users' preference for the YouTube platform over the Google engine, in terms of programmatic advertising suitability, can be attributed to the nature of YouTube's algorithm. The platform heavily relies on personalized recommendations based on user preferences and interests. Users are exposed to automated advertising while watching a variety of videos on different topics consecutively, providing a golden opportunity for programmatic advertising exposure.

Based on the findings of the second hypothesis, the researcher attributes the higher rate of users' expectations for the three-dimensional metaverse environment (with Facebook platform ranking higher than YouTube, and YouTube ranking higher than the Google engine) to the introduction of avatars by Meta. These avatars allow users to personalize their virtual representations based on their physical attributes. The correlation and algorithms between platforms suggest that users expect similar benefits and features across different platforms. The researcher also attributes the preference of YouTube over the Google engine in terms of advertising to the unique characteristics of the YouTube channel. YouTube enables users to watch video recordings through live broadcasts, offering a distinct opportunity for full immersion in a virtual or enhanced video environment. This presents remarkable potential for the development of visually and audibly engaging automated advertising within an immersive setting. YouTube's platform allows for uploading, sharing, and commenting on videos, further enhancing user engagement.

In contrast, the researcher notes that the Google engine primarily relies on search results for specific user queries. Users encounter automated advertising while searching for particular information. The Google engine is not primarily an entertainment platform like YouTube, resulting in different user expectations and preferences. The researcher attributes the higher user expectations to the fact that users spend more time on the Facebook platform, followed by the YouTube platform, compared to the Google engine. This discrepancy in user engagement contributes to the variance in expectations among the platforms.

Based on the findings of the third hypothesis regarding users' opinions on the importance of high engagement rates in automated advertising during the Metaverse era, the researcher attributes their high expectations to the need for relatively high interactivity on the Facebook platform, followed by the YouTube platform, with Google ranking the lowest but still relatively high. The immersive and fertile metaverse environment provided by Facebook justifies the emphasis on interactivity, as announced by Mark Zuckerberg, within a virtual environment filled with digital games that require interaction with virtual and augmented elements. Similarly, users' increased expectations on YouTube stem from their desire for interactive immersion in the audiovisual world of videos within the metaverse environment. It is important to note that the significant results of the fourth hypothesis, which highlight the need for human intervention in automated ad design during the metaverse era, indicate users' awareness of the increasing competition in automated advertising driven by artificial intelligence rates and algorithms. This awareness emphasizes the necessity of human creative intervention to distinguish and elevate ideas

beyond mechanistic approaches. Overall, the results demonstrate a substantial increase in user expectations regarding the automation of advertising in light of the metaverse world's launch and the advancements, efficiency, and personalization of digital ads.

The findings of the sixth hypothesis were highly encouraging for automated/ Programmatic designers, revealing the immense opportunities presented by the metaverse era to push the boundaries of creativity. By embracing new design paradigms, honing technical skills, and prioritizing user experience, designers can harness the transformative potential of the Metaverse to craft immersive, personalized, and impactful experiences. Audiences are captivated by the possibilities within this thrilling digital frontier. However, it is important to acknowledge that the metaverse also brings forth complex challenges for ad designers. To navigate this evolving landscape, designers must adapt their skills to new media, delve into the depths of artificial intelligence technologies, embrace data-driven decision-making, and collaborate closely with technologists. This collaborative effort is essential for creating personalized, immersive, and ethically sound ad experiences. By carefully addressing these challenges, designers can leverage the power of automation to design captivating and influential ad campaigns within the dynamic and ever-changing metaverse environment. It is through this thoughtful and strategic approach that designers can fully unlock the potential of the Metaverse, creating experiences that resonate with audiences and leave a lasting impact.

28- Recommendations

Based on the research findings, the following recommendations are proposed for the integration of artificial intelligence (AI) sciences into educational courses for advertising designers as a fundamental part of the curriculum for advertising designers. This integration should focus on providing students with a comprehensive understanding of AI applications in advertising, including automation, data analysis, and machine learning algorithms.

