

# Communicating Sustainability: the Influence of Artificial Intelligence in Sustainability Advertising for Benefit Corporations

Prof. Stella Romagnoli

---

SUPERVISOR

Prof. Paolo Peverini

---

CO-SUPERVISOR

Luca Cappai - 772261

---

CANDIDATE

*A chi c'è,  
a chi mi vuole bene,  
Grazie per rendermi all'altezza.*

# Table of Contents

<b>Table of Contents</b>	2
<b>List of Figures</b>	5
<b>List of Equations</b>	6
<b>ABSTRACT</b>	7
<b>INTRODUCTION</b>	8
<b>LITERATURE REVIEW</b>	10
<i>Introduction to Artificial Intelligence in Advertising</i>	10
<i>1.1 Definition and Origins of Artificial Intelligence</i>	10
1.1.1 An historical background on Artificial Intelligence	11
1.1.2 Panoramic of the different forms of Artificial Intelligence	12
1.1.2.1 Generative Artificial Intelligence: Theoretical Foundations and Key Algorithms	14
1.1.2.2 Applications and Current Research on Generative Artificial Intelligence	14
1.1.3 Evolution and Skepticism on AI	16
1.1.3.1 The Moravec’s Paradox	16
1.1.4 The Future of AI	17
<i>1.2 An overview of AI in Advertising</i>	19
<i>1.3 The Corporate Social Responsibility concept</i>	21
1.3.1 CSR: historical background	21
1.3.2 The Benefit Corporations	22
1.3.2.1 The dual purpose and the reference context	22
1.3.2.1 The Different Business Logics in Benefit Corporations	23
1.3.2.2 The triple bottom line	25
1.3.4 Transparency and Evaluation Standards	26
<i>1.4 Sustainability Advertising</i>	26
1.4.1 Advantages and Challenges of Sustainability advertising	28

<b>RESEARCH METHODOLOGY</b> .....	29
<i>Introduction to the Research Methodology</i> .....	29
2.1 <i>Introduction to Conceptual Framework</i> .....	29
2.1.2 Variables of the Conceptual Framework.....	30
2.1.3 Hypotheses .....	33
2.1.4 Methodology .....	35
2.2 <i>Experimental Results</i> .....	43
2.2.1 Data Analysis (B2B Segment) .....	43
2.2.1.1 Hypotheses Results (B2B Segment - Openings) .....	43
2.2.1.2 Hypotheses Results (B2B Segment - Clicks) .....	45
2.2.1.3 Hypotheses Results (B2B Segment - Click Through Rate).....	47
2.2.2 Data Analysis (B2C Segment) .....	49
2.2.2.1 Hypotheses Results (B2C Segment - Clicks) .....	49
2.2.2.2 Hypotheses Results (B2C Segment – Click Through Rate).....	51
2.3 <i>Implications</i> .....	53
 <b>LIMITATIONS AND FUTURE RESEARCH</b> .....	 55
 <b>SOURCES</b> .....	 57
 <b>SITOGRAPHY</b> .....	 62
 <b>APPENDICES</b> .....	 63

# List of Figures

Figure 1: AI application in Customer Journey .....	16
Figure 2: Recommendations on Netflix's "for you" page .....	20
Figure 3: Summary of the purpose of Benefit Corporations .....	23
Figure 4: The two prevailing business logics in Benefit Corporations .....	24
Figure 5: The triple Bottom Line.....	25
Figure 6: An example of Illy’s Sustainability Advertising.....	27
Figure 7: Design of the Conceptual Framework.....	30
Figure 8: Extracts of weekly Newsletters: Human vs. AI crafted content. ....	37
Figure 9: Example of Traveleco advertisement generated with Artificial Intelligence.....	40
Figure 10: Example of Traveleco advertisement generated without the Artificial Intelligence.....	42

# List of Equations

Equation 1: Percentage change in odds.....	44
Equation 2: Hit Rate .....	44
Equation 3: LR Statistic.....	45
Equation 4: Omega squared.....	48

# ABSTRACT

---

This thesis explores the integration of Artificial Intelligence in Sustainability Advertising within the context of Benefit Corporations. As digital transformation is reshaping the advertising landscape, Benefit Corporations face the dual challenge of enhancing engagement while authentically communicating their commitment to sustainability. This research investigates how, in specific, Generative Artificial Intelligence impacts customer engagement when exposed to two different typologies of advertising, one generated by humans, and the other entirely generated by Artificial Intelligence.

Through a partnership with Traveleco, a Benefit Corporation operating in the tourism sector, this research conducts empirical analysis to validate the hypothesis that Artificial Intelligence can enhance the engagement of sustainability messages.

The findings indicate that Artificial Intelligence significantly improves the personalization and appeal of advertising messages, leading to higher engagement rates. This research adds to the existing academic literature on the application of artificial intelligence in marketing, specifically by examining the topic through the lens of sustainability. It also offers valuable insights for corporations seeking to integrate artificial intelligence into their business operations. Future studies are encouraged to delve deeper into the potential impacts that these tools might bring forth, exploring innovative strategies to boost advertising campaign effectiveness and simultaneously encourage responsible comporment.

# INTRODUCTION

---

If you have ever encountered an eco-friendly advertisement that gave the impression of speaking directly to you, it means that you have already seen the future of *Sustainability Advertising*. This is not just a matter of algorithms choosing the right message to show you, but how *Artificial Intelligence* is opening new avenues for communicating values and social responsibility in an authentic way, influencing not only your choices, but also your feelings toward those companies that are committed to transparently illustrating their *social impact*.

The advent of Artificial Intelligence (AI) has accelerated the transformation of the way companies advertise their activities. The thriving presence of AI behind an increasing number of new advertisements is due to its incomparable ability of analyze consumer behaviors and preferences, thereby targeting and recommending the right ads, enhancing, therefore, the advertisements' efficacy (Sterne, 2017; Kietzmann et al., 2018). Such technologies have encountered the growing emphasis on *Corporate Social Responsibility* (CSR) and *sustainability*, in particular among *Benefit Corporations*, companies that aim to integrate in their businesses a supplementary social purpose alongside their economic activity (Honeyman, 2014). For such companies, communicating their social impact becomes fundamental, since they rely on these communications to attract like-minded consumers who support the cause they pursue. The growing importance for those companies to effectively communicate their impact has never been more marked, given the growing consumer inclination towards sustainable products, which is becoming more and more pronounced (Harvard Business School Online, 2021).

Despite the evident connection between AI capacities and the goals of sustainability advertising, the incorporation of these domains remains partially unexplored when it comes to analyzing the integration of AI in the advertising crafting process. Given the growing importance that the topic is gaining, the literature has extensively analyzed the potential of AI to perpetrate a wide range of businesses (Buch & Thakkar, 2021). Specifically, the majority of research concentrates on examining the remarkable capabilities of this tool, rather than demonstrating practical applications across various contexts. This gap underscores a critical research opportunity: investigating the influence of generative AI on the thriving topic of sustainability advertising. This research seeks to offer a specific context, that is the one of Benefit Corporations, in which to analyze the effects of Generative AI on sustainability advertising's effectiveness in enhancing consumer engagement, and eventually, uncover new opportunities that might be posed by its use, thereby opening a fresh avenue for further investigation.

Closing this gap will present a pivotal research question:

- *Does the integration of Generative Artificial Intelligence in Sustainability Advertisements influence **engagement** towards Benefit Corporations?*



This study aims to extend the present body of literature by illustrating the potential of *Generative Artificial Intelligence* to increase the effectiveness of Benefit Corporations' marketing activities involving the promotion of sustainability messages. Furthermore, it aims to explore the managerial challenges associated with this integration, which may arise from substituting a human activity with an automated tool, such as the maintenance of concreteness and human touch, despite the communications being entirely designed by an Artificial Intelligence.

To conduct this research the author will be supported by *Traveleco*<sup>1</sup>. Traveleco is a startup founded in 2021 as Benefit Corporation and chooses to operate in the tourism sector, in particular, by providing a consultancy service to accommodation facilities with the aim of improving ESG (Environmental Social Governance) performance and accompanying them on a path towards a growing focus on sustainability.

In conducting this research, it was chosen to analyze a Benefit Corporation like Traveleco as it serves as an ideal example of a company that has been leading for some time with *Sustainability Advertising Campaigns*, communicating their goals to a wide variety of stakeholders. Over time, Traveleco has achieved positive results in its advertising campaigns, but recently began to encounter difficulties in promoting brand awareness and corporate image. These challenges stem from trying to communicate the essence, activities, and objectives of the company while trying to slightly reposition the brand in a new market segment. These initiatives are further complicated by the abstract nature of the messages to be transmitted. As a company that offers intangible services rather than physical products, Traveleco strives to make its sustainability services perceived as immediately tangible and relevant.

The reason behind this study stems from an interest in marketing and sustainability with a goal of combining these passions for a long-term effort to make sustainability more relevant. Coming from Sardinia, a place where appreciation for the environment is fundamental, a deep respect for the environment has been matured. The contribution of this study underscores the potential of Artificial Intelligence tools within sustainable companies to incentivize actions that encourage responsible and sustainable behaviors, particularly for territories like Sardinia, where a development based on respect for the land and oriented towards sustainability is grounded, aiming for a future where marketing drives sustainable actions. This research not only has implications for sustainable businesses, but could motivate academia to further delve into this field and discover new ways to create and implement better AI solutions. Moreover, this work can serve as a source of inspiration for NGOs and NPOs, enabling them to enhance their impact disclosure through AI implementation. This could potentially lead to the discovery of new and more targeted AI implementations in communication strategies, tailored to each company's unique configuration.

This paper aims to inspire all readers towards a more sustainable and digitalized world.

---

<sup>1</sup> <https://dev-hotelecosostenibile.traveleco.it/>

# *LITERATURE REVIEW*

---

## *Introduction to Artificial Intelligence in Advertising*

In the technological dawn of the 21<sup>st</sup> century, Artificial Intelligence (AI) emerges as a transformative force that promises to redefine our very existence. It does not only revolutionize the way we interact with machines, but also reshapes our perceptions of learning, creativity, and intelligence.

Chapter one of this study delves into the deep and intricate waters of AI, aiming to unveil the veil that shrouds such complex and multidimensional entity. It explores the birth and evolution of Artificial Intelligence, tracing the key milestones that, from the mid-century onwards, have laid the foundations for the development of the Artificial Intelligence as we know it today, extending beyond mere automation and evolving into a cognitive stimulation technology.

This chapter aims to provide a cohesive and solid overview of the research on the topic of Artificial Intelligence and Corporate Social Responsibility, outlining the potential and the criticalities of both domains, and in particular, the gaps in the current research. This chapter will function as a comprehensive resource for comprehending the characteristics of both topics, with the aim of bridging the current research gap. It will also explore how Sustainability Advertising can collaborate with Artificial Intelligence, thereby influencing the business operations of Benefit Corporations. In particular it focuses on the transformative potential of such technology in the realms of communication and marketing, highlighting its integration into Sustainability Advertising campaigns within Benefit Corporations.

### *1.1 Definition and Origins of Artificial Intelligence*

*“Artificial Intelligence is more than a technological breakthrough; it's a mirror reflecting our quest for knowledge and a bridge to untapped potentials. As we intertwine human creativity with machine precision, we're not just crafting smarter tools; we're shaping a future where technology and humanity enhance each other. This journey with AI is about harmonizing our intellect with digital prowess, ensuring that every step forward enriches our collective human experience”.*

*- Quote on Artificial Intelligence, ChatGPT*

This definition provided by ChatGPT, a chatbot developed by Open AI, resumes in a brilliant way the trajectory of Artificial Intelligence (AI). Univocally defining this tool, given its complexity and novelty, leads to incredibly complex outcomes; consequently, academia has provided multiple definitions of AI.

Artificial Intelligence has been defined as a collection of technologies that enable computer-machines to imitate intelligent human behaviors allowing them to carry out complex reasoning processes in a similar way

like an human being would do. AI systems adopt the so called “adaptive learning”, meaning that they possess the capability to learn from experience and adapt to new inputs autonomously (Russell & Norvig, 2016).

Other studies define Artificial Intelligence as the practical development of computer systems to enable them to process information and produce outcomes in a manner that is close to humans’ mental learning processes (Marsden, 2019). Moreover, AI includes various types of innovative technologies that are designed to mimic the cognitive abilities of human beings, allowing them to resolve complex problems through adaptive processes; these processes include analyzing and learning, problem-solving, and decision-making. In other words, such machines can learn and enhance their performance without the need to be programmed or guided by humans (Cheeseman & Gevarter, 2012).

According to Kulkarni and Ashadeepa (2023), Artificial Intelligence is a field that aims to enhance computer systems by providing them with a human-like intelligence that allows them to think and act like humans. This includes all the features possessed by human beings, such as perceptions, reasoning processes, and actions.

As it can be noticed, several elements are common to the majority of the academic AI definitions. In particular, AI can be defined as a technology that is capable of implementing processes that closely resemble human cognitive dealings. This enables AI to process and provide information with a significantly higher accuracy compared to the traditional technology existing so far. The key factor behind this capability it’s the AI’s ability to learn and refine its results over time.

### ***1.1.1 An historical background on Artificial Intelligence***

The journey of Artificial Intelligence began with ancient narratives and has progressed into a well-established scientific discipline. In 1956, the Dartmouth Conference, a seminal event that marked the formal birth of AI as a field of study, introduced the term artificial intelligence for the first time, illustrating the concept that machines could replicate various aspects of learning and human intelligence (Buchanan, 2005). This conference has ignited the debate about the feasibility of creating machines that could reproduce the humans’ cognitive abilities.

Early models that approached Artificial Intelligence sought to mimic the functions of single neurons. McCulloch and Pitts first introduced this concept in 1943, when they implemented a computer model with a learning model similar to human neurons, laying the groundwork for future AI explorations (Hayman, 1999). However, a more accurate version of such a model was the perceptron, defined by Rosenblatt in 1958, which refined the initial models, aiming to more closely reproduce human neural activities (Rosenblatt, 2021).

In the following years the debate focused mainly on an initial exploration of these models, studying the technical aspects behind their implementation. In particular, some studies showed how mathematical functions

such as Boolean (and therefore those that support only binary inputs) were not adequate for more advanced models of machine learning (Minsky and Papert, 1969).

Subsequently, the field experienced a period of partial disinterest, known as the “AI Winter” (The AI Winter Phenomenon, 2023). This era was characterized particularly by skepticism and reduced expectations, as AI had previously failed to concretize. However, interest in this domain experienced a revival at the beginning of the 2000s, led by the innumerable technological improvements, characterized by the introduction of novel advanced algorithms that refined the computational power of such machines, enabling them to support the implementation of new neural networks (Temam, 2010). This event, along with the introduction of advanced data storage capabilities and graphic process units (GPU) in 1997, opened this field to new horizons of research. (Forghani, 2020).

From this moment on, the evolution of Artificial Intelligence systems follows the technological progress, moving from simple rule-based algorithms to the advanced neural network-driven machine learning models that substantiate modern AI (Goodfellow et al., 2016).

### ***1.1.2 Panoramic of the different forms of Artificial Intelligence***

After introducing the historical context regarding AI, becomes essential to explore the different forms that artificial intelligence has taken over the years.

#### ***- Strong AI vs Weak AI***

Since its inception, Artificial Intelligence has evolved along a spectrum, from restricted (or weak) AI, which can perform very specific tasks with efficiency sometimes greater than that of humans, to the ambitious goal of general (or strong) AI, which is intelligence comparable to human intelligence and capable of learning and operating in a wide variety of contexts.

The first form, restricted (or weak) AI, represents most of the AI applications that we see today. It is made up of systems capable of playing chess at competitive world levels, as well as sophisticated machine learning algorithms that drive personalized recommendations across video streaming and e-commerce platforms. These systems are designed to perform well-defined tasks, improving efficiency and effectiveness in the daily operations of businesses and individuals (Kasparov, 2017). On the other hand, general (or strong) AI remains, at the moment, a theoretical goal, aiming to create a tool equipped with cognitive abilities similar to those of humans. A general AI system would be able to understand, learn and apply to a wide range of tasks without having been specifically programmed to do so. This type of artificial intelligence raises profound philosophical questions about the essence of mind and learning, as well as far-reaching practical and ethical implications (Vincent, 2017)

There are many debates on where the boundary between those two typologies should be collocated, however this first distinction highlights a useful difference that helps us to better understand this intricate topic. Colloquially, we tend to refer to AI without making any distinction, however this definition is *in primis* useful to understand the degree of autonomy that each tool might have, particularly in view of a more accurate legal framework that should take into account the liability attributable to each tool (Martinez, 2017).

After making this first, purely conceptual distinction, it should be desirable to delve deeper into the technical details of the various Artificial Intelligence models and their nuances, in order to gain a better understanding of their operation and the specific fields in which they can be applied.

- *Machine Learning*

Machine Learning is surely one of the major subsystems of modern Artificial Intelligence. It enables systems to improve their outcomes with experience, without the need to be programmed. This field is further divided into three categories:

- Supervised learning
- Unsupervised learning
- Reinforced learning

Each of such distinctions provides a unique approach to information processing and forecasting future results, making the Machine Learning applicable to a wide range of industries, such as detecting financial fraud, customizing online shopping experiences, or detecting illnesses (Alpaydin, 2021).

- *Natural Language Processing (NLP)*

Natural Language Processing enables computers to understand, interpret and generate human language precisely. Through the use of Machine Learning algorithms, NLP has made possible the development of intelligent chatbots, machine translation systems and voice assistants able to interact with users in a fairly natural way.

The NLP has revolutionized the way companies engage in communication with customers, improving the accessibility and efficiency of customer service and opening new channels for human-machine interaction. (Chowdhary & Chowdhary, 2020).

- *Computer Vision*

Computer Vision focuses on the ability of computers to interpret and understand the visual world. Through deep learning algorithms Computer Vision allows machines to process and analyze vast volumes of images and videos. Moreover, it allows machines to recognize objects, faces, scenes, and actions. Numerous fields, such as safety systems, environmental monitoring, automated medical diagnostics, and self-driving cars, apply this technology, enabling AI systems to interact more effectively and autonomously with their respective environments (Paneru & Jeelani, 2021).

- *Robotics*

Robotics merges artificial intelligence and mechanical and electronic engineering to create machines capable of performing complex tasks autonomously or semi-autonomously. Intelligent robots are used in a wide range of applications, from performing precision tasks, such as surgical operations, to space exploration, industrial manufacturing, to caring for the elderly.

Robotics leverages the capabilities of machine learning and computer vision to improve the ability of robots to perceive their environment, make decisions and learn from their mistakes, promoting efficiency and innovation across multiple industries.

These four areas represent fundamental pillars in the evolutionary journey of AI, each one contributing uniquely to the technological advancements of machines, enabling them to perceive, understand, and interact with the real world. These improvements lay the ground for the exploration of Generative AI, an exciting frontier that promises to push the boundaries of Artificial Intelligence even further, especially in the fields of communication and marketing.

### ***1.1.2.1 Generative Artificial Intelligence: Theoretical Foundations and Key Algorithms***

Generative AI is based on a variety of models and techniques, including Adversarial Generative Networks (GANs), Variational Autoencoder Models (VAEs), and transformation models, such as Generative Pre-trained Transformer (GPT). GANs, introduced by Ian Goodfellow and collaborators in 2014, rely on a dual neural network structure in which one network generates new data and the other seeks to distinguish generated data from real data. This competition stimulates continuous improvements, leading to the creation of surprisingly realistic content (Corchado et al., 2023).

