
The importance of employing CGI technology in advertising design, advantages and disadvantages

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Abstract :

This study aimed to identify the significance of employing CGI technology in advertising design, by observing the advantages and disadvantages related to technology, specifying its features, determining the main advertising channels where this technology can be integrated, in addition to highlighting its importance in fulfilling environmental sustainability, supported by examples of the most important advertising campaigns employing this technology. The study reached a set of results, the most notably is the rapid technological changes that have impacted almost all fields have compelled organizations to adopt new methods to convey their promotional messages. Therefore, the adoption of computer-generated imagery technology in advertising campaigns is no longer an option but a fundamental requirement to distinguish their promotional messages amidst the vast clutter of advertisements.

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1. Introduction.

In the modern marketing world, social media and virtual reality technology have become significant for attracting audiences and fulfilling marketing and promotional goals, particularly amidst the dense advertising messages consumers receive daily which makes the process capturing their attention and interest in advertisements incredibly challenging, highlighting the significance of innovating distinctive ad designs to achieve that goal.

CGI (computer-generated imagery) technology represents an essential tool in ad design, enabling brands to convey their messages in more creative and visually appealing ways, executing ideas that were previously impossible through traditional photography. This has contributed to rising audience engagement, participation, and leaving a lasting impression. With technological advancements, it is expected that CGI advertisements will become more prevalent and complicated in the future, offering brands with new opportunities for innovation and communication with their audience in creative ways.

Based on the above, the problem statement of this study can be summarized in the following main question:

What is the significance of using CGI technology in designing innovative advertisements?

For a better understanding of the study topic, the following sub-questions can be raised:

- What is CGI technology?
- What are the advantages and disadvantages of this technology?
- What are the main advertising channels where this technology can be used?
- Can this technology be regarded as a means to assist in fulfilling environmental sustainability in advertising?

Study importance:

In the face of intensifying competition and technological advancements that have affected most sectors, it has become imperative for organizations to adopt innovative methods in promoting and advertising their products to attract and convince consumers of the benefits of their products. Relying on traditional methods is no longer sufficient to achieve this goal. Therefore, CGI technology represents an innovative solution for designing advertisements that are more convincing, engaging, and enjoyable for consumers. Considering the scarcity of research in this area, this research paper aims to shed light on the importance of this technology in advertising design.

Study Objectives:

This study aims to fulfill numerous objectives, summarized in the following points:

- Define the concept of CGI technology.
- Identify the main advantages provided by CGI technology for use, as well as the key disadvantages to avoid.
- Emphasize the necessity for organizations to adopt this technology for designing innovative advertisements, by providing examples of companies that have fulfilled important success in this field.

2. CGI Advertisements Concept.

2.1 Advertisement definition:

Advertisement is defined as:

- "A means of communication employed by organizations to reach wide audiences. It is a non-personal, one-way communication paid for by the advertising companies, seeking to convey specific messages about a product, whether it is a commodity, service, or idea, to the targeted audience in order to influence their attitudes and behaviors" (Al- Sayyid, 2006, p. 124).

- The American Marketing Association defines it as: "A non-personal communication process, paid for by business firms and institutions, intended to present goods, services, and ideas to consumers or industrial users, to convince them to buy" (Abed, 2009, p. 26)
- It is also defined as: "Any form of paid presentation of ideas, products, and services by the advertiser, directed at a target audience chosen to create awareness, inform, remind, impact, and convince them to buy products and services or to create a positive attitude towards these products" (Koeckemor, 2004, p. 67). Based on the above, advertising is a collection of non-personal efforts and means that are paid for by the advertiser, aiming to inform consumers about the products offered and persuade them.

The most significant aspect of advertising is its creative side, which plays an important role in attracting the attention of consumers. Large companies like "Apple," "McDonald's," and "Coca-Cola" spend millions of dollars annually to develop advertising messages and buy airtime and ad space in the media to convey these messages. Despite selling excellent products, these companies believe that creative advertising is an important part of their marketing success. The significance of creativity was summarized by Stephan Vogel, the head of the creative team at Ogilvy & Mather, stating: "There is nothing more effective than creative advertising, as it remains in the consumer's mind for a long time (Shahin, 2020, p. 10).

2.2. Definition of Computer-Generated Imagery (CGI) Ads:

In an era where consumers are bombarded with endless information and advertisements, capturing attention is more difficult than ever for brands. While traditional advertising methods remain prevalent, they are not sufficient to effectively penetrate the noisy market. Therefore, CGI (Computer-Generated Imagery) is regarded as one of the technologies that has changed the rules of the game and redefined the advertising and marketing scene, providing innovative ways to attract audiences and convey brand narratives.