Study Automation of Instagram and Twitter Ads because of its significant impact on advertising.

Given the increasing significance of the metaverse as an emerging platform for advertising, it is strongly recommended to prioritize and expand the study of the interactive nature of audiovisual advertising within this virtual reality space.

Also, Researchers should investigate how programmatic advertising influences user attitudes, emotions, and behaviors. This knowledge will enable

advertising designers to develop campaigns that align with users' psychological needs and preferences.

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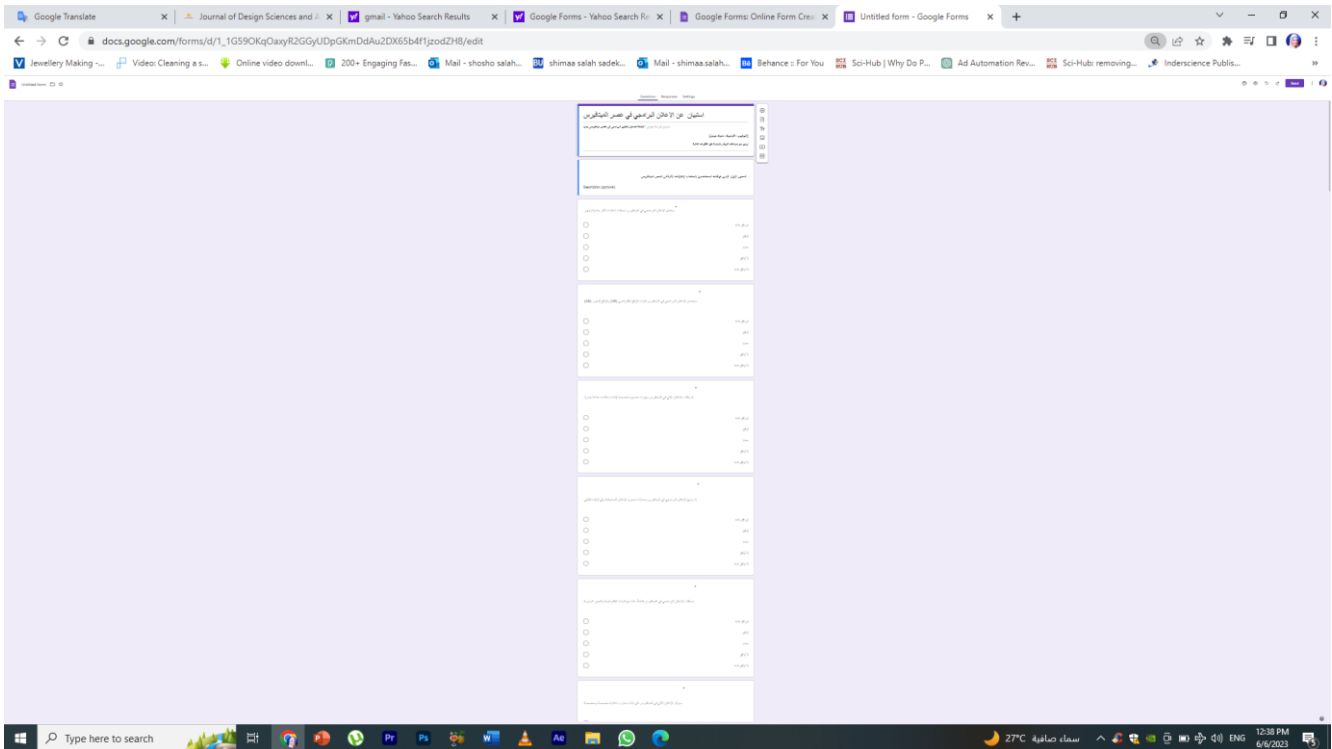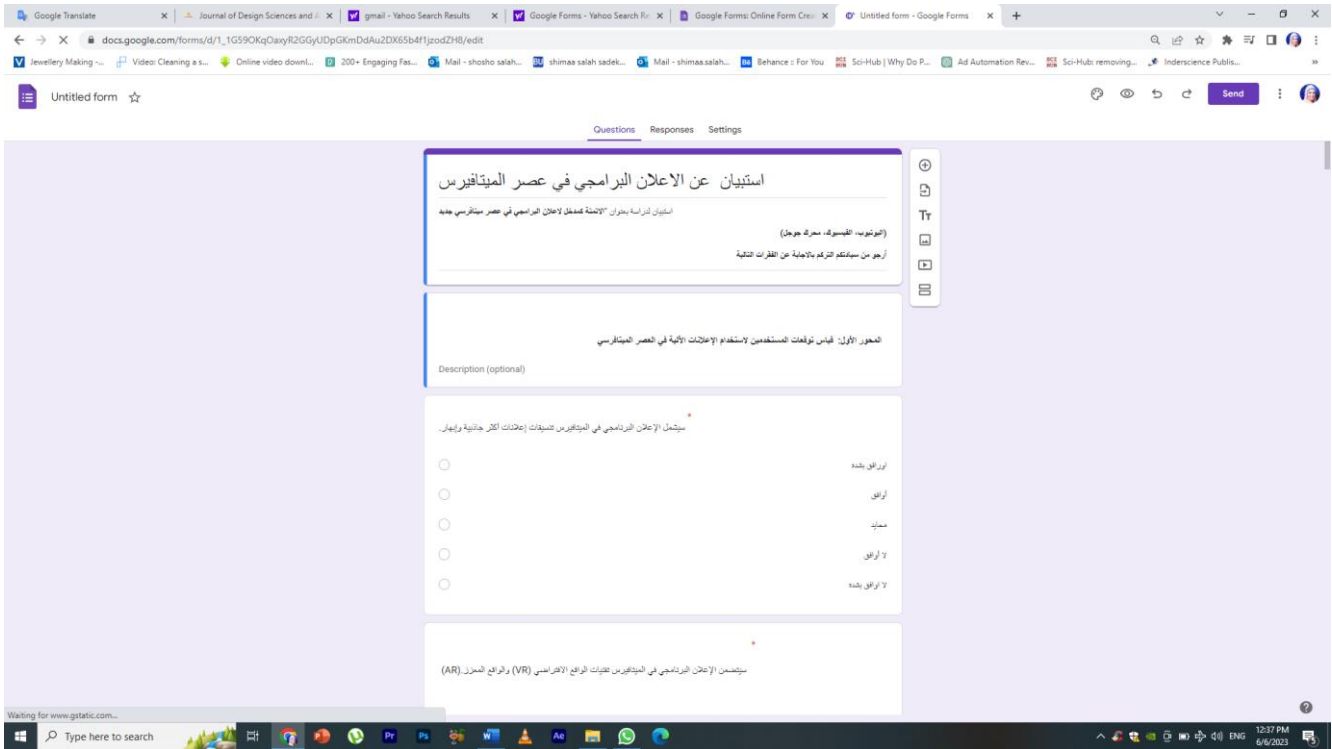
appendix (1)