Generative Artificial Intelligence represents one of the most fascinating innovations in the field of Artificial Intelligence, standing out for its capacity to create original content. Differently from Weak AI, which is oriented toward the optimization of specific tasks, the Generative AI pushes the boundaries of creativity one step forward, crafting genuine works in multiple domains and of different typologies: textual, figurative, auditory, and even coding. This branch of AI uses advanced algorithms to analyze and learn from vast datasets, allowing the generation of content that reflects complex structures, styles, and models (Bandi et al., 2023).

### ***1.1.2.2 Applications and Current Research on Generative Artificial Intelligence***

Presently, AI's research is constantly improving, and the general knowledge on this topic is growing day by day. Particularly, Generative AI is nowadays emerging as a transformative tool in the communications and marketing industries, thanks to its ability to produce new and engaging content. These technologies not only automate the creative process, but also elevate the quality and customization of the content communicated.

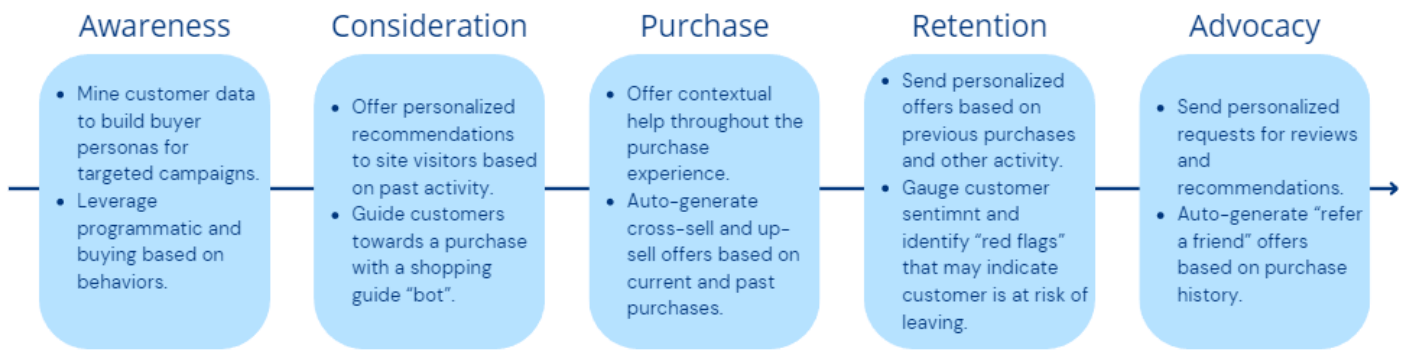
Having an overview of the current research regarding this topic is very useful to understand the perspectives and the trajectory that this technology is taking.

The most well-known feature of generative AI is surely the generation of textual content, using advanced language software such as GPT-3. This function allows to synthesize, improve, translate, rewrite and analyze a text, optimizing the time of inquiry and improving the quality of the text production; these software are often used to enhance the quality and productivity of blogs and social media, allowing firms to increase the efficiency of their communications (Dwivedi et al., 2023).

However, adversarial generative networks, as previously mentioned, revolutionized the advertising crafting process by enabling the creation of eye-catching and customized visuals based on the demographic and behavioral data of the targeted audience. Indeed, Lee and Cho (2019) explored data-driven marketing communication and the involvement of AI in ad's creation, discovering how this approach allows not only greater aesthetic consistency, but also a strategic alignment with marketing campaigns, enhancing a firm's Return On Advertising (ROI).

In addition, another revolutionary aspect of Generative AI is its ability to customize content in real time. This means that interactions with consumers can be continuously optimized based on their reactions and behaviors, creating a dynamic and personalized dialogue that increases the pertinence and effectiveness of marketing communications. Specifically, AI has demonstrated its effectiveness in analyzing extensive amounts of data and identifying the moment of the customer journey when a need arises, during the pre-purchase stage, emitting the right message for each customer (Araújo et al., 2022). It can optimize search results and enhance ad targeting accuracy, thereby influencing customers' initial consideration (Court et al., 2009). During the purchase stage, AI greatly influences the way consumers shop, making the purchasing process more efficient and tailored to individual needs. AI also enables dynamic pricing, which involves adjusting prices in real time based on factors like demand, consumer behavior, seasonality, and competitors' actions. In the post-purchase stage, firms can leverage AI to quickly communicate with customers and accelerate the response to their queries. In particular, the employment of AI in chatbots and virtual assistants radically transforms customer care, making it more intuitive, responsive and personalized. These systems are able to learn from past interactions, constantly improving the quality of the service offered (Buch & Thakkar, 2021).

Figure 1: AI application in Customer Journey  
 Source: <https://logic2020.com/insight/ai-customer-journey-digital-experience/>



### 1.1.3 Evolution and Skepticism on AI

Despite these innumerable benefits that AI is bringing, at the moment the domain of Artificial Intelligence remains partially unexplored; as a consequence, it is necessary to look at it with a parsimonious eye, taking into account the potentialities that AI possesses on one side, but also the critics and perplexities on the other. Hence, while AI’s potential has been extensively studied by the literature, these definitions have underscored the debate on whereby Artificial Intelligence is actually this close to humans’ minds, and whether machines actually possess such powerful abilities (Kaplan & Haenlein, 2019).

Nowadays, the scenery in this domain remains fragmented, and despite all the knowledge that has been and is still being acquired, several individuals remain skeptical on AI’s abilities. In particular, the debate is centered on the various concerns regarding the potential impact that AI is having and will have on our society, including job displacement, privacy and ethical concerns, and the potential for biased decision-making. The debate extends to the very nature of Artificial Intelligence, highlighting the discussions on whether AI’s ability to resolve tasks can actually emulate human thinking and, more especially, human creativity. Although the debate has returned to the forefront with the popularity of Chat GPT (Watters et al., 2023), several researchers have previously voiced their concerns about these new technologies.

#### 1.1.3.1 The Moravec’s Paradox

Hans Moravec’s paradox, named after the robotics researcher Hans Moravec in the 1980s, reflects the current debate about the paradoxical aspects of Artificial Intelligence and robotics. The paradox shows that, oppositely to traditional assumptions, under which computers can perform high-level reasoning tasks with almost no effort, they also encounter high difficulties in resolving other tasks that, at first glance, seem to be instinctively easy for humans to be completed. In particular, Moravec highlights how such systems can easily perform high-level cognitive tasks, like complex numerical calculations or data analysis in a very efficient



way, and how parallelly, they cannot perform those human innate behaviors, typically learned in childhood, like moving in a messy room or how to recognize a face (Moravec, 1988).

Moravec posits that this paradox arises from the sharpening of human sensorimotor activities over millions of years of evolution, which has become an intrinsic part of our biology and automatic for our brains, while high-level reasoning abilities are relatively recent in evolutionary terms (Moravec, 1988). In actuality, those tasks that seem to be easy to perform, such as face recognition, require a vast amount of sensory data that our brain is able to quickly process, while on the contrary, AI struggles to create algorithms able to process and interpret large amounts of data as rapidly as the human brain (Agrawal, 2010). According to Surianarayanan et al. (2023), the integration of AI and neurosciences has led to new discoveries, demonstrating that AI lacks the human brain's ability to process and connect information. The human brain, equipped over the years with an intricate network of neurons and synapses, allows for the detailed elaboration of information from the external environment. The amygdala plays a crucial role in processing emotions and making rapid decisions in response to external stimuli.

#### ***1.1.4 The Future of AI***

In light of these premises, in which the potentialities and criticalities of Artificial Intelligence have been illustrated, the following question arises: what will happen in the future and what will be the impact of AI on our society?

To this question, as well as in the previous sections of this paper, conflicting answers have been given, between those who attribute and recognize this tool's enormous potential and believe in a positive revolution of the world; and those who, on the contrary, highlight its greatest source of criticality in its very potential, pointing out how a massive diffusion of AI could lead to catastrophic consequences.

On one side, the advocates of AI highlight its revolutionary capabilities, prefiguring a future where AI is present in many aspects of our everyday lives, and is able to help all humans resolve those global challenges that have existed for years and years. James Manyika, Michael Chui, and Mehdi Miremadi (2018) in their work for McKinsey & Company, showed all the potential that AI has in terms of generating innovations in several fields, such as healthcare, automotive, and finance, as well as creating new job opportunities. Moreover, Schwab (2017) highlights the transformative impact that AI could have on the digital and biological spheres, envisioning a future where AI can accelerate innovations in healthcare through personalized medicine. This is not all, Schwab also emphasizes that AI, in conjunction with other technologies, could contribute overcoming climate change problems through an optimization of energy consumption. He also explores the way AI can provide a customized learning experience, making the progress of educational methods move one step forward.

Lastly, Kai-Fu Lee (2018), an AI researcher, discusses in his TED talk about the significant impact of AI in the Chinese market, highlighting how China's transition to a cashless and cardless society has been facilitated by Artificial Intelligence. He emphasizes how the optimization provided by AI has resulted in Chinese technological products surpassing their American counterparts, providing a specific focus on the optimization capabilities that AI possesses. Thanks to these incredible optimization capacities, Lee explains how utilizing AI more consciously can lead to improved outcomes in the workplace, optimizing the human's work-life balance.

In contrast to these visions, there are a number of critics who hold the belief that the uncontrolled development of such technology could exacerbate societal inequities, lead to job displacement, and significantly compromise personal privacy and security.

One of the main perplexities raised by several researchers is the job displacement risk that AI systems present. The increasing use of AI and Machine Learning technologies is automating tasks that were typically performed by humans; this automation can lead to job displacement, as machines and algorithms take over the repetitive tasks. High-skilled workers, who were initially expected to be the least affected, are in actuality equally affected as the low-skilled ones, as AI's ability to perform complex tasks, as mentioned above, is growing day by day. Furthermore, AI's efficacy in accelerating economic growth leads to a growing demand for highly skilled workers in AI-related fields, resulting in domain-restricted salary growth. Simultaneously, jobs involving replaceable tasks, which are susceptible to automation, may experience downward pressure on wages (Jain, 2023).

An other incertitude on AI regards the privacy protection. The study by Chen (2020) has proven that Artificial Intelligence still has the ability to integrate personal data, even if such data has never been consensually given to the platform. Hence, through non-standardized data integration mining technologies and personal network behavior technology, machines are able to collect the data of each internet user, without the real possibility of protection. In this realm, Das et al. (2023) suggest that, since AI is reshaping privacy in ways that we can only just begin to understand, it is important to spread awareness on the actual risks that AI poses in terms of privacy, triggering the creation of a legal framework that obliges platforms to communicate transparently their use of personal data of internet users.

To conclude, another widespread criticism of Artificial Intelligence tools addresses their lack of creativity, which is instead a typical aspect of human beings, that is, on the other hand, really hard to replicate for machines. As shown previously (See Paragraph 1.1.3.1) AI relies on algorithms and does not possess the innate intuition that allows the human brain to process the vast amount of information required to perform such cognitive tasks. Recently, several Artificial Intelligence tools have been instructed to create an image from written prompts; however, despite the information processing capabilities that this process requires, the emotional and experiential background that precedes the creation of a creative output is questioned. Hence,

critics argue that AI-generated art lacks the essence and intentionality that is present in human artworks, clashing with proponents' vision, which sees in AI a way to push creative limits beyond the preconceptions of what art is (Yagnesh, 2024). With art, it's important to consider more than just figurative art, as AI skills have expanded to include the creation of audio content. While some argue that convincing the audience with AI-generated audio content is challenging, it's important to note that artificially generated audio has misled the audience numerous times. One such case is the *NostalglA* song, produced by OpenAI, which caused distress among the singers involved and was even initially believed to be an original piece by the performer herself, who shared a video on social platforms while dancing on it, before revealing that she had been deceived by the accuracy of such a song (García, 2023).

Arguably, AI-generated artistic contents have impressive capabilities, however they are not exempt from limitations, as they lack the ability to truly be creative and have no emotional intelligence derived previous life experiences. This raises concerns about the diversity and inclusivity of the generated content, since the training data used can be biased and may not be in line with current cultural norms (Yagnesh, 2024).

## *1.2 An overview of AI in Advertising*

As said, one of the major areas of interest when it comes to studying Artificial Intelligence is the advertising one.

Advertising is crucial for all undertakings, as it represents a direct source of information for those customers who come into contact with the firm. At the same time, firms want to communicate their core values whereby promoting their products, activities, and goals, in order to attract consumers who align with their philosophy. The use of AI to convey a firm's vision and mission has a broad impact on advertising strategies, influencing them across various aspects.

AI has indeed a transversal impact on advertising, and almost no company today does not use AI to support their advertising strategies (Qin & Jiang, 2019).

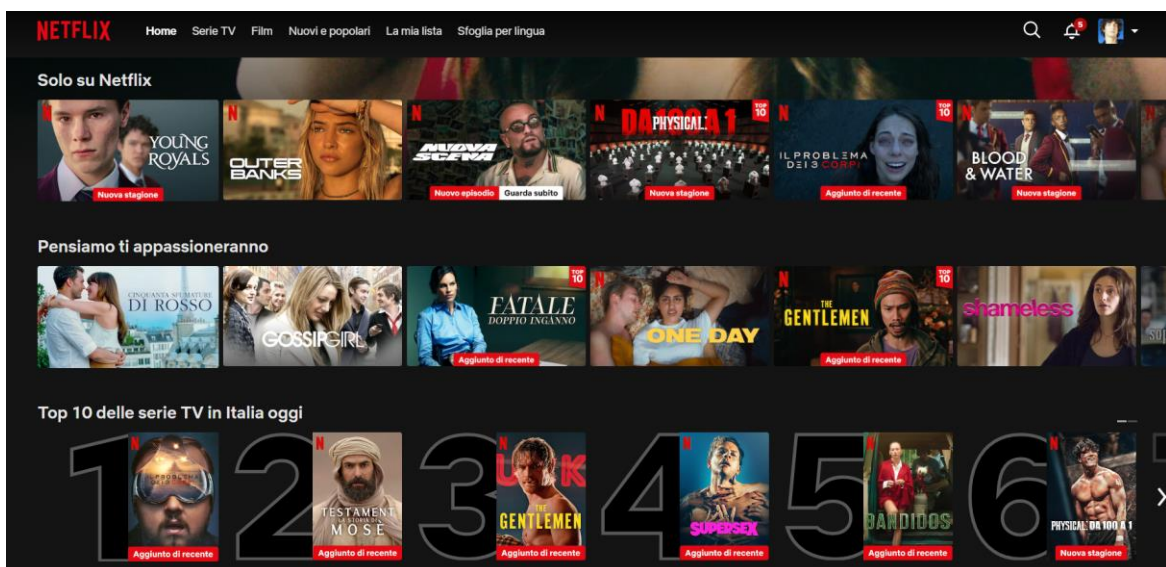
Jarek and Mazurek (2019) highlight the importance for marketers to adopt AI in their advertising practices, showing the potential that AI tools have in optimizing advertising campaigns and enhancing efficacy and effectiveness. This involves the optimization of processes such as data analysis, decision-making, targeting, and personalization. AI can therefore impact the way companies analyze data and create customized marketing campaigns, improving conversion rates, customer understanding, and customer satisfaction (Shahid & Li, 2019). In particular, AI can be really helpful when it comes to communicating the same message across different devices, so-called cross-screen marketing, because it can automate the process of user data analysis, making real-time adjustments to the message to be delivered, so that the message remains consistent across channels (Tan & Ko, 2016). On this, AI's capabilities also align with the domain of content marketing, which

consists of delivering the right content to attract the right audience. According to Kose & Sert (2017) AI can optimize the content provision, making it flexible and interactive according to customers' interests, with the ability to self-refine the targeting process.

Previous studies have shown the capability of Artificial Intelligence to analyze the data collected by companies and then refine the advertising techniques they employ; however, these researches did not analyze the style of messages to be conveyed; perhaps, when it comes to transmitting a personalized, emotionally appealing message, the advertising techniques need to be honed. Emotionally appealing advertisements involve messages intended to appeal to consumers' emotions, making them feel unique and part of the brand (Mogaji, et al., 2018). Such advertisements can be in the form of text, background music, and, particularly, images (Mogaji, 2018), which are considered the most efficient form for conducting image campaigns and expressing the brand's core sentiments. Through images companies can easily create emotional appeals through texts, colors, and graphics, engaging with like-minded consumers who are willing to support the firm's cause (Mogaji et al., 2020).

Here is where AI intervenes, aggregating seemingly inconsistent data, and creating highly personalized messages that can evade common inattention towards traditional advertisements and truly appeal to users' souls (Mogaji et al., 2020). It is well known the example of Netflix, as it is a very skillful platform able to recommend appealing visuals according to the personal data collected from each user, redefining graphics and images according to the information gathered.

Figure 2: Recommendations on Netflix's "for you" page  
Source: <https://logic2020.com/insight/ai-customer-journey-digital-experience/>



In the advertising realm, the integration of artificial intelligence is revolutionizing the way organizations interact with consumers, delivering personalized experiences that increase both engagement and customer satisfaction. Recent studies have shown that AI can be used to significantly improve customer engagement in retail contexts. For example, Sung et al. (2021) have shown that, in retail shopping environments, AI can lead

to higher levels of customer engagement, a concept that overlaps in part with Advertising Engagement (AE), both aimed at attracting and maintaining customer interest in a brand. Moreover, research by Dimitrieska et al. (2018) and Kumar et al. (2019) suggests that AI, by creating personalized content, facilitates purchasing decisions in a subtle but effective way, improving customer psychological and behavioral engagement. This multidimensional approach to engagement, which reflects the psychological state generated through customer experience in the service relationship, provides a solid foundation for understanding and leveraging the interaction dynamics between AI and consumers in the field of advertising and marketing (Brodie et al., 2011). It is important to note, however, that these studies have mainly focused on physical products rather than intangible services, such as Corporate Social Responsibility, suggesting potential areas of extension for future research.

### ***1.3 The Corporate Social Responsibility concept***

Corporate Social Responsibility (commonly called CSR) has now become a key asset, an element that every company should integrate in order to maximize the achievement of its goals. The growing awareness that has involved contemporary society on the topic of sustainability has pushed many companies to adopt responsible behaviors, having a positive impact on both the environment and society (Shen et al., 2020).

Hence, the theme of Corporate Social Responsibility became one of the macro-trends that characterizes the new millennium and anticipates challenges that organizations will have to face more carefully from now on. Technological progress has led to the spread of new digital platforms and favored the multiplication of existing communication tools, encouraging the emergence of new models of interaction between firms and individuals. In just a few years, we have witnessed the spread of more horizontal and participatory business models in which all individuals are interconnected and interdependent. It is therefore necessary to integrate different communication tools and levers in an integrated way to convey messages consistent with the organization's mission. (Comin, 2019).

#### ***1.3.1 CSR: historical background***

Despite this recently increased focus on CSR and environmental matters, the theme of sustainability has been present for many years among firms. It has undergone several evolutions in its definitions before becoming the real and concrete approach it is today.

A first definition of the concept of Corporate Social Responsibility can be traced back to the 1950s, when Howard R. Bowen, an American economist, illustrated in his book "Social Responsibility of a Businessman" a series of ideas on corporate ethics and social responsibility, creating a basis through which business leaders could direct their strategic planning towards a sustainable perspective.

Subsequently, the evolution of the market and the increasing knowledge about the sustainability domain has led the academia to further investigate the topic, providing new and proper definitions of CSR, for example Keith Davis provided a more precise definition of what a responsible company is, stating that an organization can be defined "responsible" if it acts according to the law and follows the behavior that every good citizen should adopt (Davis, 1973).