This technology is defined as follows (CGI, 2023, p. 198):

- "Creating static or animated visual content employing imaging software, where CGI is utilized to produce images for different objectives, involving visual arts, advertising, anatomical modeling, architecture, engineering, television (TV) programs, video game art, special effects for movies, as well as augmented reality (AR) and virtual reality (VR) applications." (Hashemi-Pour, 2024)
- Or it is: "Images created by computers, a technique that produces or modifies images in the field of advertising, allowing creators to manufacture stunning, realistic, or fantastical scenes that may be difficult, if not impossible, to capture with a camera." (Manu, 2024)
- It is also defined as: "Employing computer programs to create visually realistic or fantastical effects that enable brands to showcase their products or stories in environments full of challenges or create narratives that cannot be fulfilled employing film techniques, from cars flying in the sky to advertisements exploring imaginary worlds, CGI ads provide limitless possibilities for creative expression." (The Power of CGI in Advertising, 2024).

Therefore, CGI has brought about a transformative effect on many industries, and advertising is no exception. Computer-generated imagery (CGI) has presented new dimensions of creativity and capabilities that were previously unimaginable or cost-prohibitive. As a result, it is an important tool in crafting commercial advertisements, interactive digital campaigns, social media content, and even virtual store interfaces (CGI, 2023, p. 198).

The market size of computer-generated imagery reached \$3.18 billion in 2020, with an expected compound annual growth rate of 19.9% in revenue. The rising demand for cost-effective animation tools and the increasing need to promote brand credibility are among the key factors expected to continue driving the growth of the computer-generated imagery market between 2021 and 2028.

On the other hand, advertising seeks to enhance a product, brand, or service to the target audience to generate interest, engagement, and increased sales. Advertisements may contain different visual representations such as animations, product visuals, brand messages, and more, all sought at building trust with the target audience and showcasing positive sentiments towards the brand in society. Therefore, the main goal of employing animated video clips in advertisements is to increase brand recall among audiences by offering distinctive brand content (computer generated imagery industry overview, 2024).

2.3. The Significance of Using CGI in Advertising:

This can be summarized in the following points (Insights, 2023):

- a. **Promoting Storytelling Capabilities:** Good storytelling is the essence of any successful advertising campaign. CGI technology enables advertisers to create visually stunning and emotionally resonant stories, from crafting relatable characters to shaping complex settings. Computer-generated images offer a broader canvas for storytelling that can deeply engage audiences.
- b. **Seamless Transition Across Platforms:** The appeal of employing CGI in advertising lies in its unparalleled adaptability. CGI models created for television commercials can easily be adapted for digital billboards, social media ads, or even print ads, ensuring brand consistency across all platforms, making transitioning between various media seamless and cost-effective.
- c. **Scalability:** As brands grow, their advertising needs evolve. CGI stands out for its incredible scalability, enabling brands to update or alter content without undergoing a complete overhaul. This flexibility is especially beneficial for long-term campaigns or adapting to market changes.
- d. **Enhancing Engagement and Interaction:** Interactive experiences is increasingly significant, going beyond merely watching advertisements. CGI can be employed to create interactive ads that invite audiences to engage in unforgettable ways, through augmented reality experiences or clickable 3D models.
- e. **Rising Return on Investment Through Precise Targeting:** Advanced CGI capabilities allow more precise audience targeting by catering to specific demographic or psychological needs. When coupled with data analytics, leading to more effective campaigns that capture attention and drive action, ultimately offering a better return on investment.

3. Advantages and disadvantages of using CGI in advertising.

3.1. Benefits:

Using CGI provides several advantages compared to traditional media. However, it is sometimes misinterpreted as a costly method. Nevertheless, this perception may not always be accurate. Among the important benefits of this technology in advertising are (Netra, 2023):

a- Cost Reduction:

CGI often proves to be less expensive than traditional media since it eliminates the need for costly on-location shoots, complex set designs, and logistical challenges related to organizing high-quality product photo sessions, which can be time-consuming. CGI avoids these constraints by offering a digital canvas where ideas can be executed to perfection, free from the limitations of the physical world. Furthermore, the assets created employing CGI can be altered and reused in future campaigns across all advertising platforms, thus saving time, money, and resources.

b. Efficiency and Flexibility in Production:

CGI is one of the most effective applications in product advertising, enabling products to be showcased from a 360-degree angle. Giants of e-commerce like Amazon and eBay often use this feature, offering consumers with the ability to virtually manipulate and inspect products from all angles through highly realistic product presentations. This promotes consumer confidence and trust during purchase decisions, bridging the sensory gap inherent in online shopping. Besides, creating virtual representations of products or environments using 3D software provides much greater flexibility, allowing for computer-generated presentations that eliminate the need for post-production editing to remove unwanted components from the scene.

c- Increasing Awareness and Customer Engagement:

Computer-generated imagery (CGI) designs advertisements in an alluring way to attract viewers and capture their attention to the content of the advertising message in a captivating manner, thereby increasing the likelihood of sharing these attractive advertisements on social media platforms. This increases the brand's visibility and its reach to the audience. Companies can effectively showcase their offerings employing CGI by creating stunning product images, interactive ads, and virtual videos.

d- Limitless Opportunities:

There are endless opportunities to create and alter content quickly and easily utilizing CGI. Organizations that wish to introduce complete production lines or experiment with various settings throughout the day to test different configurations and environments will find tremendous advantages. The only limit when using CGI is one's imagination, as it can challenge the laws of physics, take viewers to breathtaking places, or even breathe life into fictional characters. The possibilities are endless, enabling the production of distinct and truly enjoyable commercials.

e- Cross-Platform Compatibility:

The ability to adapt is the greatest advantage of this technology, as it can interact with the three most commonly employed media platforms: mobile phones, tablets, and personal computers. A significant portion of this interaction occurs through mobile phones. Since audiences prefer consistency, it is important to provide them with consistent experiences across all platforms. Once the model is ready, it can be transformed into animations or even converted into an interactive game employing computer-generated imagery.

3.2. Disadvantages:

These can be summarized in the following points (The rise of CGI in advertising, 2023):

a. Cost:

Computer-generated images can be expensive, particularly when producing complex or realistic images, posing a barrier for small companies and startups looking to experiment with the technology in their advertising efforts.

b. Authenticity:

When employing computer-generated images to produce fake images of products or services, some consumers may view the advertisement as deceptive or inauthentic. Furthermore, excessive use of CGI may make the scene appear unreal. Thus, advertisers utilizing traditional photography techniques risk losing audience interest if they become accustomed to seeing images generated by this technology.

c. Ethical Considerations and Challenges:

The use of computer-generated images in advertising increases additional ethical issues, encompassing the possibility of making false claims or distorting products. Particularly since the technology employed in this technique is so advanced that it can create completely realistic images of products that may be somewhat misleading at times. This poses questions about the extent to which companies can promote product features through CGI before the advertisement becomes deceptive.

4. Integrating CGI in Advertising Channels.

There are numerous advertising channels where this technology can be employed in ad design (Kathotia, 2024):

- 4.1. Television Ads:** Computer-generated images offer lifelike motion shots capable of producing stunning scenes aired on television. Ads designed in this way can become unforgettable experiences resonating with a large audience.
- 4.2. Print Media:** While CGI is typically regarded as improbable for print, advertisers often utilize CGI-created images for different print campaigns, particularly those printed in high quality.
- 4.3. Digital Billboards:** Once limited to static images, modern CGI-designed outdoor advertisements display animated content that embodies the essence of the brand in attracting ways, known as DOOH (Digital Out of Home), enabling for timely updates.

4.4. Web and Mobile Applications: Some brands provide customized web or mobile applications according to their engagement strategies. CGI promotes core systems by enhancing loyalty and improving user experience. Enhanced visual components lead to increased time spent in the application, offering opportunities for engagement and interaction.

4.5. Social Media Platforms: Animated explanatory videos or three-dimensional CGI product demos add levels of sophistication to effectively attract user attention. Visual interaction can rise brand awareness and click-through rates on ads.

Computer graphics enable limitless creativity and customization, allowing brands to create visually stunning and memorable campaigns, which stand out on platforms such as Instagram, Facebook, and TikTok. Below are some unique methods and success stories of computer-generated images in social media campaigns on these platforms. (Future of CGI in marketing: trends and predictions, 2024)

a. Instagram:

- **Virtual Fashion Shows:** During the COVID-19 pandemic, fashion brands turned to employing CGI to create virtual fashion shows and digital presentations on Instagram. They utilized computer-generated images to showcase their latest creations with high-quality 3D animations and visual effects. Brands were able to engage their audience in innovative creations and adventurous approaches.
- **Augmented Reality Filters and Effects:** Many brands integrate augmented reality effects powered by CGI technology into their Instagram campaigns to promote user interaction and create shareable experiences. For instance, cosmetic brands utilize augmented reality filters enabling users to attempt virtual makeup products and accessories, while fashion brands employ augmented reality effects to create virtual experiences.