Team No.	Statements	Strongly Agree	Agree	N/A	not Agree	Strongly not Agree
1	Programmatic advertising within the Metaverse will incorporate more visually appealing and attention-grabbing ad formats.					
2	Programmatic advertising within the Metaverse will leverage Virtual Reality (VR) and Augmented Reality (AR) technologies.					
3	Creating visually captivating ads in automated Metaverse advertising does not necessitate specialized design skills. (reverse paraphrase)					
4	The emphasis of programmatic advertising within the Metaverse will be on utilizing 3D graphics and animation.					
5	Dynamic and real-time ad content updates are possible in programmatic advertising within the Metaverse. (reverse paraphrase)					
6	Seamless integration with virtual environments and avatars will be necessary for programmatic advertising within the Metaverse.					
7	Automated advertising within the Metaverse will focus on delivering personalized and tailored ad experiences.					
8	User engagement in programmatic advertising within the Metaverse does not rely on manipulation tactics. (reverse paraphrase)					
9	Programmatic advertising within the Metaverse will enable interactive storytelling and immersive advertising experiences.					
10	Social and community advertising interactions are emphasized in programmatic advertising within the Metaverse. (reverse paraphrase)					
The second axis: The nature of designing automated ads in the Metaverse world						
M	Statements	Strongly Agree	Agree	N/A	not Agree	Strongly not Agree
1	Programmatic advertising on (YouTube, Facebook, or Google) platform within the Metaverse will incorporate immersive 3D objects in its ad formats.					
2	Virtual reality (VR) elements are included in automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse. (reverse paraphrase)					