Lastly, the European Union in 2001 provided a modern definition of CSR, defining the concept as a "voluntary integration by companies of social and environmental concerns into their business operations and their relations with stakeholders" (European Commission, 2001).

### ***1.3.2 The Benefit Corporations***

Benefit Corporations represent a recent organizational model, developed in response to the increasing social awareness of sustainability.

*“Benefit Corporations are companies that have a dual purpose and will achieve better economic results than all other companies.”*

*- Robert Shiller, Nobel Prize in Economics 2013.*

Italy has been the first European country to introduce this corporate model and was the second country in the world, after the United States, to introduce a legislative discipline outlining the characteristics of Benefit Corporations. In 2016, a dedicated law officially introduced the possibility for companies to integrate into their businesses a so-called *charitable purpose*.

Charitable purposes refer to a common benefit achievable through the pursuit of one or more positive effects (also achievable by reducing negative effects) on individuals, communities, territories, the environment, cultural and social assets, entities, associations, and other stakeholders. Organizations are no longer a tool for doing business, but a tool to generate an impact on the world by doing business (Honeyman, 2014).

As a recent type of company that is still evolving, it is difficult to provide a precise definition of Benefit Corporation. In general, a benefit corporation is defined as a company that integrates, in addition to profit objectives, social objectives aimed at having a positive impact on the relevant reference context (Holt & Littewood, 2015).

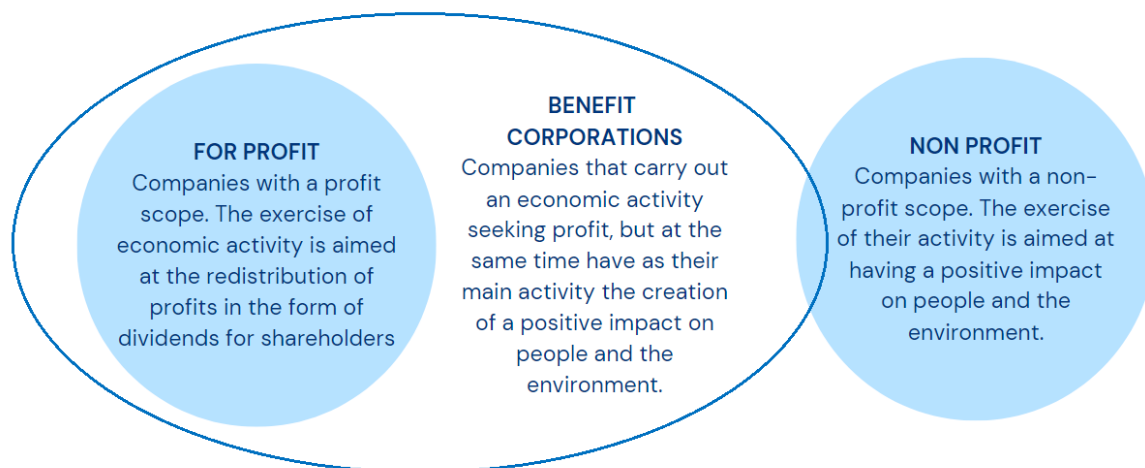
#### ***1.3.2.1 The dual purpose and the reference context***

From the definition outlined in the previous paragraph, two fundamental elements emerge when discussing Benefit Corporations: the *dual purpose* and the *reference context*.

The dual purpose is the distinctive element of Benefit Corporations. In this way, these entities cannot be considered as "for-profit" companies, which are typical capital companies aiming for profit, nor as "non-profit" organizations aiming to have a positive impact on people and the environment, and which could use more sustainable business models (Honeyman, 2014).

As shown in Figure 3, Benefit Corporations seek profit by striving to be financially self-sufficient but at the same time invest their profits to generate a positive impact on a social or environmental issue.

Figure 3: Summary of the purpose of Benefit Corporations  
 Source: <https://www.societabenefit.net>



The reference context is instead the essential element with which the Benefit Corporation must interact and without which it could not operate. This is because this type of organization requires extreme dynamism and openness to the external context. By law, Benefit Corporations must appoint a management person responsible for the organization's impact on the reference context and commit to transparently and comprehensively report their activities through an annual impact report, describing both the actions taken and the plans and commitments for the future (Verheyden, 2018).

### 1.3.2.1 The Different Business Logics in Benefit Corporations

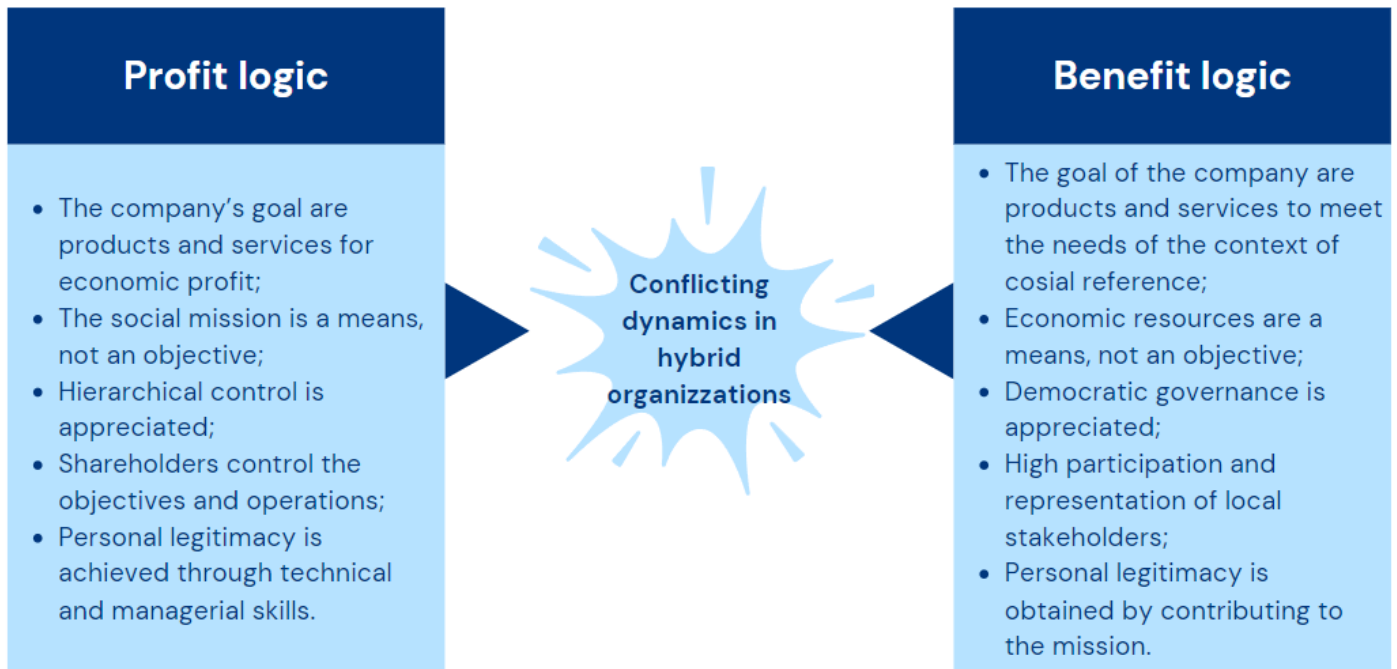
One of the elements that characterizes Benefit Corporations compared to other *for profit* organizations is their business logic (or business model), which in this case takes a different orientation towards a more dynamic and socially responsible direction.

The *business logic* (or culture) is the set of individual logics, namely the assumptions, fundamental values and beliefs that guide the behavior of people within an organization. Individual logics often differ, with each individual holding the belief that their own perspective is superior and should take precedence over others'.

This can potentially jeopardize the social mission, as some employees may settle for social impact, while others might consider more important prioritizing business outcomes.

In Benefit Corporations two main logics are at stake: that of *profit* and that of *social impact*, as indicated in figure 4.

Figure 4: The two prevailing business logics in Benefit Corporations  
Source: Daft, 2019



The *profit* (or commercial) logic prioritizes the sale of products and services as a means to achieve profit, with the social goal serving only as a secondary means to this end. The dominant control structure follows a hierarchical structure, with decisions made to ensure shareholder satisfaction. In commercial logic, managers implement strategies to gain legitimacy and outperform competition. This logic is taught in economics schools and is prevalent in business.

The logic of *social impact* (or benefit) considers the sale of products and services as a mechanism to respond to the needs of society and represents a tool to achieve the social objective. In this case, the prevailing control structure is participatory, since internal and external stakeholders are directly involved in the decision-making process. Legitimacy is achieved through commitment to the social mission. (Daft, 2019).

The goal of Benefit Corporations is to make these two logics coexist within the organization and make sure that they are complementary, so that each subject necessarily needs others to achieve their goals, whether they are of *profit* or of a *social nature*.

In order to make these two logics coexist, it is important to create a clear and strong organizational culture that is shared by every single member of the organization and perceived as necessary for such businesses to exist. This culture acts as a base to harmonize the different currents of thought with business objectives,



promoting an environment in which the pursuit of economic success does not eclipse social and environmental responsibilities.

### 1.3.2.2 *The triple bottom line*

In the context of benefit corporations, the integration of economic, social, and environmental principles is not only a strategy, but rather a natural extension of their soul. By adopting the triple bottom line, managers of organizations embracing Environmental Social Governance's (ESG) approach can concretize their goals into measurable outcomes (Onyali, 2014).

The expression "triple bottom line" emerged in the second half of the 1990s when John Elkington, an expert in CSR, coined the term to signal to organizations the duty to provide reporting that addressed not only financial issues but also social and environmental aspects, through a document intended for stakeholders.

Figure 5: The triple Bottom Line

Source: <https://www.bilanciarsi.it/corporate/sostenibilita-e-responsabilita-sociale-dimpresa-quali-differenze/>



As illustrated in Figure 5, the triple bottom line is also called *the 3 Ps' theory*. Each component of the triple bottom line should be taken care of to improve the organization's impact on the reference context.

The "people" component evaluates how socially responsible the organization is in terms of work practices, employee treatment, and stakeholder relations.

The "planet" component assesses the organization's actual sustainability and to what extent.

The "profit" component measures the social profit associated with the other two variables previously discussed. (Elkington, 2004).

### ***1.3.4 Transparency and Evaluation Standards***

Transparency plays a fundamental role within Benefit Corporations. It constitutes a fundamental asset that contributes in enhancing the reputation and competitive advantage of an organization, providing factual evidence of the sustainability efforts made by the firm.

In general, all Benefit Corporations, as mandated by the regulations, are required to comply with minimum transparency requirements. Specifically, they must prepare the "Annual Impact Report" to be attached to the financial statements and published on the company's website. The most commonly used standards are the Benefit Impact Assessment (BIA) and the Global Reporting Initiative (GRI) (Castellini et al., 2019).

The certification body B-Lab created the Benefit Impact Assessment test. It has a maximum score of 200, and to pass, a score of 80 is required. Any enterprise can undergo this test free of charge, even remotely, to measure its impact on its stakeholders. On the other hand, the Global Reporting Initiative was created to provide useful support to companies worldwide operating in various sectors for sustainable performance reporting.

### ***1.4 Sustainability Advertising***

This abovementioned growing awareness of environmental causes has pushed Benefit Corporations to adopt Sustainability Advertising practices, shifting the focus from a mere promotion of the product/service, to a more transparent communication of the impact that companies have on the environment (The Media Ant, 2024).

Sustainability Advertising can be framed as a marketing approach that promotes products or services through messages and campaigns emphasizing social responsibility and positive environmental impact (Belz & Peattie, 2012). It is considered a crucial communication tool and a *must-have* for almost all companies that want to provide consumers with information about their impact, enhancing consumers' trust and loyalty (Bachnik & Nowacki, 2018).

Hence, such companies are deeply invested in conveying their impact through Sustainability Advertising Campaigns, as although those not directly contribute to economic objectives, are powerful tools in effectively communicating the company's philosophy.

Typically the goal of a Sustainability Advertising Campaign is that of encouraging sustainable practices among the audience through a communication of the efforts that the firm makes in the first place. This allows the firm to both differentiate from the competition, and attract consumers who resonate with such philosophy on a personal level. Today's consumers are characterized by a deeper interest in brands that reflect their values

and beliefs; therefore, through compelling storytelling and factual evidence of their efforts, companies can establish an emotional bond with their customers (Drumwright, 1996).

A significant example of sustainability advertising is represented by *IllyCaffè*, an Italian company that not only promotes its high quality coffee, but also its commitment to sustainability. IllyCaffè has adopted an advanced supply chain management system (SCM) that emphasizes not only the quality and sustainability of coffee, but actively communicates these values through its marketing campaigns. The company has established an award program for coffee growers in Brazil, recognizing and encouraging the production of high quality coffee and sustainable cultivation practices. These efforts are amplified through advertising campaigns that highlight IllyCaffè's commitment to sustainable practices, promoting the idea that supporting Illy means not only enjoying a great coffee, but also contributing to a positive environmental impact. Illy's advertisements visually represent the traceability and ethics of its supply chain, from plantation to consumer, emphasizing the adoption of environmentally friendly farming methods and production processes. The company uses these narratives to inform consumers about how buying their coffee supports sustainable farming practices, responsible use of natural resources, and promoting the well-being of coffee producing communities. Illy's Sustainability Advertising strategy not only differentiates the company from its competitors but also builds an emotional and trusting bond with consumers who see their values reflected in the brand. Hence, through this communication, Illy not only promotes its products, but it also educates consumers on the importance of sustainability, creating a loyal customer base that values and supports environmental initiatives (Biotto et al., 2012). This approach not only strengthens their position in the market as a leader in coffee quality and sustainability, but also establishes Illy as a symbol of innovation and responsibility in the food and beverage sector, leading the company to gain several environmental certifications and credibility amongst the audience (Illy, 2024).

Figure 6: An example of Illy's Sustainability Advertising

Source: <https://www.illy.com/it-it/company/store-eventi/press/comunicati-stampa/b-co>



### ***1.4.1 Advantages and Challenges of Sustainability advertising***

Unfortunately, Sustainability Advertising is not an ever-suitable approach, since it requires a deep understanding of the context of reference in which the firm operates, with particular attention on the issues that matter most for the target audience. Companies must craft their messages with authenticity and consistency, avoiding greenwashing tactics that can undermine consumer trust. Authentic Sustainability Advertising campaigns are those that not only talk the talk but also walk the walk, demonstrating a genuine commitment in making a positive impact (Drumwright, 1996).

However, maintaining credibility when communicating about an abstract object, results very complicated, as consumers cannot immediately have tangible evidence of what is reported. Moreover, the Sustainability Advertising *per se* faces several challenges. Typically, it involves sending unilateral communications to broad audiences, which limits the advertisement's ability to receive direct feedback from customers. This could impede the interactive engagement that our digital society greatly values. Moreover, the message communicated is generally not very intuitive to understand and might lead to the so called “Sustainability Advertising Myopia”, a phenomenon that leads consumers to focus exclusively on the green attributes of the product. This, together with the risk of information overload, could confuse customers rather than guide them towards making a green choice.

To overcome such challenges, companies should design carefully their sustainability advertising campaigns. Simultaneously crafting short and effective messages across various channels is crucial for simplifying such messages; additionally, enhancing the emotional appeal and benefits of the product could provide guidance for consumers seeking to make sustainable choices without becoming overwhelmed by the complexity of information.

# RESEARCH METHODOLOGY

---

## *Introduction to the Research Methodology*

In the pursuit of investigating the impact of the integration of Artificial Intelligence in Sustainability Advertising campaigns crafted by a Benefit Corporation on engagement, this chapter illustrates the methodology adopted to conduct the research, detailing the conceptual framework and the methodologies adopted to conduct the study.

The methodology employed in such research acts as a guideline for the analysis, guiding the reader through a systematic collection, analysis, and interpretation of data. With this premise, the research aims to not only answer the central research question but also provide a contribution to the existing body of knowledge. The first paragraph will display the conceptual framework, providing a clear and easy-to-see research design, with all the variables that will then be leveraged in the study part, which, after the measurement of the data gathered, will eventually confirm or disprove the hypothesized outcomes. The subsequent section will then provide an outlook on the tools and techniques employed to gather empirical evidence, detailing all the actions enacted in collaboration with Benefit Corporation *Traveleco*, to ensure the reliability and validity of the information obtained.

As previously mentioned, the entire research process will be aided by the valuable support of *Traveleco*, a corporation that has provided both financial and operational support. This support has enabled me to implement diverse actions aimed at gathering data, which I will then interpret to arrive at a generalizable conclusion and answer the research question.

The final section of this chapter will then involve a conclusive part where the limitations that this study possesses are going to be highlighted, along with all the potential rooms for improvement.

### *2.1 Introduction to Conceptual Framework*

Before diving into the specific methodologies employed in this study, it is pertinent to examine the background that led the researcher and *Traveleco* towards such collaboration, leading to the conduct of this study. Recently, *Traveleco* conducted an internal survey that revealed a significant interest in sustainability among potential clients. However, a great portion of the market remains hesitant to commit financially to sustainability programs. This gap between interest and investment led *Traveleco* to contact an AI consultancy agency, seeking some improvements in their advertising crafting process, and seeking greater levels of engagement from their reference audience. Hence, given the keen interest in addressing whether the integration of AI had an actual impact on engagement levels, the opportunity was caught to run a study that could reveal facets of this phenomenon.

The present study aims to explore the integration between Artificial Intelligence (AI) in sustainability advertising campaigns in the context of Benefit Corporations. In a time where technology and sustainability are the protagonists and are increasingly closely intertwined, AI emerges as a crucial tool in strengthening companies' commitment to responsible practices and effective communication. This conceptual framework is designed with the goal of examining how the integration of Artificial Intelligence in the process of creating sustainability marketing campaigns can influence consumers' engagement towards the campaigns.

Through the analysis of the independent variable, so the integration of AI in sustainability advertisements, this framework aims to provide a deeper understanding of the use of AI for advertising processes, investigating whether this instrument possesses the actual capacity to increase the interest among audiences towards the firm.

Figure 7: Design of the Conceptual Framework



### 2.1.2 Variables of the Conceptual Framework

To better understand the variables involved in this study, it is appropriate to specify them in a more detailed way, particularly focusing on the Traveleco reality, which is the one under analysis.

Before starting with the very analysis, we need to review Traveleco's core operations and business essence; in particular, Traveleco offers sustainability consulting services to other firms operating in the tourism sector and also advertises its activity to potential consumers, who are travelers seeking sustainable accommodation. The lodges that cater to Traveleco benefit not only from the consultancy service, but also from an advertisement created through the booking portal "Traveleco.it". Thanks to this portal, travelers can evaluate the accommodations based on the sustainability actions they have undertaken, as well as the classic parameters present in the other portals (e.g. room typologies, distance from city center, etc.). The lodges, in turn, gain advantages in terms of image and reputation and can receive bookings directly on their website, without any commission. The goal is to create a community of responsible travelers who choose to stay in hospitality establishments that are particularly attentive to their environmental impact.

In this context, the primary independent variable (IV) is the integration of Artificial Intelligence, which refers specifically to the integration of Generative Artificial Intelligence (GAI) in the operational and marketing activities of Traveleco. Given the aforementioned capacities that GAI has in creating original and

innovative contents, this analysis includes the application of such technology in the process of designing both figurative and textual contents by Traveleco. Specifically, with respect to the generation of written contents, it was chosen to use the chatbot developed by OpenAI Chat GPT in its most advanced version at the time of use (first half of year 2024), so GPT-4, while regarding the generation of images, it has been opted for the use of the paid version of MidJourney. This choice was made in order to ensure the best results available at the time of use and to conduct a more homogeneous analysis that took advantage of the most advanced tools present in the market, all in accordance with the budget at the company's disposal.