b. Facebook:

- **Interactive 360-Degree Videos:** CGI is employed to create interactive 360-degree videos on Facebook, enabling users to explore virtual environments, products, and experiences in a distinctive way. Brands can utilize computer-generated images to create engaging storytelling experiences, virtual tours, and interactive ads that attract users' attention and encourage interaction.
- **Personalized Content Experiences:** Brands leverage 3D presentations to create personalized content experiences on Facebook, delivering tailored visual content relied on users' preferences, behaviors, and interactions. Employing AI-powered algorithms and digital technology, brands can design their content to suit individual users, rising relevance, engagement, and conversion rates.

c. TikTok:

- **CGI Animation Challenges:** Brands launch CGI animation challenges on TikTok to encourage user-generated content and creativity. By creating 3D animations for users to remix and interact with, brands can create viral campaigns, raise user engagement, and increase brand awareness.
- **Influencers and Virtual Characters:** Some brands collaborate with virtual influencers and digital characters on TikTok to create unique and engaging content that resonates with Gen Z audiences. These virtual influencers can engage users in storytelling, endorse brands, and create interactive experiences, increasing brand loyalty and sparking buzz on social media platforms.

5. Sustainability.

CGI technology helps eliminate emissions from traditional product shoots and advertising, entailing travel, set development, equipment, and visual effects (explosions, fires, etc.), and site usage. It also eliminates the need to create physical prototypes of products (Roman, 2024).

Overall, there are many reasons to incentivize the use of this technology compared to traditional photography when it comes to environmental preservation, encompassing (The Future of CGI Technology in Marketing, Current Trends and Future Expectations, 2024):

5.1. Reducing Resource Usage: Through designing a model once employing CGI technology, it can be utilized multiple times. Furthermore, several props can be created from scratch without the need for physical presence, thereby offering a good opportunity to reduce resource use.

5.2. Remote Collaboration: By adopting this technology, businesses do not need to send the product to a photography company. Instead, they can simply capture some images and send them to any company worldwide to execute their request.

5.3. Energy Savings: By depending on CGI, a lot of energy consumed by lighting equipment, product photography tools, and others can be saved. Therefore, it is also a good step for environmental preservation.

5.4. Recyclability: Since all models employed are digital and designed through computers, those props and elements can be easily reused without the need for disposal.

In summary, adopting CGI technology in advertising can significantly contribute to environmental preservation through digital modeling and better element recycling.

6. Examples of CGI in Advertising.

6.1. Maybelline:

Maybelline Cosmetics marketing team launched a video on social media in July 2023 to foster the Sky High mascara in London, fulfilling great success. The video shows a train on the London Underground with artificial eyelashes, and in the video, a 3D mascara stick appears, causing the lashes to scatter onto the rubber lashes. The second half of the video represents a large ribbon of lashes coming out of a building and hitting a similar group of rubber lashes above a double-decker bus. (Mehta, 2023)

Figure 1. Maybelline Cosmetics Advertisement



Source : Chelsi Mehta, Marketing Campaigns: Real or Reel?!, <https://medium.com/@cmchelsimehta>, 11 July 2023.

The campaign sparked questions from the audience about whether it actually occurred in real life or not, but the answer to this question was that the actual application of the campaign did not exist; rather, the video was created utilizing CGI effects. (Foley, 2023)

6.2. Adidas Company:

Adidas is one of the most popular clothing brands of all time. Their advertisements are also some of the most lively, entertaining, and bold, contributing greatly to their sales raise. (The Best Adidas Ads Of All Time, 2020). Accordingly, it is not surprising that they employ CGI technology in designing their advertisements. Billboard is a good example which was designed at the end of the 2022 World Cup, which fulfilled 250 million views (McCarthy, 2023) The billboard was designed to celebrate Argentina's recent victory as World Cup champions. The brand created a 3D illusion of Lionel Messi celebrating among his teammates after their win, with the words "Impossible is Nothing" written on it. It was displayed on a billboard in Dubai .(Duong, 2022).

Figure 2. Adidas Advertisement



Source : [Amy Duong](https://www.trendhunter.com/trends/adidas-dubai), adidas Dubai Celebrates Argentina's World Cup Victory, <https://www.trendhunter.com/trends/adidas-dubai>, 22 December 2022.