M	Statements	Strongly Agree	Agree	N/A	not Agree	Strongly not Agree
3	Augmented reality (AR) overlays are utilized in automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse.					
4	Elements of electronic games are integrated into automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse to enhance user participation.					
5	Customized and targeted 3D ad content for each user is a focal point in automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse. (reverse paraphrase)					
6	Designers need to create ads specifically tailored for virtual environments in automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse.					
7	Real-time data is leveraged to enhance dynamic ad delivery and targeting in automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse. (reverse paraphrase)					
8	The design of automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse aims to create a cohesive and integrated user experience.					
9	Metrics and analytics are provided to measure advertising performance in automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse. (reverse paraphrase)					
10	Users' avatars, representing their digital identities, play a significant role in programmatic advertising within the Metaverse.					

The third axis: Users' expectations towards the interactive features of automated ads in the Metaverse era

M	Statements	Strongly Agree	Agree	N/A	not Agree	Strongly not Agree
1	Interactive avatars are incorporated into automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse to enhance the viewing experience of advertisements.					
2	Users can interact with ads and content in the 3D space of platforms like YouTube, Facebook, or Google Drive within the Metaverse. (reverse paraphrase)					

M	Statements	Strongly Agree	Agree	N/A	not Agree	Strongly not Agree
3	Advertisers have the ability to create and customize virtual avatars representing their brands in automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse.					
4	Advertisers can create virtual galleries within the Metaverse on platforms like YouTube, Facebook, or Google Drive, allowing users to explore products and services in a simulated environment. (reverse paraphrase)					
5	Automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse encourages social interactions among users, enabling them to connect, communicate, and share experiences related to the automated advertising.					
6	Automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse allows virtual content to be overlaid on the real world, enabling users to interact with ads in their physical environment.					
7	Advanced graphics and animation techniques are employed in automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse to create more realistic and appealing avatars. (reverse paraphrase)					
8	Metrics and analytics are provided in automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse to measure the impact and effectiveness of interactive advertising campaigns based on avatars.					
9	Real-time optimization and personalization options for avatar-based ads are available in automated advertising on platforms like YouTube, Facebook, or Google Drive within the Metaverse. (reverse paraphrase)					
10	Artificial intelligence is leveraged in automated advertising on YouTube within the Metaverse to enhance the capabilities and interactions of avatars in ad campaigns.					
The fourth axis: automated design and human design						
M	Statements	Strongly Agree	Agree	N/A	not Agree	Strongly not Agree
1	It is believed that automated ad design systems may lack the creative and artistic touch that human designers bring.					

2	Human designers are valued for their unique insights and ability to generate innovative ideas that automated systems cannot replicate.					
3	It is recognized that automated systems may excel in handling complex or subtle concepts, but human interpretation is still essential. (reverse encryption)					
4	Human designers are appreciated for their adaptability and flexibility, which may surpass what automated systems can offer.					
5	The combination of automated ads and human-designed ads can potentially yield better results than relying solely on automated systems. (reverse encryption)					
6	Automated systems demonstrate effectiveness in creating personalized and targeted ads at a large scale.					
7	Automated advertising can serve as a viable alternative to human-designed ads in specific scenarios.					
8	The complete replacement of human ad designers with automated ads is not feasible. (reverse encryption)					
9	Human designers play a crucial role in adding a creative and artistic touch to automated advertising.					
10	Automated systems have the potential to create effective designs without human intervention, but they may not surpass those created by human designers. (reverse encryption)					