Furthermore, not only do companies willing to become more sustainable represent Traveleco's client base, but so do customers seeking sustainable accommodation options. Consequently, it becomes interesting to examine its impact across the sectors that Traveleco operates in. In the B2B segment, GAI facilitates the automation of weekly newsletter creation and personalized partnership outreach; simultaneously, in the B2C segment, GAI helps in crafting creative messages and images to promote sustainable options to potential customers. As such, this research will conduct two separate studies, each focusing on a respective segment.

Expanding on these applications, Traveleco employs several marketing tools to promote its activities, specifically tailored for each segment:

- In the B2B segment, Traveleco employs a dual approach to engage and expand its network. Firstly, they disseminate a weekly newsletter with the goal of promoting the core business and increasing the company's market awareness. This newsletter serves as a key element for maintaining engagement with existing partners, since they spread weekly updated news on sustainability, but it also attracts potential clients by highlighting the value and benefits of Traveleco's services.  
Secondly, Traveleco proactively reaches out to prospective accommodation providers that might be interested in initiating a partnership, expanding the catalogue of available properties by converting these new contacts into active collaborators. Successfully integrating these accommodations into Traveleco's platform not only diversifies the options available to consumers, but also strengthens the company's position as a comprehensive resource for sustainable travel solutions.
- In the B2C segment instead, Traveleco seeks to connect with tourists who are seeking sustainable accommodation options. By leveraging a user-friendly portal, Traveleco offers a wide variety of verified, eco-friendly facilities. This platform on one side facilitates the booking process enhancing the smoothness of the customer journey, but on the other side it also educates consumers about the sustainability of their choices.

In the context of Traveleco, a company that operates in the field of Sustainable Tourism, the dependent variable (DV) 'Customer Engagement' represents a critical indicator, expressing clients' commitment and interaction with the proposed initiatives. As the advertisements are predominantly carried online, engagement

can be effectively expressed and measured through the analysis of different key metrics according to the segment analyzed (Lalmas et al., 2022);

In the B2B segment the metrics considered are:

- Clicks
- Openings
- Click-through rate (CTR)

While, in the B2C segment, we consider:

- Clicks
- Click-through rate (CTR)

The differences in measurements among segments are driven by the collection method, which involved a different platform according to the segment. Indeed, as in the B2B segment, the company sends newsletters through the mailing software Brevo, making it possible to collect openings and clicks, and then calculate the Click-Through Rate corresponding to each user. In contrast, this was not possible in the B2C segment, where the company distributes online advertising through Google Ads. Unlike E-mail newsletters, online ads do not have an “open” metric as they are inherently open; they are displayed on web pages or within apps where targeted audience is active, therefore instead of “openings”, we decided to consider clicks and Click Through Rates.

Overall, these metrics offer a quantitative understanding of the level of engagement and effectiveness of Traveleco's communications, aimed at engaging both new accommodation facilities and new travelers who are interested in staying in environmentally friendly accommodations.

1. **Click:** this metric indicates the number of times a user has clicked on a specific link or action required in a communication, such as an e-mail or advertisement. In the context of *Traveleco*, click counting can reveal how engaging and relevant an offer or news is according to the recipient, thus signaling active interests in specific services offered by the firm.
2. **Click Through Rate (CTR):** the CTR is calculated by dividing the number of clicks made on a link by the total number of impressions (views) that link has received, all multiplied by one hundred. This metric provides a direct measure of the effectiveness of a message or campaign in engaging with the recipient. A high CTR in the B2B segment could suggest that the newsletter content resonates well with partners and potential clients, while a high CTR in the B2C segment could indicate that the advertisements are convincing enough to motivate potential tourists to seek more information or make a booking.
3. **Openings:** the openings are useful to evaluate the engagement of a digital communication, such as videos or interactive documents, or e-mail distributed across different platforms and measure the percentage of openings compared to the total of the messages sent. This metric is exclusive to the B2B segment due to



the nature of e-mail marketing and reflects the level of involvement of the public. By analyzing this metric, Traveleco can gain valuable insights into how to improve the relevance and engagement of its E-mail content, enhancing such means' effectiveness.

### **2.1.3 Hypotheses**

As mentioned in the introduction, Traveleco is now promoting its activities through a series of advertising campaigns that aim to make the company focused not only on the B2C segment, as had been the case previously, but also on the B2B segment, which now receives equal focus. To achieve this, the company is currently developing a series of communication campaigns that highlight the sustainable aspects of its activities. These campaigns aim to raise awareness of this new direction among the B2B segment, while also pursuing the classic sustainability goals that have been a part of Traveleco's DNA since its inception. The ultimate goal is to advocate for more responsible tourism in the B2C sector.

While crafting such campaigns, Traveleco has encountered numerous difficulties, as gathering the attention of this new segment of the market proved to be harder than expected. These challenges stem from the very nature of the messages to be communicated, which possess a very abstract nature. Services, unlike material goods, cannot be seen or touched, which requires an innovative and creative communicative approach to make them concrete in the eyes of potential new customers. Attempting to communicate the essence and the activities that the firm provides requires on one side accuracy and professionalism, but on the other side lightness and simplicity, in order to make the firm be perceived serious but also concrete, avoiding being all "sizzle and no steak".

The Artificial Intelligence (AI) revolution in advertising offers unexplored potential to improve consumer engagement. Previous studies have shown how AI can significantly optimize advertising campaigns, increasing the relevance and effectiveness of the messages transmitted (Lee and Cho, 2019; Kose & Sert, 2017). Particular attention has been paid to Generative AI, which, through advanced algorithms, allows the creation of highly customized and visually appealing content that reflects the expectations and behaviors of the target audience (Bandi et al., 2023; Corchado et al., 2023).

In particular, several studies have indicated that AI can enhance ad personalization and engagement rates (Kietzmann et al., 2021). Moreover, its ability to analyze large datasets allows firms to craft more targeted and relevant advertising according to the client's preferences, which can improve both impressions and CTR (Lee and Cho, 2019). As such, the integration of Generative AI is expected to generate a positive impact on engagement.

Assessing CTR represents a useful means to measure how many users actually click on a link in relation to the views. AI's ability to optimize ad placement and timing, through the creation of captivating content, has

the potential to enhance the visibility of digital ads (Shahid & Li, 2019); as a consequence, AI-generated advertisements is expected to increase Click-Through Rates, so the clicks per single impression of an ad are higher than the human-crafted ones.

**H1:** *"Integrating Generative Artificial Intelligence into sustainability advertising will increase the Click Through Rate (CTR) of both Traveleco's digital advertisements and newsletters."*

After accounting for the effect of AI in terms of Click-Through Rate, we can get a more detailed perspective on how AI can influence direct communications via e-mail sent by the firm. This can be achieved by measuring how many e-mails have actually been opened. AI-enhanced content is notably capable of grabbing attention and engaging with users by delivering contextually appropriate messages (Dwivedi et al., 2023), therefore, it is expected that the integration of AI in crafting such e-mail contents will result in an increase in openings.

**H2:** *"The use of Generative Artificial Intelligence in creating sustainability marketing advertisements will influence positively the openings of Traveleco's E-mails."*

Lastly, it is important to measure the desired final action, so the actual clicks that lead directly to the conversion for the B2B segment, or to the booking portal for the B2C one.

**H3:** *"Integrating Artificial Intelligence into Sustainability Advertisements will lead to an increase in the total number of clicks across all of Traveleco's advertising formats."*

In the context of *Traveleco*, using Generative AI to craft advertising messages can not only increase engagement through personalized content, but also improve key advertising performance metrics. Therefore, it is assumed that the integration of AI into *Traveleco*'s marketing processes will increase the number of clicks on advertising content (H3), improve Click Through Rate (CTR) (H1), and increase the openings of e-mails (H2) compared to traditional campaigns without the use of AI.

The choice of these metrics was strategically designed to ensure nomological validity, ensuring that metrics expected to measure related constructs correlate in the expected direction. In practice, the intention was to include metrics that do not deplete with the mere isolated measurement of a variation in the metric itself, but effectively capture the big picture – how AI could effectively influence the way people react to advertisements and therefore, their engagement with the firm.

In essence, it is proposed that the integration of Generative Artificial Intelligence in sustainability advertising will have a positive effect on these metrics, positively influencing engagement; this effect will simultaneously occur for both B2B and B2C segments. Furthermore, this research aims to uncover the eventual unique peculiarities of the segments that might lead to differences in such an effect that might be further explored in other researches; for instance, while both tourists and managers of hospitality lodges might simultaneously experience such a positive effect, it is still possible that differences in expectations are present among the two segments, therefore the information provided might be received and interpreted in a different

way according to potential differences in expectations and roles involved in the sustainability realm. This potential avenues will be further discussed in chapter 3, where future implications and explorations on the topic are going to be deepened.

#### ***2.1.4 Methodology***

This research involves two studies that were conducted using an experimental design to reveal the causal relationships between AI integration and engagement among both B2B and B2C clients of Traveleco. They involved a 2 x 2 between-subject factorial design (AI-generated ad versus human-generated ad), that was set with the goal of comparing the effects of advertisements generated by AI, to those created by human effort.

##### ***Sampling***

Starting with the B2B segment, so the one composed by Italian owners of accommodation facilities, were identified several active users from a contact list of newsletters sent in the last six months, so those users who have verified e-mail addresses and are thus able to receive and potentially open the newsletters sent; subsequently, this list has been further filtered by including only those contacts who opened at least one Traveleco's e-mail in the last 30 days before the start of the experiment. Moreover, contacts who were already customers have been excluded to control for the effect of this variable that otherwise might have influenced the main phenomenon, as those customers were already interested in the firm and thus willing to click more anyway. In the end, 1550 active e-mail addresses have been obtained, and then filtered one last time by deleting the personal ones, keeping only those with institutional domains. This additional filter has been applied to make the sampling as accurate as possible in order to ensure good reliability, reducing any random error in such a way that the difference between what actually occurs and what is observed in a sample on average is not too high, and thus leads to unstable results. As a result, 900 contacts were finally obtained and randomly sampled according to the simple random sampling technique, where every individual in the population has the same probability of being selected. Subsequently, these participants were randomly assigned to different conditions, ensuring both good external validity and representativeness of the whole population.

For the B2C segment instead, the selection of the sample does not follow the traditional sampling approach used in marketing research, as the primary means of distribution is online advertising via Google Ads. In this scenario, sampling is implicitly managed by the platform through advanced advertising targeting algorithms, which allow targeting users based on a series of demographic, geographic, and behavioral parameters. This automated system ensures that advertisements are displayed to a highly relevant audience that is potentially interested in Traveleco's sustainable solutions. Despite the automated sampling method, it can be said that it falls under non-probability sampling, specifically judgment sampling. Hence, the platform selects users based on predefined criteria, and automates the display process, rather than displaying ads randomly.

Overall, it was decided not to set a specific age range of people to target in order to get a diversified sample that fairly represents the population.

As the goal was just to reach out to sustainable travelers and track whether they clicked more on the AI ad or on the human one, rather than measuring conversions, so how many people actually booked through Traveleco's portal, it was opted for a simple awareness campaign in order to measure how many people got engaged in the advertising and clicked on it, selecting the option: *website traffic*. Furthermore, it was selected the campaign type, which is '*display*'; subsequently some additional variables were defined:

- Ad display schedule: it was selected 'all day'
- Ad rotation: it was decided to optimize the ad rotation by making Google select the ones with the best performance
- Devices display: it was opted for all devices, excluding tablets, as they represent a very small share of users
- Metric to be prioritized: it was chosen 'impressions', as this is the variable that allows us to track how many times the ads have been actually displayed, and being able then to standardize the results while comparing the two conditions (AI vs. non AI).

The platform subsequently required a more precise definition of targeting; since the campaign was primarily aimed at all types of travelers, on condition that they were interested in sustainability, it was decided to target according to 'keywords'. The manipulation of the two conditions for both campaigns is detailed in the following paragraph; first it shows the process of newsletters' creation in the B2B segment, and it subsequently details the maneuvering of the two conditions (AI vs. non AI) for the Google Ads campaigns in the B2C segment.

### ***Method***

After explaining the variables involved in the study and defining the sampling modes, it is now time to define how such variables will be operationalized in order to answer the main research question.

In the B2B segment, an A/B test was created in collaboration with Traveleco, where the manipulative independent variable (or factor) is the method of newsletters' content creation (AI-crafted versus Human-crafted). The contacts have been divided into two groups, presenting each group with one of the two conditions: the experimental one was presented with the newsletter created by AI and the control one with the newsletter created by humans. The structure and length of the newsletters remained consistent in both conditions, but they underwent weekly changes based on the sustainability news the company wished to disseminate, without any variation between the two newsletters. This choice was made to avoid that the effect of a different structure could influence the main effect, ensuring good internal validity.

An example of a weekly newsletter sent is displayed below. On the left is an extract of the newsletter crafted by the marketing department, while on the right is an extract of the one crafted by Artificial Intelligence GPT-4, with images generated by MidJourney.

Figure 8: Extracts of weekly Newsletters: Human vs. AI crafted content  
Source: <https://app.brevo.com/marketing-campaign/list>

**Il consiglio del mese (ma anche dell'anno!)**

Contributo a fondo perduto del 70% delle spese per la certificazione delle strutture ricettive lombarde (pagina 34 della guida)

Vi proponiamo la certificazione per il turismo sostenibile **Green Destinations**, presente in più di 90 paesi nel mondo.

Travelco è uno dei 3 enti certificatori in Italia.

Vuoi capire meglio se la tua struttura può usufruirne?

Consulta la guida a **pagina 34** o **prendi un appuntamento**

Hai bisogno di aiuto?  
Vuoi maggiori informazioni?

Prenota subito la tua chiamata per avere [maggiori informazioni qui](#)


[Vai alla chiamata!](#)

**Il consiglio del mese!**

Approfitta del contributo a fondo perduto del 70% sulle spese per la certificazione delle strutture ricettive lombarde.

Scopri di più sulla **certificazione** per il turismo sostenibile **Green Destinations**, attiva in oltre 90 paesi.

Consulta la guida a **pagina 34** o **prenota un appuntamento**



Hai domande o ti serve aiuto?

Prenota subito una chiamata con [noi](#) per discutere le tue esigenze.

[Vai alla chiamata!](#)

---

Guida per gli albergatori

**Come diventare hotel sostenibili con Travelco**

Ti forniamo una **guida completa per gli albergatori** che vogliono impegnarsi nella transizione ecologica e realizzare gli obiettivi dell'Agenda 2030.

[Leggi articolo](#)

Guida per gli albergatori

**Come diventare hotel sostenibili con Travelco**

Ti forniamo una **guida completa per gli albergatori** che vogliono impegnarsi nella transizione ecologica e realizzare gli obiettivi dell'Agenda 2030.

[Leggi articolo](#)

In the B2C segment, a very similar methodological approach was taken; after completing the general fields required by Google Ads (displayed in previous paragraph), which were common to both segments, the two different advertisements were customized to align with the respective experimental conditions.

Starting with the AI condition, the introduction to ChatGPT was set up by presenting the context of a master's thesis to analyze the impact of AI integration in sustainability advertising. The purpose of the integration was clearly defined at the outset, aiming to investigate the outcomes that AI could deliver; the intention was to educate the platform making it understand the importance that this work had to both the author and the firm. The dialogue began with the provision of some preliminary information about Travelco,

describing the business and the values that guide its activity. Overall, a novel, much more creative and engaging approach was taken, by experimenting and asking the bot various questions, though an emotionally charged language, including words like “perceptions”, “feelings”, and “viewpoints”. The intention was to stimulate the platform, because after an analysis of the existing literature on the subject, concerns were raised regarding the platform’s potential mechanical nature, and, as a result, the potential risk of underperforming advertising generation.

After this preliminary stage, the interaction with the bot proceeded with the very core process of advertising creation; the prompt submitted was:

*“Hey ChatGPT, I've got a challenge for you! I am currently developing and advertising campaign with Google Ads, and I need you to help me by providing some keywords that in your opinion are effective in targeting the B2C segment. I need your point of view about this campaign and to provide key words to be included in the campaign, that you feel can perform in the best possible way”*

The result was extremely satisfactory, as the platform went way beyond expectations, providing such precise and original words. The keywords selected by Chat GPT were designed to be effective in engaging with the receivers, as stated by the platform itself. The words suggested were (displayed in italian with the respective english translation):

- Sostenibilità (Sustainability)
- Vacanze in montagna (Mountains getaways)
- Sviluppo sostenibile (Sustainable development)
- Responsabilità ambientale (Environmental responsibility)
- Ecosostenibilità (Eco-sustainability)
- Mobilità sostenibile (Sustainable mobility)
- Basso impatto (Low impact)
- Turismo sostenibile Italia (Sustainable tourism Italy)
- Iniziative sostenibili (Sustainable initiatives)
- Impronta ecologica minima (Minimal ecological footprint)

A subsequent test was conducted to determine if this surprising performance, which had never been encountered before with the bot, was influenced by this new human-like approach. So, the same questions were asked again, but in a more concise, straightforward, and non-emotional manner. The result was a series of summaries and responses that were much more imprecise, less focused, and almost disjointed compared to the previous ones, which were consistently on point. As a result, it was decided to proceed in this way throughout the creation of the advertisement, also including the visual part.

Indeed, the chatbot has been asked to provide the textual elements to be included in the campaign. The prompt submitted was:

*“Hey ChatGPT, I've got a challenge for you! I am completing the Google Ads campaign and I am completely unknown on the platform. Would you mind helping me optimize the engagement of my Google Ads campaign by generating two short titles and one long, plus three descriptions, for this Google Ads campaign aimed at promoting sustainable tourism that you feel are appealing: two short and eye-catching to draw attention and a more detailed one to stimulate reader interest in adopting sustainable practices during the holidays.”*

The result was quite satisfactory. First, the bot suggested the following two short sentences, that were both appealing and very straightforward at the same time (displayed in Italian with the respective English translation):

- Scopri gli alloggi sostenibili (Discover sustainable accommodation facilities)
- Vacanze green? Clicca qui (Green holidays? Click here)

Subsequently, the long sentence was provided:

- Scopri le migliori opzioni di soggiorno sostenibile in Italia (Discover the best sustainable accommodation options in Italy)

Finally, three descriptions have been generated:

- Prenota il tuo prossimo soggiorno con Traveleco e soggiorna rispettando l'ambiente (Book your next stay with Traveleco and stay environmentally friendly).
- Dal nord al sud, Traveleco ti offre le migliori opzioni di alloggi eco-sostenibili (From the north to the south, Traveleco offers you the best options for eco-friendly accommodation).
- Scopri strutture sostenibili certificate, diventa parte attiva del turismo responsabile (Discover certified sustainable structures, become an active part of responsible tourism).

As an example, below it is displayed a screenshot of one display of advertising generated with the integration of the AI; more examples will be displayed in the appendix (see Appendix B).

Figure 9: Example of Traveleco advertisement generated with Artificial Intelligence.

Source: <https://ads.google.com/aw/ads?ocid=1076556169&workspaceId=0&euid=1164766273&u=3025830777&uscid=107>



For the realization of the non-AI advertising campaign condition on Google Ads, a conventional approach has been adopted. This process involved manual keyword selection, as well as writing ad content and selecting images, building on the marketing team’s previous skills and experience. As said, the general fields required by Google Ads have been left the same as in previous condition.