The image is digitally generated and does not exist in reality. CGI technology was used to improve its realism.

6.3. Jacquemus Company:

In the spring of 2023, the fashion brand Jacquemus presented Bambino-designed handbags roaming the streets of Paris. The video became highly realistic and spread rapidly, garnering global attention for both the company and the bag itself. However, the brand did not stop there; in December, they released a series of computer-generated imagery (CGI) videos to foster the opening of stores in the Courchevel mountain resort. The Jacquemus logo emerged on ski lift cabins, on the ski board held by a diver, and even on a Christmas tree with human legs skiing down the mountain. (CGI: What It Is and How to Apply It in Advertising, 2024)

Shape 3. Jacquemus Company Advertisement



Source : Computer-Generated Imagery (CGI) in Advertising: Transforming Fantasy into Reality, <https://adello.com>, 3 April 2024.

6.4. L'Oréal Company:

L'Oréal Paris launched a promotional campaign for liquid lipstick utilizing innovative digital methods. The brand released a CGI animation on Instagram showing an exact replica of the lipstick product but on a larger scale, being transported on the rear part of a Citroën 2CV car, leaving a prominent trail of its color on the road. This digital visualization seeks to highlight the long-lasting capabilities of the lipstick, and according to L'Oréal, the product's formula is designed to last up to

16 hours, being resistant to smudging and transfer. The animations endeavour to emphasize these characteristics, demonstrating that if the lipstick brand were real, it could withstand ordinary environmental conditions, involving contact with car tires. (Thursday, 2023).

Figure 4. L'Oréal Advertisement



Source : CGI: What It Is and How to Apply It in Advertising, <https://altcraft.com/blog>, 8 February 2024.

6.5. Lini Company:

Lini's branding agency clearly and effectively introduced the new logo for "M.Video" company, where the new brand logo flies in 3D over the river in Moscow via a helicopter. Adding to the video, a group of passersby are seen capturing the image as if they were taking a picture in real life. (Kovalenko, 2024).

Figure 5. Lini Company Advertisement



Source : CGI: What It Is and How to Apply It in Advertising, <https://altcraft.com/blog>, 8 February 2024.

6.6. Nike Company:

In commemoration of the 35th anniversary of the famous Air Max shoe, Nike Japan organized an advertising campaign of legendary proportions, surpassing the boundaries of creativity. In conjunction with the brand's official Air Max Day (March 26), Nike unveiled a monumental three-dimensional billboard adjacent to the famous Shinjuku Station in Tokyo. In collaboration with the internal Nike Tokyo team and the innovative group CEKAI, the advertisement displayed a gigantic Nike shoebox suspended above the bustling street. Passersby enjoyed the display of distinctive Air Max designs before the gracefully floating box returned to its billboard position with the help of the famous Shinjuku Calico cat. This pioneering concept has since been replicated worldwide, with a recent stunning rendition in Hangzhou, China, capturing the same level of grandeur and style. (Exploring the Brilliance of Nike Ad Campaigns, 2024).

Figure 6. Nike Advertisement



Source : Exploring the Brilliance of Nike Ad Campaigns, <https://modernminimalistlogo.com>, 21 march 2024.

7. Conclusion.

This research paper sought to highlight the significance of using computer-generated imagery (CGI) technology in designing advertising messages by economic institutions. It identified the key features and drawbacks of this technology, as well as the main advertising channels where it can be employed. This was supported by examples of institutions that fulfilled considerable success in their advertising campaigns through the use of this technology. Through this exploration, we summarized set of conclusions as follows:

- Computer-generated imagery designs advertisements in an enticing manner, aiding in attracting viewers and capturing their attention to the advertising message, therefore increasing the likelihood of sharing these attractive advertisements on social media platforms.
- Advanced CGI capabilities allow for more precise audience targeting by accurately addressing the audience's needs.
- The rapid technological advancements, affecting almost all sectors, compel institutions to adopt new methods to convey their promotional messages. Accordingly, institutions adopting computer-generated imagery technology in their advertising campaigns is no longer optional but rather a fundamental requirement to differentiate their promotional messages amidst the immense clutter of advertisements.
- CGI technology is a good alternative to traditional photography by regarding environmental aspects, contributing to the elimination of emissions from traditional products and advertising shots, entailing travel, site development, equipment, and visual effects. Furthermore, it eliminates the need to create physical prototypes of products.
- Companies that have employed this technology in their advertisements have fulfilled important success and innovatively managed to capture the attention and interest of millions of individuals across social media platforms.

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