References: (Ahn et al 2022), (Kamel 2022), (Community), (forbes), (basis)

Appendix (2)

	Axes	Statements	Strongly Agree	Agree	N/A	Disagree	Disagree Strongly
1	The rate of innovative ideas in the realm of automated advertising within the Metaverse.	I anticipate that innovative design approaches will be essential in harmonizing with the essence of the metaverse.					
		I believe that the escalating competitiveness of advertisements in the metaverse environment will make it increasingly challenging to sway the audience.					
		I am of the opinion that the characteristics of the metaverse will necessitate designers to craft creative automated advertising campaigns.					
2	Interactivity & Automated Advertising	Do you anticipate the emergence of interactive brand experiences that are automated within virtual environments?					
		I envision that the majority of automated advertisements in the metaverse world will be interactive.					
		I predict that the user's engagement with automated advertisements in the metaverse world will intensify their emotional connection and impact on the advertisement.					
3	chatbots as an automated advertising tool	I foresee chatbots or virtual assistants becoming a crucial instrument for automated advertising in user interactions within the metaverse.					
		I anticipate that the chatbot will offer a seamless automated advertising experience that effectively accomplishes the advertisement's intended objective.					
		I expect advertising designers in the metaverse world to proficiently utilize chatbot design as one of their advertising strategies.					
4	Automated integration and coordination between platforms	In the era of the metaverse, we can anticipate a seamless integration of design across multiple platforms.					
		This integration will not only impact the metaverse itself but also extend its influence to various social media platforms.					
		I understand the importance of designing automated ad interfaces and interactions that seamlessly adapt to various devices, including smartphones, tablets, and virtual reality headsets.					
5		Virtual automated fashion shows are poised to take center stage in the metaverse as a					

	automated VR/AR fashion shows	prominent platform for showcasing products.					
		This innovative approach allows designers to present their creations in the virtual world, offering a level of creativity and experimentation that may not be feasible in the physical realm.					
		By leveraging the metaverse, designers can explore unique designs and concepts, pushing the boundaries of fashion and captivating audiences with immersive and visually stunning experiences.					
6	VR/AR automated real estate ads	The utilization of virtual real estate design as an automated advertising delivery method in the metaverse is expected to experience significant growth.					
		Designers now have the ability to programmatically incorporate advertising banners onto virtual properties within the metaverse world.					
		This virtual construction environment serves as an innovative and automated advertising medium, allowing for targeted and engaging advertising experiences.					
7	VR/AR event automated ads	I recognize the growing importance of virtual events and the use of virtual platforms in promoting our brand.					
		here are endless possibilities for designing automated advertising events across various platforms and industries. The evolution of technology has opened up new avenues for us to engage with our target audience in creative and impactful ways.					
		I recognize the immense potential of leveraging virtual events as automated advertisements in the metaverse world. This innovative approach offers a creative alternative to traditional real-life events, which often require significant effort and cost to execute.					
8	VR/AR digital sculpting and 3D modeling	I anticipate that digital sculpture and three-dimensional modeling will play a pivotal role in the metaverse as a powerful tool for automated advertising.					
		The three-dimensional automated advertising will revolutionize the way products and services are displayed, offering a highly realistic and immersive experience for consumers.					

		I believe that incorporating three-dimensional modeling into automated ads can greatly enhance their realism and effectiveness.					
9	Virtual identity	The metaverse era presents a tremendous opportunity for the growth of virtual branding strategies and corporate virtual identity.					
		The concept of virtual identities as targeted automated advertisements is an intriguing and innovative approach that has the potential to become a modern alternative to traditional identities.					
		the age of the metaverse, developing unique virtual identities and automated branding strategies is imperative for effectively engaging with a digital audience.					
10	VR/ AR Gaming ads	I foresee a significant increase in the design of virtual reality games as a powerful advertising medium within the metaverse.					
		I believe that automated advertising integrated within virtual signage and buildings in games will enjoy widespread acceptance.					
		I anticipate the opportunity to deliver automated advertisements within games themselves or on players' virtual clothing by default. Whether integrated as part of the game or through a game specifically designed for automated advertisements, this approach holds immense potential.					
11	advertisement in automated virtual events	As a marketing manager, I anticipate that virtual or augmented events will emerge as highly popular automated advertising platforms within the metaverse.					
		These virtual or augmented events provide a unique opportunity for designers to create immersive experiences that enrich the mental image of a company or brand.					
		I have high expectations for the organization of global VR/AR events as automated advertising within the metaverse world.					
12	VR/AR automated ad marketing	I expect an increasing in the rate of virtual marketing					
		I expect virtual or augmented automated sales rates to increase within the metaverse world.					
		I expect virtual and augmented Automated sales windows to advertise for products and services.					