The process began with a brainstorming session with the company, to identify terms and phrases that reflected Traveleco’s goals in promoting sustainable tourism. Each term was then analyzed to assess its potential impact on the target audience. Subsequently, the keywords that better matched the firm’s objectives have been selected; the final choice has fallen upon the following ones (again displayed in Italian, with the respective English translation in brackets):



- Viaggi verdi (Green travel)
- Natura e relax (Nature and relaxation)
- Eco-viaggi (Eco-trips)
- Vacanze eco-friendly (Eco-friendly vacations)
- Turismo verde Italia (Green tourism Italy)
- Viaggi senza inquinare (Pollution-free travel)
- Vacanze pulite (Clean vacations)
- Escursioni naturali (Nature hikes)
- Viaggi responsabili (Responsible travel)
- Esplora senza danneggiare (Explore without harming)

During this process, the team worked intensively to ensure that each element of the announcement was in line with Traveleco's sustainability vision and effectively communicated the message to the desired audience. Internal review sessions included small-scale A/B testing to determine which ad versions generated the most engagement.

Subsequently, two short titles and a longer one were selected, respecting the structure of the campaign created with the AI. The first two short titles selected are:

- Traveleco
- Il tuo soggiorno sostenibile (Your sustainable sejour)

While the long one chosen is:

- Prenota subito il tuo soggiorno in una struttura ricettiva sostenibile (Book now your sejour in a sustainable accommodation)

Finally, as in the previous condition, three descriptions were crafted, ensuring alignment with both the firm's goals and the images chosen to be paired with the respective descriptions in the advertisement. It should be noted that the images selected, unlike the previous condition, are real images of lodges that collaborate with Traveleco. The three selected descriptions are:

- Lo sai che per la tua vacanza puoi prenotare alloggi sostenibili? Prenota subito (Did you know that for your holiday you can book sustainable accommodation? Book now)
- Vuoi vivere un'esperienza sostenibile in Italia? Scegli subito il tuo prossimo hotel (Do you want to live a sustainable experience in Italy? Choose your next hotel now)
- Stai cercando un alloggio sostenibile per la tua vacanza? Prenota subito con Traveleco (Are you looking for a sustainable accommodation for your holiday? Book now with Traveleco)

Below is a screenshot of one display advertisement created without the use of AI; additional examples are included in the appendix (see Appendix C):

Figure 10: Example of Traveleco advertisement generated without the Artificial Intelligence.

Source: [https://ads.google.com/aw/overview?ocid=1076556169&euid=1164766273&\\_u=3025830777&uscid=1076556169&](https://ads.google.com/aw/overview?ocid=1076556169&euid=1164766273&_u=3025830777&uscid=1076556169&)



The same time span of two weeks was adopted for both segments' measurements. This choice was taken to ensure greater internal and external validity.

## 2.2 Experimental Results

The data collected through the two platforms, Brevo and Google Ads, was aggregated within a single Excel file and divided into two separate sheets depending on the type of segment taken into account: sheet 1 contained the data of the mailing campaigns on Brevo, while sheet 2 collected the results of the advertisements on Google Ads. The initial data has been filtered and cleaned in such a way as to facilitate comprehension and subsequent analysis. Once the data clearly expressed the metrics of interest of the two studies, the dataset was exported to the statistical software SPSS (Statistical Package for Social Science).

### 2.2.1 Data Analysis (B2B Segment)

Initially, it was determined to start with the B2B segment, therefore the goal was to compare the metrics collected through newsletter campaigns based on the condition (AI vs. not AI) to understand which one led to greater involvement. As mentioned before, the metrics selected to measure engagement in this segment are: Clicks, Openings, and Click Through Rate. Clicks and Openings possess a binary nature, meaning that they can only take values of 0 or 1. For Clicks, a value of 1 indicates that the user clicked on the link within the newsletter, while a value of 0 indicates that no click occurred. By the same token, for Openings, a value of 1 indicates that the e-mail was opened, while 0 signifies that the e-mail was ignored. Understanding the metrics' binary nature is very important when selecting appropriate statistical tests; hence, unlike Clicks and Openings, the Click-Through Rate is a derived ratio, calculated through Excel as a percentage, and therefore requires a different statistical approach.

As a consequence, binary logistic is particularly suited for analyzing Clicks and Openings given their binary nature, while to analyze the change in the CTR it was opted for an ANOVA test; indeed, ANOVA is particularly useful to compare differences in the population means ( $\mu$ ) across two different groups, and it is particularly indicated when the dependent variable is metric, and the independent one is categorical. As the study involves a single categorical independent variable (AI integration or non AI integration), it was opted for a one-way analysis of variance (or simple ANOVA).

#### 2.2.1.1 Hypotheses Results (B2B Segment - Openings)

In the first place, the test was carried out to measure the impact of the integration of artificial intelligence on the *Openings*. After running the logistic regression, it is obtained that both variables are significant, as p value is lower than the significance level of 0.05 for both variables ( $p = <0.001$  and  $p = 0.000$  respectively) (see Appendix B.1). Thus, the integration of AI in creating the newsletter content has a statistically significant impact on whether recipients open the newsletter.

Subsequently, the direction and magnitude of the effect can be assessed. Starting with the direction, when the original coefficient is negative, the independent variable decreases the probability of an user opening the

e-mail; however, in this case, the original coefficient for the AI condition is 0.337 (see Appendix B.1), indicating that the integration of AI increases the probability of an e-mail to be opened; for the exponentiated coefficient, which cannot be negative, a value smaller than 1 decreases the probability, while a value of 1 indicates no relationship. In this case the exponentiated value corresponds to 1.401 (see Appendix B.1) further indicating a positive relationship between AI's integration and Openings. Moreover, the exponentiated coefficient can help in the analysis of the magnitude of the relationship as it represents the change in odds, after the change in the independent variable. The percentage change in odds can be expressed as:

*Equation 1: Percentage change in odds*  
*Source: Malhotra, 2020*

$$(\exp(\beta) - 1) \times 100$$

In this case, the odds ratio is computed as:

$$(1.401 - 1) \times 100 = 40.1\%$$

This indicates a 40.1% increase in Openings when an AI condition is present.

Finally, the constant coefficient ( $B = -1.667$ ) has an exponentiated value of 0.189. This indicates the change in odds when the other independent variables are equal to zero (so, in the non AI condition). Since it is a very low value, it expresses that with no AI integration, the probability of opening the e-mails is lower.

Subsequently, it is appropriate to assess the fit of the model, and to do so three criteria can be considered: classification tables, the log-likelihood statistic, and the pseudo R-square (Malhotra, 2020 p. 590).

The first criteria that we look at is the classification table; it compares the observed and predicted outcomes providing the proportion of correct predictions, allowing the determination of the hit rate, which is a measure of correct predictions made by the model:

*Equation 2: Hit Rate*  
*Source: Malhotra, 2020*

$$HR = \frac{(n_{11} + n_{00})}{N}$$

A high value indicates that the model is good. Moreover, by comparing the hit rate of the full model with that of the naïve model, which does not contain the independent variables, it is possible to determine if the inclusion of the independent variables increases the model's power.

In this case, the hit rate of the model containing the independent variable is (see Appendix B.2):

$$HR_{full} = \frac{0 + 9402}{9402 + 2122} = 81.6\%$$

While the hit rate of the naïve model is (see Appendix B.3):

$$HR_{Restricted} = \frac{0 + 9402}{9402 + 2122} = 81.6\%$$

Curiously, in this case the two models coincide, indicating that it is probably necessary to check for the other two criteria to verify the power of the model. Therefore, we consider the second criteria, which is the log likelihood statistic. The intuition behind this metric is that, if the statistic for the full model containing the independent variables is larger than the naïve one, adding independent variables is useful to explain the dependent one. This test is based on two hypotheses:

- *H0: the independent variables do not matter in explaining the dependent variable*
- *H1: the independent variables matter in explaining the dependent variable*

The test statistic is the LR Statistic:

*Equation 3: LR Statistic*  
*Source: Malhotra, 2020*

$$LR = -2(\ln(L_{restricted} - L_{full}))$$

From the SPSS output, this value is 48.787 and it is significant at the 0.05 significance level (as  $p < 0.001$ ) (see Appendix B.4), meaning that the null hypothesis is rejected and adding the independent variables matters in explaining whether the user opens or not the e-mail.

One ultimate way of evaluating the model fit is by looking at the pseudo R-square. Since the dependent variable is not continuous, it is not useful to look at the standard R-square, instead, it is preferable to look at two other types of R-square that measure the variance in the dependent variable in a better way. These additional measures are: the Cox & Snell R Square and the Nagelkerke R square. In our model these are (see Appendix B.5):

- Cox & Snell R Square = 0.004
- Nagelkerke R square = 0.007

Among the two, it is preferable to look at the second one, as it is not forced to take the maximum value of 1 as the Cox & Snell, signaling in a more precise way if the model fits the data. In this model, the integration of AI explains almost 10% of the change in the openings of the e-mails sent.

Thus, it can finally be concluded that the second hypothesis is confirmed with regard to the B2B segment.

### **2.2.1.2 Hypotheses Results (B2B Segment - Clicks)**

After examining how AI integration affects e-mail openings in the B2B segment, the focus is moved to the second metric analyzed through the method of binary logistic regression.

The logistic regression has been performed, setting AI integration as the independent variable and *Clicks* as the dependent one. It has been run as a logistic regression as well, and again both variables turned out to be significant at the 0.05 significance level ( $p = <0.001$  and  $p = <0.001$  respectively) (see Appendix C.1). Therefore, the inclusion of AI in newsletter content creation significantly influences the likelihood of recipients clicking on the newsletter's link.

Proceeding with the assessment of the direction and magnitude of the effect, one can start with the direction. Again, in this case, the original coefficient for the AI condition is 1.162 (see Appendix C.1), indicating that the integration of AI increases the probability for an user to click; the exponentiated coefficient is 1.196 (see Appendix C.1), again a value greater than 1, signaling a positive relationship between AI's integration and Clicks. As done before, the exponentiated coefficient can be employed to an analysis of the magnitude of such a relation through a computation of the odds ratio, which in this case is:

$$(1.196 - 1) \times 100 = 19.6\%$$

This number indicates an increase of 19.1% in Clicks if AI condition is present.

Then, the constant coefficient ( $B = -5.758$ ) has an exponentiated value of 0.003, representing the change in odds while keeping the other independent variables equal to 0. As this value is quite low, again the change in odds when the other independent variables are equal to zero is also lower. As such, with no AI integration the probability of clicking is lower.

For the model's fit, we consider once again: classification tables, the log-likelihood statistic, and the pseudo R-square (Malhotra, 2020 p. 590).

Starting with the classification table, the aim is to compare the observed and predicted outcomes to get insights on the model's prediction precision, determining the hit rate of both the full and restricted models. Beginning with the hit rate of the full model (see Appendix C.2):

$$HR_{full} = \frac{11448 + 0}{11448 + 76} = 99.3\%$$

While the hit rate of the naïve model is (see Appendix B.3):

$$HR_{restricted} = \frac{11448 + 0}{11448 + 76} = 99.3\%$$

Once more, the coincidence of the two hit rates prompts consideration of two additional criteria for the model fit analysis.

Starting with the log likelihood statistics, two hypotheses need to be set:

- *H0: the independent variables do not matter in explaining the dependent variable*
- *H1: the independent variables matter in explaining the dependent variable*

The LR statistics can be obtained by looking at the SPSS output; in this case, it is 21.695 and it is significant at the 0.05 significance level (as  $p = < 0.001$ ) (see Appendix C.4), thus rejecting the null hypothesis, and it is possible to conclude that adding the independent variables matters in explaining whether the user clicks in the e-mail.

Finally, by looking at the Cox & Snell R Square and the Nagelkerke R square, it is possible to gather information on how well the model fits the data. In our model the two values are (see Appendix C.5):

- Cox & Snell R Square = 0.002
- Nagelkerke R square = 0.025

Among the two R-square measures, the Nagelkerke R-square is preferable, as it is not bounded by a maximum value of 1. In this analysis, the Nagelkerke R-square value of 0.025 suggests that the integration of AI accounts for approximately 2.5%, indicating a modest impact of AI integration on Clicks.

Thus, it can finally be concluded that the third hypothesis is confirmed as well with regard to the B2B segment.

### ***2.2.1.3 Hypotheses Results (B2B Segment - Click Through Rate)***

To complete the statistical analysis on the B2B segment, the attention now turns to the analysis of the ***Click Through Rate***; as the interest is to assess whether there are significant differences in the mean value of the metric dependent variable CTR between the two categories of the single independent variable (AI integration vs. no AI integration), the One Way ANOVA results particularly suited for this analysis (Malhotra, 2020, p.500). The aim is to determine whether the integration of AI in e-mails with sustainable content significantly affects the Click Through Rate.

A preliminary analysis of the mean Click Through Rate for the two different conditions suggests notable differences across groups, in particular it can be seen that the mean CTR for the AI condition is approximately 0.00991, which is greater than the mean without the AI condition, which is 0.00314 (see Appendix E.1). This initial observation indicates that the integration of AI in e-mail campaigns may enhance the engagement of the campaign in terms of Click Through Rate. Moreover, standard deviations are also quite different among conditions (0.01752 for the AI condition, and 0.00382 for the non AI condition), suggesting greater variability in the outcomes when AI is employed; however, this is not a guarantee that these differences are statistically relevant and not due to chance, hence a more thorough analysis is needed.

Starting with the actual analysis, the two typical hypotheses of the ANOVA test are formulated:

- **H0:** AI integration does not have an effect on Click Through Rate.
- **H1:** AI integration has an effect on Click Through Rate.

The SPSS analysis's output indicates that the AI integration significantly affects the click-through rate for the e-mail campaigns; specifically, the analysis reveals an F value of 834.068, which is significant at the 0.05 significance level, with a p-value of less than 0.001 (see Appendix E.2). therefore the null hypothesis H0 can be rejected.

Furthermore, it would be interesting to determine how much of the variation in the CTR is explained by the independent variable of such a study; this can be assessed by looking at the eta squared value, which measures the fit of the model and the strength of the effect of the factors (or independent variables) (Malhotra, 2020, p.509). Since Eta squared values range between 0 and 1, in this case, the value of 0.068 indicates that the integration of AI explains 6.8% of the variation in CTR (see Appendix E.3). Although not as significant as in some other models, this amount of explained variance indicates a notable impact of AI integration on CTR outcomes.

Moreover, the Eta squared is also useful to compute Omega squared to determine the relative importance of the independent variable in explaining the variation in CTR. The formula for Omega squared is given by:

*Equation 4: Omega squared*  
*Source: Malhotra, 2020*

$$\omega_x^2 = \frac{SS_{between} - (df_{between} \times MS_{error})}{SS_{total} + MS_{error}}$$

Where:

- $SS_x$  = between groups variation
- $SS_y$  = total variation in the dependent variable
- $df$  = degrees of freedom
- $MSe$  = mean square error

Applying this formula to the data from the ANOVA table:

$$\omega_x^2 = \frac{0.135 - (1 \times 0.000)}{1.999 + 0.0000} = 0.0675$$

As such, Omega squared is 0.0675, indicating that the presence of AI explains 6.7 of the variance in CTR, confirming the significant but moderate impact of the integration of AI in improving Click Through Rate.

It is possible to conclude that the B2B segment also confirms hypothesis one.



### 2.2.2 Data Analysis (B2C Segment)

In shifting the focus to the B2C segment, the intent was to assess the influence of artificial intelligence integration on enhancing engagement among a broader audience characterized by different requirements – specifically, travelers looking for sustainable accommodations. The main purpose that guided the analysis of the B2C segment was to provide a more holistic and comprehensive view of the entire business, without neglecting any aspect. It was crucial not only to study the B2B segment alone, but also to explore the reactions and interactions of individual consumers, to fully understand the impact of the initiatives supported.

As previously noted, the metrics selected to measure engagement in this segment are: Clicks and Click Through Rate. Similarly to the previous segment, the first metric has a binary nature, so it can take only values of 0 and 1 depending on whether the viewers clicked or not on the advertisement, while the second one is a ratio metric, calculated at an individual level and varying from person to person; thus, a different statistical approach is needed one more time. The binary logistic is going to be performed for the Clicks measurement, and in turn, the One-Way ANOVA will be employed for the CTR to measure the differences in the population means ( $\mu$ ) across the two different conditions (AI vs. no AI).

#### 2.2.2.1 Hypotheses Results (B2C Segment - Clicks)

For the B2C segment, a binary logistic regression was conducted to investigate the impact of AI integration on viewers' interactions with digital advertisements, measured in terms of *Clicks*.

After running the logistic regression, SPSS reported that both the coefficient for the AI condition and the constant are statistically significant, with p-values less than the conventional threshold of 0.05 ( $p = < 0.001$  for the condition, and  $p = < 0.001$  for the constant) (see Appendix F.1). This indicates that the integration of AI has statistically significant effect on user engagement with advertisements.

The direction of such an effect can be assessed by looking at the original coefficient; a negative original coefficient, as in this case of -3.283 (see Appendix F.1) for the AI condition, suggests that the AI integration decreases the likelihood of a viewer clicking. The exponentiated coefficient for the AI condition is 0.038 (see Appendix F.1), so a value lower than one indicates a decreasing impact of the condition on the probability of clicking. The negative effect is further confirmed by the analysis of the exponential coefficient for the AI condition, which is 0.038 (see Appendix F.1). A value lower than one indicates a decreasing impact on the probability of clicking. The calculus is:

$$(0.038 - 1) \times 100 = -96.2\%$$

This value indicates that the odds of clicking on an advertisement are about 96.2% lower when the AI condition is present; similarly, the constant's exponentiated value of 0.007 suggests a very low baseline probability of clicking when all the other variables are equal to zero. Moreover, the negative coefficient

associated with the constant (-4.937) (see Appendix F.1) further accentuates such an effect, signaling that no integration of AI significantly lowers the probability of obtaining clicks. While the presence of AI decreases the likelihood of clicks, the basal probability of getting clicks is already low in the absence of AI, suggesting that the environment without AI is not conducive to clicks, and the introduction of AI further worsens this situation.

Despite this negative effect, it is still pertinent to account for the model fit, to verify if the model provides a fairly correct number of predictions. To assess the model fit we first consider classification table that compares the observed and predicted outcomes, providing the proportion of correct predictions, allowing for the estimation of the hit rate to measure the correct predictions that the model provides; a high hit rate value indicates that the model is good at predicting outcomes, and furthermore, the hit rate can be compared across full and restricted models (with or without independent variables), to understand if including such independent variables increases the model's power.

The hit rate of the full model is (see Appendix F.2):

$$HR_{full} = \frac{0 + 957191}{9571 + 812} = 99.9\%$$

The hit rate of the naïve model is (see Appendix F.3):

$$HR_{Restricted} = \frac{0 + 957191}{957191 + 812} = 99.9\%$$

The two hit rates for both models are extremely high, indicating that the model very effectively predicts the class of not clicks. However, since the results of the two models coincide, this might suggest that the inclusion of independent variables (integration of AI) does not significantly improve the predictive power of the model over the naïve model. To better understand if this is a good model it is necessary to proceed with the analysis of two other criteria:

- Log likelihood statistic
- Pseudo R-square

Beginning with the Log likelihood statistic, it has already been mentioned that it is based on two hypotheses:

- *H0: the independent variables do not matter in explaining the dependent variable*
- *H1: the independent variables matter in explaining the dependent variable*

The LR statistic is calculated as follows:

$$LR = -2(\ln(L_{restricted} - L_{full}))$$

Consulting the SPSS output, this value is 1914.236, and it is significant at the 0.05 significance level (as  $p = < 0.001$ ) (see Appendix F.4), leading to a null hypothesis rejection and revealing the usefulness of integrating the independent variables to explain the effect studied.

Proceeding with the second criteria, we now consider the pseudo R-square to measure the variance in the dependent variable. To do so, two measures are considered (see Appendix F.5):

- Cox & Snell R Square
- Nagelkerke R square

From SPSS's output, the Cox & Snell R Square is equal to 0.002, while the Nagelkerke R square is equal to 0.147. Considering the second one, which is more precise according to its nature, it indicates that the model explains roughly 14% of the effect of AI integration on clicks.

Overall, it can be concluded that hypothesis three is not confirmed in regards to the B2C segment.

#### ***2.2.2.2 Hypotheses Results (B2C Segment – Click Through Rate)***

To test the impact of AI's integration in the online advertisements on the ***Click Through Rate***, a One Way ANOVA test was performed on SPSS. Similarly to the B2B segment, given the nature of such metric, One Way ANOVA allows to catch eventual differences in the mean value of the CTR among two categories that the independent variable can take.

In order to get a preliminary overview of eventual differences across the two groups of viewers being displayed with the two different advertisement conditions, it was decided to check for the differences in means; from the SPSS output it can be seen that the mean CTR without AI integration (condition 0) is higher at 0.07100 compared to the mean CTR with AI integration (condition 1), which is 0.02700 (see Appendix G.1). These prior results suggest, contrary to expectations, that the integration of AI in advertising campaigns for the B2B segment might not be beneficial for benefit corporations in enhancing engagement in terms of Click Through Rate. It is furthermore important to note that both standard deviations are equal to zero (see Appendix G.1), indicating no variability within groups. This lack of variability underscores the need for a deeper statistical analysis to determine the significance of these observed differences.

Before running the One Way ANOVA, it is important to formulate the assumptions on which this test is based:

- **H0:** AI integration does not have an effect on Click Through Rate.
- **H1:** AI integration has an effect on Click Through Rate.

Consulting the SPSS output, it is shown that the integration of artificial intelligence significantly affects the Click Through Rate in B2C advertising campaigns. In particular, the ANOVA shows an F value of 4.898E+27, which is significant at the 0.05 significance level, as p-value = < 0.001 (see Appendix G.2), thus the null hypothesis H0 can be rejected and it is possible to affirm that AI impacts CTR, influencing the viewers' engagement with the campaign.

In addition, it is essential to quantify the extent of variation in the Click Through Rate that is explained by the integration of AI in the advertising crafting process; this can be accessed by looking at the eta squared value, which provides a measure of the model fit and the strength of the effect of the independent variable on the dependent one (Malhotra, 2020, p.509). Eta squared, which ranges between 0 and 1, has, in this case, a value of 1.000, indicating that the integration of AI explains roughly 100% of the variation in CTR (see Appendix G.3). This suggests the perfect explanatory power of AI integration on CTR outcomes, which is exceptionally high and unusual in practical scenarios.

Additionally, the Eta squared is also used to compute Omega squared, which serves to determine the relative importance that the independent variable has in explaining the variation in CTR. Omega squared is computed as:

$$\omega_x^2 = \frac{SS_{between} - (df_{between} \times MS_{error})}{SS_{total} + MS_{error}}$$

Where:

- $SS_x$  = between groups variation
- $SS_y$  = total variation in the dependent variable
- $df$  = degrees of freedom
- $MSe$  = mean square error

Applying this formula to the data from the ANOVA table:

$$\omega_x^2 = \frac{143.325 - (1 \times 0.000)}{143.325 + 0.0000} = 1$$

According to Omega squared's computation, the presence of AI explains 100% of the variance in CTR, confirming hypothesis 1 for the B2C segment. However, this optimistic result may suggest that the test is insufficient for measuring this variable. Therefore, it may be necessary to identify a test that accurately captures the differences between the two groups of viewers under the two conditions: AI vs. no AI.

To capture actual differences among the two groups of viewers, a basic descriptive analysis has been performed. Initially, a frequencies analysis was run, and the results showed a significant discrepancy in the

data that suggested a lack of variability in the separate groups for the use of artificial intelligence (AI). The distribution showed that 91.6% of cases saw the AI advertising (877,147 observations) and 8.4% saw the manually crafted advertisement (80,856 observations), with corresponding CTR values of 0.027 and 0.071 respectively (see Appendix G.4). This has led the analysis to be significantly unbalanced within groups and has made standard statistical tests such as ANOVA unsuitable. Faced with this challenge, a descriptive analysis has been implemented to better understand the association between AI use and CTR values. From the descriptive analysis's output, finally the variance among groups emerged, showing a lower CTR when the AI condition is not present, and a slightly higher value when the AI condition is present (0.027 and 0.071 respectively) (see Appendix G.5). Therefore, given the significant results from the comparison of Click Through Rates between groups (AI vs. non-AI) found in the ANOVA test, it is possible to conclude that hypothesis one is confirmed in regard to the B2C segment. At the same time, the ANOVA test did not report a good fit, suggesting that a different approach should be taken to ensure a more precise analysis of this specific dataset.

### *2.3 Implications*

From a theoretical point of view, this thesis aimed to delve into the integration of Artificial Intelligence in advertising campaigns with a sustainability objective, a topic that has gained increasing attention among scholars and practitioners. With advancements in artificial intelligence, especially generative models, companies are reconsidering their engagement strategies to enhance consumer interaction. This research, particularly focused on the integration of Generative Artificial Intelligence in the advertising crafting process within the context of the sustainability, explores whether AI possesses the capacity to generate higher levels of engagement among the customers of a Benefit Corporation. It assessed AI's capability to improve engagement levels amongst customers and its effectiveness in producing creative, value-aligned advertising that communicates abstract concepts concisely.

The findings affirmed that AI could extend beyond the simple optimization of specific tasks, creating creative content that not only reflects the firm's values and intents, but also resonates with the expectations of their consumers. Such personalization of advertising content, specifically tailored to consumer needs, proved to be engaging and confirmed that AI can be employed in new and broader fields, aligning with the literature.

From a more practical perspective, the findings of this study suggest that Benefit Corporations specifically, but also firms generally, should embrace technological advancements proactively, expanding the research to find the best way of application of such instruments. Such findings advocate for further explorations of the integration of Artificial Intelligence to enhance customer engagement. For Benefit Corporations committed to sustainable and socially responsible practices, integrating AI would align with their core mission of making a

positive impact on their context of reference, by enhancing their effectiveness while engaging deeply with their target audience.

However, as seen before, there are some differences according to the type of clientele that need to be assessed, as each market segment might have different expectations and needs; indeed, while the B2B segment has shown preference for the AI-generated content, in turn, the B2C segment, despite the high expectations coming from the literature, has shown a less pronounced interest in the AI-generated content. This suggests that while AI can be a powerful tool, its implementation needs to be carefully calibrated and constantly refined to align with consumer expectations. Companies might consider the implementation of internal tests, such as A/B testing, to ensure that these tools actually resonate with the target audience, leading to higher engagement rates.

Furthermore, the findings highlight the great importance of considering the inner characteristics of each business segment while integrating Artificial Intelligence into their processes. In scenarios where AI does not outperform (such as the B2C segment in this case), firms might need to integrate human supervision to personalize and adjust AI's outputs, leading to more successful advertising campaigns.

On the whole, this research demonstrates a positive impact of AI integration in sustainability advertising, showing that, with due care, it is possible to integrate AI into communications of more abstract concepts, such as sustainability.

## LIMITATIONS AND FUTURE RESEARCH

---

This study sought to understand how Artificial Intelligence in advertising affects customer engagement; in order to achieve this goal, it has been tried to build a study that would isolate as much as possible the variables involved, so as to obtain the most consistent results possible. Despite these efforts, the research have encountered several inherent limitations, arising both from the intrinsic complexities of applying AI in marketing and existing budget constraints.

At first, a limitation is constituted by the disparate measurement method chosen for the two different segments. Unfortunately, as said, the method could not be the same for both segments, leading the analyzed metrics to be different between the two segments. As a consequence, it was not possible to make a genuine comparison between the two segments using statistical tests, but only some observational ascertainments. In addition, the budget constraints did not allow the purchase of the premium version of alternative software, which could have provided new useful information such as: the time of users' stay on e-mails/Advertisements, or the position of the clicks within the e-mails/ Advertisements. It would be interesting for future research to consider more comprehensive metrics that enable comparisons across various market segments.

Furthermore, the differential exposure of each segment to the advertising stimuli, as measured by the number of impressions, presents another layer of complexity to the analysis. Indeed, as in B2B segment the impressions were set *a priori* to 900 receivers for both conditions, the B2C segment, were the impressions were chosen by an external platform, therefore the two segments resulted to be heavily unbalanced, with the non AI condition having 80856 impressions (viewers of the ads), conversely to the AI one, that had 877147 impressions. This huge disparity in exposure might have introduced biases in engagement measurements, potentially diluting the perceived effectiveness of AI-generated content within the B2C segment. High exposure levels can lead to ad fatigue, where the target audience becomes desensitized to the advertisements, thereby affecting their responsiveness. As such, this study's findings regarding the B2C segment, might not be generalizable, and also might not represent the phenomenon in its reality. Future studies should consider the role of exposure frequency as a moderating factor in assessing the effectiveness of AI-generated advertisements on consumer engagement. By controlling for the number of impressions, researchers can more accurately isolate the effect of content quality from mere exposure effects, ensuring that findings reflect genuine differences in content engagement rather than discrepancies in advertisement visibility.

Subsequently, as seen from the results, the two segments have given very different outcomes; indeed, if on one side the B2B segment has responded very well to the advertisements generated with the artificial intelligence and the analysis has shown that the results were significant, by contrast, the B2C segment did not achieve particularly positive responses, and, although the hypothesis was, albeit slightly, confirmed for this segment, the analysis may not have been the most appropriate one, as the data were heavily unbalanced. This

result is probably due to the lack of a statistical pretest, because although Traveleco has carried out internal tests to assess initial conditions regarding their customers' perceptions and attitudes towards artificial intelligence, the nature of these data did not allow for statistical verification, making it difficult to accurately determine the direct effect of exposure to AI-generated content on participants' engagement differences in the B2C segment.

More on the differences among segments, it is important to point out that the present study tested only two variants of communication – newsletters and advertisements – which may have limited the scope of the research. The possibility remains that different, perhaps more creatively engaging AI-generated content could have yielded significant results, especially if it had been tailored more distinctively than the human-generated benchmarks. This suggests that the creative potential of AI in crafting content that resonates more effectively with the B2C segment has not been fully explored. Typically, consumers in this segment are influenced more by visual elements than by textual content, indicating that the AI's performance could have been enhanced with superior visual creativities.

Reflecting on these limitations, future research could explore wider arrays of AI applications in sustainable advertising contents, especially how different types of content (textual vs. visual) are perceived by distinct customer bases. Implementing a 2 x 2 x 2 between-subjects study could be beneficial to examine the moderating effect that a variables such as consumer awareness, or lack thereof, regarding AI generated content can affect their perceptions. Another potential moderator worth exploring is that of the preliminary expectations that consumers have with respect to sustainable advertising. It is conceivable that, while the B2B segment seeks clearer and more rational information, the B2C segment may be more attracted by communications of a more emotional type, which could be a painful side of artificial intelligence that should eventually be supported by human endorsement.



## SOURCES

- Agrawal, K. (2010). To study the phenomenon of the Moravec's Paradox. arXiv preprint arXiv:1012.3148.
- Alpaydin, E. (2021). *Machine learning*. MIT press.
- Araújo, C., Gonçalves, R., Costa, R. L. D., Dias, Á., & Pereira, L. (2022). Artificial intelligence in the digital customer journey. *International Journal of Electronic Customer Relationship Management*, 13(3), 248-271.
- Bachnik, K., & Nowacki, R. (2018). How to build consumer trust: Socially responsible or controversial advertising. *Sustainability*, 10(7), 2173.
- Bandi, A., Adapa, P. V. S. R., & Kuchi, Y. E. V. P. K. (2023). The power of generative ai: A review of requirements, models, input–output formats, evaluation metrics, and challenges. *Future Internet*, 15(8), 260.
- Belz, F. M., & Peattie, K. (2012). *Sustainability marketing: A global perspective*. John Wiley & Sons.
- Biotto, M., De Toni, A. F., & Nonino, F. (2012). Knowledge and cultural diffusion along the supply chain as drivers of product quality improvement: The illycaffè case study. *The International Journal of Logistics Management*, 23(2), 212-237.
- Bowen, H. R. (2013). *Social responsibilities of the businessman*. University of Iowa Press.
- Brodie, R. J., Hollebeek, L. D., Jurić, B., & Ilić, A. (2011). Customer engagement: Conceptual domain, fundamental propositions, and implications for research. *Journal of service research*, 14(3), 252-271.
- Buch, I., & Thakkar, M. (2021). *AI in Advertising*.
- Buchanan, B. G. (2005). A (very) brief history of artificial intelligence. *Ai Magazine*, 26(4), 53-53.
- Castellini, M., Cirone, S., Cogo, A., Cristina, I., De Rossi, D., Fazio, V., Petrassi, M., C. Preti, G., Ragazzini, A., Santacroce, V., Zunino, R. (2019). *Linee Guida sul Reporting delle Società Benefit*. Network Italiano Business Reporting. (pp. 12-18, 27-30). Mercurio Gp.
- Cheeseman, P., & Gevarter, W. (1986, January). Introduction to artificial intelligence. In *24th Aerospace Sciences Meeting* (p. 163).
- Chen, Z. (2020, February). Privacy Protection Technology in the Age of AI. In *IOP Conference Series: Materials Science and Engineering* (Vol. 750, No. 1, p. 012103). IOP Publishing.
- Chowdhary, K., & Chowdhary, K. R. (2020). Natural language processing. *Fundamentals of artificial intelligence*, 603-649.
- Comin, G. (2019). *Comunicazione integrata e reputation management*. (pp. 121-127). Roma, Luiss University Press.

- Corchado, J. M., López, S., Garcia, R., & Chamoso, P. (2023). Generative Artificial Intelligence: Fundamentals. *ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal*, 12(1), e31704-e31704.
- Court, D., Elzinga, D., Mulder, S., & Vetvik, O. J. (2009). The consumer decision journey. *McKinsey Quarterly*, 3(3), 96-107.
- Das, S., Lee, H., Forlizzi, J. (2023). *Privacy in the Age of AI*. COMMUNICATIONS OF THE ACM. Vol. 66, No. 11.
- Davis, K. (1973). The case for and against business assumption of social responsibilities, *Academy of Management Journal*, 16(2) 312-322.
- Dimitrieska, S., Stankovska, A., & Efremova, T. (2018). Artificial intelligence and marketing. *Entrepreneurship*, 6(2), 298-304.
- Drumwright, M. E. (1996). Company advertising with a social dimension: The role of noneconomic criteria. *Journal of marketing*, 60(4), 71-87.
- Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., ... & Wright, R. (2023). “So what if ChatGPT wrote it?” Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71, 102642.
- European Commission, Employment&Social Affairs, Green Paper (2001), Promoting a European framework for corporate social responsibility Green Paper, COM(2001) 366 final, ISBN 92-894-1478-2.  
[https://www.europarl.europa.eu/meetdocs/committees/deve/20020122/com\(2001\)366\\_en.pdf](https://www.europarl.europa.eu/meetdocs/committees/deve/20020122/com(2001)366_en.pdf)
- Forghani, R. (Ed.). (2020). *Machine Learning and Other Artificial Intelligence Applications, An Issue of Neuroimaging Clinics of North America, E-Book: Machine Learning and Other Artificial Intelligence Applications, An Issue of Neuroimaging Clinics of North America, E-Book* (Vol. 30, No. 4). Elsevier Health Sciences.
- Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep Learning*. MIT Press.
- Holt, D., & Littlewood, D. (2015). Identifying, mapping, and monitoring the impact of hybrid firms. *California Management Review*, 57(3), 107-125.
- Honeyman, R. (2014). *The B corp handbook: How to use business as a force for good*. (pp. 7-13, 19-26, 36-38). San Francisco, Berrett-Koehler Publishers.

- Jain, A. (2023). *Job Displacement Due to Artificial Intelligence and Machine Learning: A Review*. International Journal for Multidisciplinary Research (IJFMR). 6, 5. DOI: <https://doi.org/10.36948/ijfmr.2023.v05i06.10958>
- Jarek, K., & Mazurek, G. (2019). Marketing and artificial intelligence. *Central European Business Review*, 8(2).
- Kaplan, A., & Haenlein, M. (2019). "Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence." *Business Horizons*, 62(1), 15-25.
- Kietzmann, J., Mills, A. J., & Plangger, K. (2021). Deepfakes: perspectives on the future "reality" of advertising and branding. *International Journal of Advertising*, 40(3), 473-485.
- Kietzmann, J., Paschen, J., & Treen, E. (2018). Artificial intelligence in advertising: How marketers can leverage artificial intelligence along the consumer journey. *Journal of Advertising Research*, 58(3), 263-267.
- Kose, U., & Sert, S. (2017). Improving content marketing processes with the approaches by artificial intelligence. *arXiv preprint arXiv:1704.02114*.
- Kulkarni S.P. & Ashadeepa S.N. (2023). History and Growth of Artificial Intelligence. INTERANTIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT 07(10):1-11. DOI:[10.55041/IJSREM26432](https://doi.org/10.55041/IJSREM26432)
- Kumar, V., Rajan, B., Venkatesan, R., & Lecinski, J. (2019). Understanding the role of artificial intelligence in personalized engagement marketing. *California Management Review*, 61(4), 135-155.
- Lalmas, M., O'Brien, H., & Yom-Tov, E. (2022). *Measuring user engagement*. Springer Nature.
- Lee, H., & Cho, C. (2019). Digital advertising: present and future prospects. *International Journal of Advertising*, 39, 332 - 341. <https://doi.org/10.1080/02650487.2019.1642015>.
- Lee, H., & Cho, C. H. (2020). Digital advertising: present and future prospects. *International Journal of Advertising*, 39(3), 332-341.
- Malhotra, N. K. (2020). *Marketing Research, An Applied Orientation* (6. ed). Pearson Education, Inc.
- Marsden, P. (2019). *Digital Quality Management in Construction* (1st ed.). Routledge. <https://doi.org/10.1201/9780429423062>
- Martinez, R. (2019). Artificial intelligence: Distinguishing between types & definitions. *Nevada Law Journal*, 19(3), 9.
- Hayman, S. (1999, July). The mcculloch-pitts model. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings (Cat. No. 99CH36339)* (Vol. 6, pp. 4438-4439). IEEE.