13	VR/AR Sports Sponsorships as Automated Advertising	Automated advertising designers have the ability to leverage brands by sponsoring events, games, or virtual experiences in the metaverse world.					
		They can create automated brand advertisements to serve as sports sponsors for virtual tournaments or participate as sponsors in virtual concerts for music brands.					
		Automated advertising designers can create dynamic advertisements for music brands that serve as sponsors in virtual concerts.					
14	Product VR/AR uses as Automated Advertising	I expect a significant increase in virtual and augmented user experiences for brands in the metaverse.					
		The consumers will have the opportunity to virtually test products and explore alternatives before making purchasing decisions.					
		Automated advertising in the metaverse will provide consumers with remarkable virtual and augmented experiences, enhancing their ability to make informed choices about products and their substitutes.					
15	Automated Advertising based on Data collection	I anticipate a data-driven approach to enhancing advertising in the metaverse.					
		Automated advertising designers will be collaborating with AI experts to gain a deeper understanding of data science.					
		Designers can personalize the content, recommendations, and interactions for individual users, resulting in more relevant and engaging experiences. This data-driven approach will enable advertisers to optimize their strategies and deliver targeted advertisements in the metaverse.					
16	Virtual stores as Automated Advertising	I anticipate the development of virtual stores for brands, offering users an immersive shopping experience.					
		Through automated advertisements, products can be showcased within enhanced and virtual sales centers, allowing users to try them out before making a purchase.					
		I expect virtual stores in augmented reality to provide comprehensive after-sales services, enriching the overall shopping experience for customers.					
17	Augment the user in the	I anticipate that automated advertising will empower users to effectively augment					

	Automated Advertising	themselves within augmented environments in the metaverse world.					
		This means that users will have the opportunity to showcase their characters or avatars in an enhanced and immersive experience, allowing them to stand out and engage with others in the metaverse universe.					
		I expect users to enjoy the enriched experience on their characters or avatars, fostering positive behavior towards automated advertising.					
18	Automated advertising through interactive demos	I anticipate a rise in popularity for interactive product demos within the metaverse.					
		Automated advertisements will provide detailed explanations on how to smoothly use products for users in the metaverse.					
		I believe that the visualization of the metaverse will be even more impressive, thanks to its virtual and augmented nature.					
19	Automatic advertising based on the location	I anticipate the implementation of location-based advertising within virtual environments.					
		Automated advertising designers can display virtual ads to users in specific virtual neighborhoods or locations.					
		This approach allows for targeted advertising based on the user's location, serving as a catalyst for virtual or augmented sales in the metaverse world. By leveraging automated advertising in a manner that aligns with the user's location.					
20	Using influencers as automated advertising	I anticipate that virtual influencers will play a significant role in automatically advertising and authenticating products or services through virtual social media platforms.					
		These influencers, existing in the metaverse world, will leverage their virtual presence to promote and endorse various offerings					
		Users will have the opportunity to interact with these influencers through automated advertisements, creating an engaging and immersive experience.					
21	personalized recommendations as automated advertising	I firmly believe that automated advertising holds immense potential in delivering personalized advertising recommendations to users within the metaverse.					
		This automation allows for efficient and tailored consultations, ensuring that					

		users receive the most relevant and valuable information.					
		This level of customization allows us to present users with a range of options that are tailored to their specific needs, ensuring that they receive relevant and appealing alternatives.					