- Minsky, M., & Papert, S. (1969). An introduction to computational geometry. *Cambridge tiass., HIT*, 479(480), 104.
- Mogaji, E. (2018). Emotional Appeals in Advertising Banking Services. London: Emerald.
- Mogaji, E., Olaleye, S., & Ukpabi, D. (2020). Using AI to personalise emotionally appealing advertisement. *Digital and social media marketing: Emerging applications and theoretical development*, 137-150.
- Moravec, H. (1988). *Mind Children: The Future of Robot and Human Intelligence*. Harvard University Press.
- Onyali, C. I. (2014). Triple bottom line accounting and sustainable corporate performance. *Research Journal of Finance and Accounting*, 5(8), 195-209.
- Paneru, S., & Jeelani, I. (2021). Computer vision applications in construction: Current state, opportunities & challenges. *Automation in Construction*, 132, 103940.
- Qin, X., & Jiang, Z. (2019). The impact of AI on the advertising process: The Chinese experience. *Journal of Advertising*, 48(4), 338-346.
- Rosenblatt, F., & Papert, S. (2021). *Perceptron* (Vol. 9). April.
- Russell, S., & Norvig, P. (2016). *Artificial Intelligence: A Modern Approach*. Pearson.
- Schwab, K. (2017). *The fourth industrial revolution*. Crown Currency.
- Shahid, M. Z., & Li, G. (2019). Impact of artificial intelligence in marketing: A perspective of marketing professionals of Pakistan. *Global Journal of Management and Business Research*, 19(2), 27-33.
- Shen, N., Au, K., & Li, W. (2020). Strategic alignment of intangible assets: The role of corporate social responsibility. *Asia Pacific Journal of Management*, 37(4), 1119-1139.
- Smith, K. T. (2020). Marketing via smart speakers: what should Alexa say?. *Journal of Strategic Marketing*, 28(4), 350-365.
- Sterne, J. (2017). *Artificial intelligence for marketing: practical applications*. John Wiley & Sons.
- Sung, E. C., Bae, S., Han, D. I. D., & Kwon, O. (2021). Consumer engagement via interactive artificial intelligence and mixed reality. *International journal of information management*, 60, 102382.
- Surianarayanan, C., Lawrence, J. J., Chelliah, P. R., Prakash, E., & Hewage, C. (2023). Convergence of Artificial Intelligence and Neuroscience towards the Diagnosis of Neurological Disorders—A Scoping Review. *Sensors*, 23(6), 3062.

- Tan, T. F., & Ko, C. H. (2016, November). Application of artificial intelligence to cross-screen marketing: a case study of AI technology company. In *2016 2nd International Conference on Artificial Intelligence and Industrial Engineering (AIIE 2016)* (pp. 517-519). Atlantis Press.
- Temam, O. (2010, June). The rebirth of neural networks. In *International Symposium on Computer Architecture*.
- Van den Broeck, E., Zarouali, B., & Poels, K. (2019). Chatbot advertising effectiveness: When does the message get through?. *Computers in Human Behavior*, *98*, 150-157.
- Verheyden, M. (2018). Public reporting by benefit corporations: importance, compliance, and recommendations. *Hastings Bus. LJ*, *14*, 37.
- Watters, C., & Lemanski, M. K. (2023). Universal skepticism of ChatGPT: a review of early literature on chat generative pre-trained transformer. *Frontiers in Big Data*, *6*.

# SITOGRAPHY

García, A. (2023, Dec. 1). *"Me encantaría grabar la canción": Bad Gyal habla sobre 'NostalgIA'*.

MegaStarFM.

[https://www.megastar.fm/musica/tus-artistas/noticias/encantaria-grabar-cancion-pero-pasar-bad-gyal-habla-sobre-nostalgia-20231201\\_3030450](https://www.megastar.fm/musica/tus-artistas/noticias/encantaria-grabar-cancion-pero-pasar-bad-gyal-habla-sobre-nostalgia-20231201_3030450)

Harvard Business School Online. (2021). *15 EYE-OPENING CORPORATE SOCIAL RESPONSIBILITY STATISTICS*.

<https://online.hbs.edu/blog/post/corporate-social-responsibility-statistics>

Illy. (2024). *LE CERTIFICAZIONI DI ILLYCAFFÈ*.

<https://www.illy.com/it-it/certificazioni-illycaffe>

Kasparov, G. (Sept. 25, 2017), *Garry Kasparov: There's No Shame in Losing to a Machine*, FORTUNE

<http://fortune.com/2017/09/25/garry-kasparov-chess-strategy-artificial-intelligence-ai/>

Lee, K.F., (2018, Apr.). *How AI can save our humanity*. TED ideas worth spreading.

[https://www.ted.com/talks/kai\\_fu\\_lee\\_how\\_ai\\_can\\_save\\_our\\_humanity](https://www.ted.com/talks/kai_fu_lee_how_ai_can_save_our_humanity)

Manyka, J., Chui, M., & Miremadi, M. (2018, Jan. 11). *What AI can and can't do (yet) for your business*.

QuantumBlack AI by McKinsey.

<https://www.mckinsey.com/capabilities/quantumblack/our-insights/what-ai-can-and-cant-do-yet-for-your-business>

*The AI Winter Phenomenon*. (Sept. 8, 2023). AI Newsletter.

<https://www.ainewsletter.com/newsletters/ai-winter-phenomenon/>

The Media Ant. (2024). *What is Sustainable Advertising? Definition and Examples*.

[https://www.themediant.com/blog/sustainable-advertising-definition-and-examples/#Defining\\_Sustainable\\_Advertising](https://www.themediant.com/blog/sustainable-advertising-definition-and-examples/#Defining_Sustainable_Advertising)

Vincent, J. (2017, Oct. 18, 1:00). *DeepMind's Go-Playing AI Doesn't Need Human Help to Beat Us Anymore*, VERGE.

VERGE.

<https://www.theverge.com/2017/10/18/16495548/deepmind-ai-go-alphago-zero-self-taught>

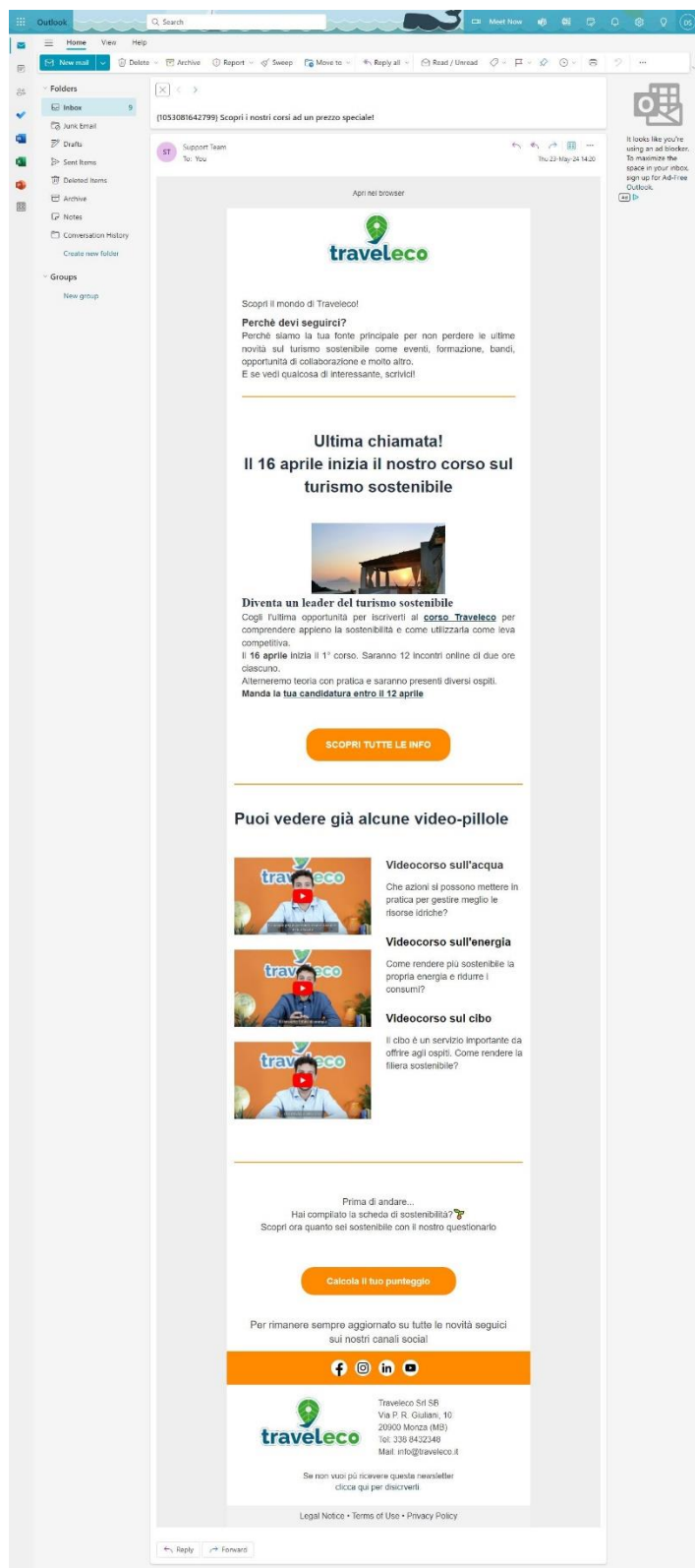
Yagnesh, P. (2024, Jan. 16). *Can AI truly be creative? Explore recent advancements in AI-generated art, music, and literature*. LinkedIn.

<https://www.linkedin.com/pulse/can-ai-truly-creative-explore-recent-advancements-art-yagnesh-pandya-fxigf/>

# APPENDICES

## Appendix A: Comparison of generated newsletter without and with AI

### Appendix A.1 – First newsletter created without AI



## Appendix A.2 – Second newsletter created without AI

Outlook

[1018587946524] Unisciti a Traveleco: tutti gli investimenti in sostenibilità

Support team  
To: You  
Thu 23 May 24 10:22

Apri nel browser

**traveleco**

Scopri il mondo Traveleco!  
**Perché devi seguirci?**  
Perché siamo la tua fonte principale per non perdere le ultime novità sul turismo sostenibile come eventi, formazione, bandi, opportunità di collaborazione e molto altro. E se vedi qualcosa di interessante, scrivici!

---

**Gli incentivi attivi per il turismo sostenibile**

Molti di voi ci hanno segnalato la necessità di usufruire di incentivi per realizzare investimenti nella sostenibilità.  
Grazie a una partnership con **Open Group Italia**, forniremo mensilmente un elenco delle misure nazionali e regionali attraverso le quali poter finanziare le azioni in sostenibilità, come anche i servizi di Traveleco.  
Per scaricare l'elenco degli incentivi di aprile sarà sufficiente aver compilato la scheda di sostenibilità.

[Scarica l'elenco](#)


Hai bisogno di aiuto?  
Vuoi maggiori informazioni?

Prenota subito la tua chiamata per avere **maggiori informazioni qui**

[Vai alla chiamata](#)

---

**Dicci la tua sul turismo sostenibile**



Abbiamo creato pochissime domande per te, ci puoi dire di più sulla tua attività?  
Il sondaggio richiede pochissimo tempo, **solamente 2 minuti** (ti abbiamo cronometrati🕒)

[Compila ora](#)

[Compila il sondaggio](#)

Ricevi il tuo eBook!

Una volta compilato il sondaggio ti arriverà un fantastico eBook gratuito: **"Innovare nel turismo sostenibile: strategie e pratiche vincenti"**  
**Cosa contiene la mini-guida?**  
Contiene 8 semplici capitoli che ti aiuteranno a comprendere come abbracciare nella tua attività la sostenibilità in modo semplice e pratico.

---

**Guarda i nostri videocorsi**

**Videocorso sull'acqua**  
Che azioni si possono mettere in pratica per gestire meglio le risorse idriche?

**Videocorso sull'energia**  
Come rendere più sostenibile la propria energia e ridurre i consumi?

**Videocorso sul cibo**  
Il cibo è un servizio importante da offrire agli ospiti. Come rendere la filiera sostenibile?

Per rimanere sempre aggiornato su tutte le novità seguici sui nostri canali social

[f](#) [@](#) [in](#) [v](#)

**traveleco**

Traveleco Srl SB  
Via R. R. Giulani, 10  
20900 Monza (MB)  
Tel. 338 8432348  
Mail: [info@traveleco.it](mailto:info@traveleco.it)

Se non vuoi più ricevere questa newsletter clicca qui per disiscriverti

Legal Notice • Terms of Use • Privacy Policy

[Reply](#) [Forward](#)



## Appendix A.3 – Third newsletter created without AI

Outlook

Home View Help

Delto - Archive Report - Sweep Move to - Reply all - Read / Unread

Folders

- Inbox 9
- Link Email
- Drutti
- Send Items
- Deleted Items
- Archive
- Notes
- Conversation History
- Create new folder

Groups

- New group

(1018431430302) Partecipa al sondaggio gratuito e ricevi il tuo e-book personale

Support team  
To: You  
Thu 23 May 24 10:22

Apri nel browser


**traveleco**

Scopri il mondo di Traveleco!

**Perché devi seguirci?**  
Perché siamo la tua fonte principale per non perdere le ultime novità sul turismo sostenibile: corsi, eventi, formazioni, bandi, opportunità di collaborazione e molto altro.  
E se vedi qualcosa di interessante, scrivici!

---

**Abbiamo creato un sondaggio semplicissimo per te, puoi aiutarci?**



Abbiamo creato pochissime domande per te, ci puoi dire di più sulla tua attività?  
Il sondaggio richiede pochissimo tempo, **solamente 2 minuti** (li abbiamo cronometrati!)

Compila ora

**VAI AL SONDAGGIO**

Come ricevere gratuitamente il tuo eBook?

Una volta compilato il sondaggio Ti arriverà un fantastico eBook gratuito: **"Innovare nel turismo sostenibile: strategie e pratiche vincenti"**

**Cosa contiene la mini-guida?**  
Contiene 8 semplici capitoli che ti aiuteranno a comprendere come abbracciare nella tua attività la sostenibilità in modo semplice e pratico.

---

**La formazione non si ferma mai:  
scopri i nostri videocorsi gratuiti**

- Videocorso sull'acqua**  
Che azioni si possono mettere in pratica per gestire meglio le risorse idriche?
- Videocorso sull'energia**  
Come rendere più sostenibile la propria energia e ridurre i consumi?
- Videocorso sul cibo**  
Il cibo è un servizio importante da offrire agli ospiti. Come rendere la filiera sostenibile?

---

Prima di andare...  
Hai compilato la scheda di sostenibilità?   
Scopri ora quanto sei sostenibile con il nostro questionario

**Calcola il tuo punteggio**

Per rimanere sempre aggiornato su tutte le novità seguici sui nostri canali social

[f](#) [@](#) [in](#) [v](#)

**traveleco**

Traveleco Srl SB  
Via P. R. Giuliano, 10  
20950 Monza (MB)  
Tel. 338 8432348  
Mail: info@traveleco.it

Se non vuoi più ricevere questa newsletter  
clicca qui per disiscriverti

Legal Notice • Terms of Use • Privacy Policy

Reply Forward

It looks like you're using an ad blocker. To maximize the space in your inbox, sign up for Ad-Free Outlook.

## Appendix A.4 – Fourth newsletter created without AI

Outlook

Home View Help

Newsfeed Deleted Archived Report Sweep Move to Reply all Read/Unread

Folders

- Inbox 9
- junk email
- Drafts
- Sent Items
- Deleted Items
- Archive
- Notes
- Conversation History

Groups

- New group

(1095493859204) Unisciti a Traveleco: tutti gli investimenti in sostenibilità

Support team To: You Thu 23 May 24 10:22

Apri nel browser

**traveleco**

Scopri il mondo Traveleco!  
**Perché devi seguirci?**  
Perché siamo la tua fonte principale per non perdere le ultime novità sul turismo sostenibile come eventi, formazione, bandi, opportunità di collaborazione e molto altro. E se vedi qualcosa di interessante, scrivici!

---

### Gli incentivi attivi per il turismo sostenibile

Torna la nostra guida incentivi per il mese di maggio. Sempre in collaborazione con **Open Group Italia** condividiamo con voi la lista degli incentivi per le strutture ricettive disponibili per maggio. Open offre il servizio di accompagnamento delle imprese nel presentare le domande per l'ottenimento delle varie agevolazioni. Per scaricare l'elenco degli incentivi di aprile sarà sufficiente aver compilato la scheda di sostenibilità.

[Scarica l'elenco](#)


**Il consiglio del mese (ma anche dell'anno)**  
Contribui a fondo perduto del 70% delle spese per la certificazione delle strutture ricettive lombarde (pagina 34 della guida).  
Vi proponiamo la certificazione per il turismo sostenibile **Green Destinations**, presente in più di 90 paesi nel mondo. Traveleco è uno dei 3 enti certificatori in Italia. Vuoi capire meglio se la tua struttura può usufruirne? Consulta la guida a [pagina 34](#) o [prendi un appuntamento](#)


**Hai bisogno di aiuto?**  
Vuoi maggiori informazioni?

Prenota subito la tua chiamata per avere [maggiori informazioni qui](#)

[Vai alla chiamata](#)


---

 Guida per gli albergatori  
**Come diventare hotel sostenibili con Traveleco**  
Ti forniamo una **guida completa per gli albergatori** che vogliono impegnarsi nella transizione ecologica e realizzare gli obiettivi dell'Agenda 2030.  
[Leggi articolo](#)

 Mete undertourism  
**Non perderti il nostro ultimo articolo**  
Presentiamo una meta undertourism: **Belmonte Calabro**, dove si trova la nostra struttura partner **Ecobelmonte**.  
[Leggi articolo](#)

---

### Dicci la tua sul turismo sostenibile

 **Stiamo svolgendo una ricerca sul turismo sostenibile**  
Sei disponibile per un'intervista di 15 minuti con un membro del nostro team?  
Per te un regalo speciale di un anno alla fine dell'intervista.  
[Prenota la tua intervista](#)

---

Per rimanere sempre aggiornato su tutte le novità seguici sui nostri canali social!

[f](#) [i](#) [in](#) [v](#)

**traveleco**

Traveleco Srl SB  
Via P. R. Giuliani, 10  
20090 Moravia (MI)  
Tel. 338 8432348  
Mail: [info@traveleco.it](mailto:info@traveleco.it)

Se non vuoi più ricevere questa newsletter [clicca qui per disiscriverti](#)

Legal Notice • Terms of Use • Privacy Policy

Reply Forward

## Appendix A.5 – First newsletter created with AI

Outlook

[1039760062663] Amplia le tue conoscenze in turismo sostenibile

Support Team  
To: You  
Fri 24 May 24 16:16

Apri nel browser

**traveleco**

In **Traveleco**, crediamo che il futuro del turismo sia sostenibile, e che ogni struttura ricettiva abbia il potere di contribuire a questo cambiamento.

Siamo qui per offrirti le chiavi di questo futuro, attraverso conoscenze approfondite, innovazioni e collaborazioni significative.

**Perché seguirci?**

La nostra missione è fornire alle strutture ricettive come la tua, gli strumenti e le conoscenze per eccellere nel turismo sostenibile.


**Traveleco** è la tua bussola nel mondo del turismo eco-responsabile, offrendoti accesso esclusivo a:

- Le ultime tendenze e innovazioni nel turismo sostenibile.
- Eventi di formazione specializzati e opportunità di bandi.
- Possibilità uniche di collaborazione per far crescere il tuo business in modo sostenibile.

Siamo qui per ascoltarti e supportarti nel tuo percorso verso la sostenibilità.

---

**Corsi di Turismo Sostenibile - Guida il Cambiamento**



Non perdere l'opportunità di iscriverti ai nostri corsi di turismo sostenibile, che iniziano il **16 aprile**.

Questi incontri online, tenuti da esperti del settore, ti forniscono le competenze necessarie per trasformare la tua struttura in un esempio di successo sostenibile.

- Data di inizio: 16 aprile**
- Iscrizioni:** Aperte fino al **12 aprile**
- Modalità:** 12 incontri online di **due ore**, combinando teoria e pratica, con ospiti specializzati.

Questo è il momento di posizionarti come leader nel settore, sfruttando la sostenibilità come tua leva competitiva.

[SCOPRI TUTTE LE INFO](#)

---

**Puoi vedere già alcune video-pillole**

**Videocorso sull'acqua**  
Che azioni si possono mettere in pratica per gestire meglio le risorse idriche?

**Videocorso sull'energia**  
Come rendere più sostenibile la propria energia e ridurre i consumi?

**Videocorso sul cibo**  
Il cibo è un servizio importante da offrire agli ospiti. Come rendere la filiera sostenibile?

---

Prima di andare...  
Hai compilato la scheda di sostenibilità? 📄  
Scopri ora quanto sei sostenibile con il nostro questionario

[Calcola il tuo punteggio](#)

Per rimanere sempre aggiornato su tutte le novità seguici sui nostri canali social

[f](#) [@](#) [in](#) [v](#)

**traveleco**

Traveleco Srl SR  
Via P. R. Giulani, 10  
20900 Monza (MI)  
Tel. 338 8432348  
Mail: info@traveleco.it

Se non vuoi più ricevere questa newsletter clicca qui per disiscriverti

Legal Notice • Terms of Use • Privacy Policy

Reply Forward

## Appendix A.6 – Second newsletter created with AI

Outlook

Home View Help

Newsfeed Deleted Report Sweep Move to Reply all Read/Unread

Folders

- Inbox
- Deleted Items
- Archives
- Conversation History

Groups

Support Team

To: You

Hi 24-May-24 10:19


Apri nel browser

**traveleco**

Cari colleghi,

In **Traveleco**, ci impegniamo costantemente per promuovere pratiche di **turismo sostenibile** che non solo rispettano l'ambiente ma anche valorizzano le comunità locali.

Per farlo al meglio, abbiamo bisogno del tuo aiuto e della tua esperienza.



**Perché il tuo contributo è fondamentale?**

Il tuo **feedback** ci aiuterà a capire meglio le sfide specifiche che le strutture come la tua affrontano e a sviluppare soluzioni mirate che realmente fanno la differenza.

La tua partecipazione è cruciale per aiutarci a costruire insieme un futuro più sostenibile nel settore del turismo.

**Compilando il questionario ricevi subito il tuo eBook gratuito!**

Come segno del nostro apprezzamento per il tempo che ci dedicherai, riceverai una copia del nostro eBook **"Innovare nel Turismo Sostenibile: strategie e pratiche vincenti"**.

Questa guida è piena di idee utili e case studies per ispirarti e aiutarti a migliorare la sostenibilità della tua attività.

**Compila il sondaggio\_ora e ottieni subito il tuo eBook gratuito!**

**COMPLA IL SONDAGGIO QUI**

**Come riscattare il tuo eBook**

Una volta confermata la tua partecipazione, **riceverai automaticamente via email l'eBook**.

Grazie per il tuo tempo e il tuo prezioso contributo.

Le tue opinioni non solo ci aiuteranno a migliorare, ma anche a guidare l'intero settore verso **pratiche più sostenibili e responsabili**.

**Abbiamo un secondo regalo per te, guarda i nostri videocorsi gratuiti!**

**Videocorso sull'acqua**

Che azioni si possono mettere in pratica per gestire meglio le risorse idriche?

**Videocorso sull'energia**

Come rendere più sostenibile la propria energia e ridurre i consumi?

**Videocorso sul cibo**

Il cibo è un servizio importante da offrire agli ospiti. Come rendere la filiera sostenibile?

Prima di andare...  
Hai compilato la scheda di sostenibilità? 📄  
Scopri ora quanto sei sostenibile con il nostro questionario

**Calcola il tuo punteggio**

Per rimanere sempre aggiornato su tutte le novità seguici sui nostri canali social

**f i in**

**traveleco**

Traveleco Srl SEB  
Via P. R. Giuliani, 10  
29050 Mozzana (MC)  
Tel: 338 8432348  
Mail: info@traveleco.it

Se non vuoi più ricevere questa newsletter clicca qui per disiscriverti

Legal Notice • Terms of Use • Privacy Policy

Reply Forward

## Appendix A.7 – Third newsletter created with AI

Outlook

Home View Help

File New mail Delete Archive Report Sweep Move to Reply All Read/Unread

Folders: Inbox (9), Junk Email, Drafts, Sent Items, Deleted Items, Archive, Notes, Conversation History, Create new folder, Groups, New group

[10454415.83173] Ottieni Incentivi per la Tua Sostenibilità - Scopri Come!

Support Team To: You Fri, 24 May 24 19:22

Apri nel browser

**traveleco**

Scopri il mondo Traveleco!  
**Perché devi seguirci?**  
Perché siamo la tua fonte principale per non perdere le ultime novità sul turismo sostenibile come eventi, formazione, bandi, opportunità di collaborazione e molto altro.  
E se vedi qualcosa di interessante, scrivici!

---

**Gli incentivi attivi per il turismo sostenibile**

Abbiamo ascoltato il vostro bisogno di **supporto finanziario** per iniziative sostenibili. In collaborazione con Open Group Italia, offriamo un elenco mensile di incentivi nazionali e regionali.

**Come ottenere gli incentivi?**

1. **Completa la scheda di sostenibilità** su Traveleco.
2. **Scarica l'elenco degli incentivi di aprile.**

Questi incentivi ti aiuteranno a finanziare progetti sostenibili e a migliorare l'attrattiva della tua struttura.  
**Non perdere questa opportunità!**

Completa la tua scheda di sostenibilità oggi stesso e scarica gli incentivi disponibili.

[SCARICA GLI INCENTIVI](#)


Vuoi maggiori informazioni?

Preziosi subito la chiamata gratuita con il nostro consulente quando vuoi tu.

[Vai al calendario](#)

---

**Dicci la tua sul turismo sostenibile**



Per migliorare ulteriormente i nostri servizi e le nostre iniziative, ti invitiamo a partecipare al nostro sondaggio. Il tuo feedback ci aiuterà a sviluppare soluzioni che rispondano meglio alle tue esigenze.  
Il sondaggio richiede pochissimo tempo, **solamente 2 minuti** (li abbiamo cronometrati!).

Compila ora

[Compila il sondaggio](#)

Come segno del nostro apprezzamento per il tempo che ci dedicherai, riceverai una copia del nostro eBook **"Innovare nel Turismo Sostenibile: strategie e pratiche vincenti"**. Una volta confermata la tua partecipazione, riceverai automaticamente via email l'eBook.

---

**Guarda i nostri videocorsi**

**Videocorso sull'acqua**  
Che azioni si possono mettere in pratica per gestire meglio le risorse idriche?

**Videocorso sull'energia**  
Come rendere più sostenibile la propria energia e ridurre i consumi?

**Videocorso sul cibo**  
Il cibo è un servizio importante da offrire agli ospiti. Come rendere la filiera sostenibile?

Per rimanere sempre aggiornato su tutte le novità seguici sui nostri canali social

[f](#) [@](#) [in](#) [v](#)

**traveleco**

Traveleco Srl SE  
Via P. D. Casalesi, 10  
20050 Monza (MB)  
Tel: 338 8432348  
Mail: info@traveleco.it

Se non vuoi più ricevere questa newsletter clicca qui per disiscriverci.

Legal Notice • Terms of Use • Privacy Policy

Reply Forward

## Appendix A.8 – Fourth newsletter created with AI

Outlook

Home View Help

News mail Deleted Report Sweep Move to Reply all Read / Unread

Folders

- Inbox 2
- Drafts
- Sent Items
- Deleted Items
- Archive
- Notes
- Conversation History

Groups

Support Team  
To: You  
Fri: 24-May-24 17:58

Apri nel browser

**traveleco**

Scopri il mondo Traveleco!  
**Perché seguirci?**  
Siamo la tua fonte essenziale per rimanere aggiornato sulle ultime novità nel turismo sostenibile, includendo eventi, formazione, bandi e opportunità di collaborazione.  
Se qualcosa cattura la tua attenzione, non esitare a contattarci!

---

**Incentivi attivi per il turismo sostenibile**

La nostra popolare guida agli incentivi è tornata per il mese di maggio, in collaborazione con **Open Group Italia**. Condividiamo con voi un elenco aggiornato contenente gli incentivi disponibili per le strutture ricettive.  
Per accedere, completa semplicemente la scheda di sostenibilità.

[Scarica l'elenco](#)

**Il consiglio del mese!**  
Approfitta del contributo a fondo perduto del 70% sulle spese per la certificazione delle strutture ricettive lombarde.  
Scopri di più sulla **certificazione per il turismo sostenibile Green Destinations**, attiva in oltre 90 paesi.  
Consulta la guida a **pagina 34** o **prenota un appuntamento**

**GREEN**

**Hai domande o ti serve aiuto?**

Prenota subito una chiamata con **noi** per discutere le tue esigenze.

[Vai alla chiamata!](#)

---

Guida per gli albergatori  
**Come diventare hotel sostenibili con Traveleco**  
Ti forniamo una **guida completa per gli albergatori** che vogliono impegnarsi nella transizione ecologica e realizzare gli obiettivi dell'Agenda 2030.  
[Leggi articolo](#)

Mete undertourism da esplorare  
**Ecosostenibilità a Belmonte Calabro: un esempio di struttura ricettiva**  
Esplora un gioiello nascosto della Calabria, e soggiorna nella nostra struttura partner **Ecobelmonte**.  
[Leggi articolo](#)

---

**Dicci la tua sul turismo sostenibile**

**Partecipa alla nostra ricerca sul Turismo Sostenibile**  
Dedica 15 minuti per un'intervista con il nostro team e ricevi un regalo speciale alla fine dell'anno.  
[Prenota la tua intervista](#)

---

**Rimani connesso!**  
Per non perdere nessuna novità, seguici sui nostri canali social.

[f](#) [@](#) [in](#) [v](#)

**traveleco**

Traveleco Srl SD  
Via P. R. Giuliano, 10  
20900 Monza (MB)  
Tel. 338 8432348  
Mail: [info@traveleco.it](mailto:info@traveleco.it)


Se non vuoi più ricevere questa newsletter  
clicca qui per disiscriverti


Legal Notice • Terms of Use • Privacy Policy

[Reply](#) [Forward](#)

## Appendix B: Google Ads campaigns with and without AI

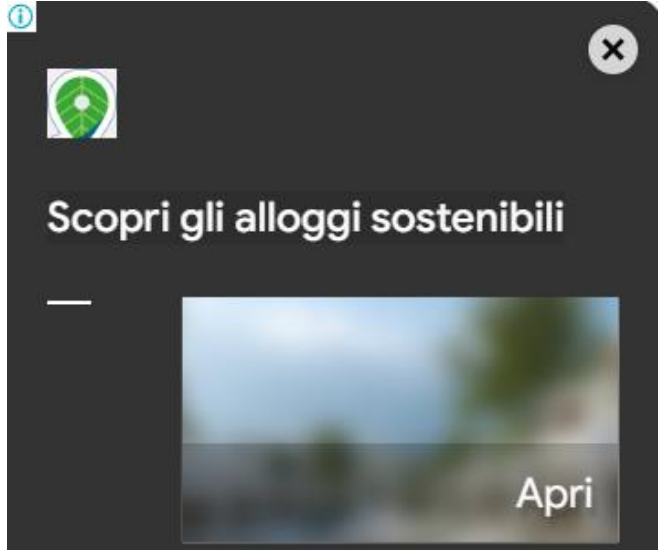
### Appendix B.1 – Google Ads campaigns created with AI







### Scopri gli alloggi sostenibili

Dal nord al sud, Traveleco ti offre le migliori opzioni di alloggi eco-sostenibili.







### Scopri gli alloggi sostenibili

 Apri

Dal nord al sud, Traveleco ti offre le migliori opzioni di alloggi eco-sostenibili.



Apri 



## Vacanze green? Clicca qui

Scopri strutture sostenibili  
verificate, diventa parte attiva  
del turismo responsabile

Chiudi

Apri



## Scopri gli alloggi sostenibili



Dal nord al sud, Traveleco ti offre le  
migliori opzioni di alloggi eco-  
sostenibili.







YouTube

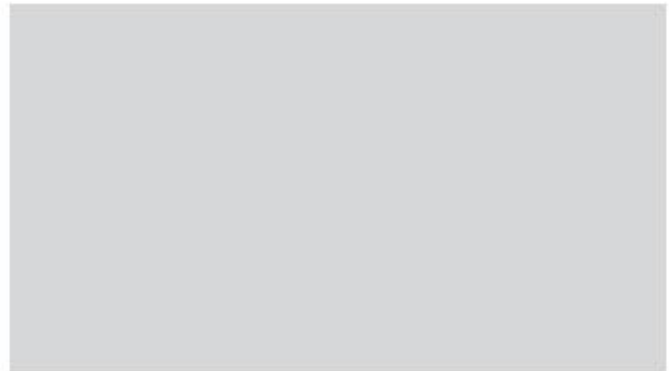


Vacanze green? Clicca qui

Prenota il tuo prossimo soggiorno con Traveleco e soggiorna rispettando l'ambiente.

Traveleco  
Ann.

Apri



Appendix B.2 – Google Ads campaigns created without AI



  
**Traveleco**

Stai cercando un alloggio sostenibile per la tua vacanza?  
Prenota subito con Traveleco

[Chiudi](#) [Prenota subito](#)



  
**Traveleco**

**Prenota subito**

Stai cercando un alloggio sostenibile per la tua vacanza?  
Prenota subito con Traveleco

**Prenota subito** 



## Traveleco

Vuoi vivere un'esperienza sostenibile in Italia? Scegli subito il tuo prossimo hotel

CHIUDI

PRENOTA SUBITO

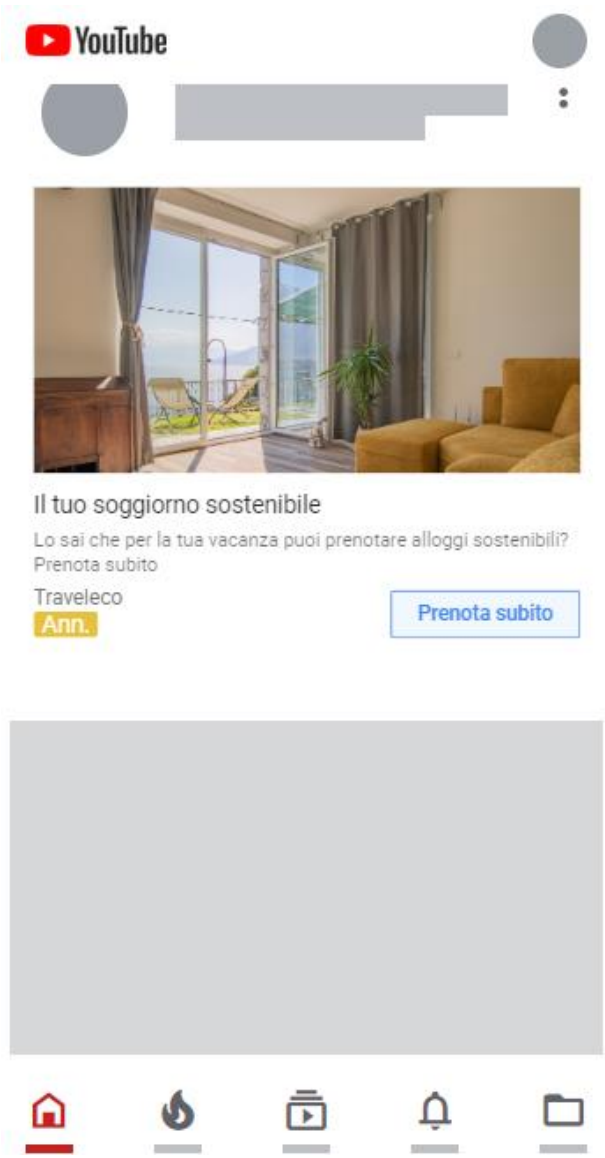


## Traveleco

Stai cercando un alloggio sostenibile per la tua vacanza? Prenota subito con Traveleco

Chiudi

Prenota subito



## Appendix C: SPSS Outputs for B2B segment – Openings

### Appendix C.1 – Logistic regression: effect of AI condition on e-mail Openings

#### Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	CONDITION(1)	,337	,048	48,381	1	<,001	1,401
	Constant	-1,667	,036	2123,679	1	,000	,189

a. Variable(s) entered on step 1: CONDITION.

### Appendix C.2 – Observed and predicted values for the model with independent variables

#### Classification Table<sup>a</sup>

Observed		Predicted		Percentage Correct
		OPEN (1=open yes; 0=open no) 0	1	
Step 1	OPEN (1=open yes; 0=open no)	0	9402	100,0
		1	2122	,0
Overall Percentage				81,6

a. The cut value is ,500

### Appendix C.3 – Observed and predicted values for the model without independent variables

#### Classification Table<sup>a,b</sup>

Observed		Predicted		Percentage Correct
		OPEN (1=open yes; 0=open no) 0	1	
Step 0	OPEN (1=open yes; 0=open no)	0	9402	100,0
		1	2122	,0
Overall Percentage				81,6

a. Constant is included in the model.

b. The cut value is ,500

**Appendix C.4 – LR Statistic**

**Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	48,787	1	<,001
	Block	48,787	1	<,001
	Model	48,787	1	<,001

**Appendix C.5 – Pseudo R-squares**

**Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	10959,160 <sup>a</sup>	,004	,007

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

**Appendix D: SPSS Outputs for B2B segment – Clicks**

**Appendix D.1 – Logistic regression: effect of AI condition on e-mail Clicks**

**Variables in the Equation**

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	CONDITION(1)	1,162	,270	18,461	1	<,001	1,196
	Constant	-5,758	,236	594,909	1	<,001	,003

a. Variable(s) entered on step 1: CONDITION.

**Appendix D.2** – Observed and predicted values for the model with independent variables

**Classification Table<sup>a</sup>**

Observed		Predicted		Percentage Correct
		CLICK (1=click yes; 0=click no)	CLICK (1=click yes; 0=click no)	
		0	1	
Step 1	CLICK (1=click yes; 0=click no)	0	11448	100,0
		1	76	,0
Overall Percentage				99,3

a. The cut value is ,500

**Appendix D.3** – Observed and predicted values for the model without independent variables

**Classification Table<sup>a,b</sup>**

Observed		Predicted		Percentage Correct
		CLICK (1=click yes; 0=click no)	CLICK (1=click yes; 0=click no)	
		0	1	
Step 0	CLICK (1=click yes; 0=click no)	0	11448	100,0
		1	76	,0
Overall Percentage				99,3

a. Constant is included in the model.

b. The cut value is ,500

**Appendix D.4** – LR Statistic

**Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	21,695	1	<,001
	Block	21,695	1	<,001
	Model	21,695	1	<,001

**Appendix D.5 – Pseudo R-squares**

**Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	893,064 <sup>a</sup>	,002	,025

a. Estimation terminated at iteration number 8 because parameter estimates changed by less than ,001.

**Appendix E: SPSS Outputs for B2B segment – Click Through Rate**

**Appendix E.1 – Differences in means across conditions**

**Report**

CTR

CONDITION	Mean	N	Std. Deviation
AI	,00999138674	5805	,01751712817
NO AI	,00314740339	5719	,00381265511
Total	,00659493232	11524	,01317119286

**Appendix E.2 – One-Way ANOVA**

**ANOVA**

CTR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,135	1	,135	834,068	<,001
Within Groups	1,864	11522	,000		
Total	1,999	11523			



**Appendix E.3 – Eta squared**

**ANOVA Effect Sizes<sup>a</sup>**

		Point Estimate	95% Confidence Interval	
			Lower	Upper
CTR	Eta-squared	,068	,059	,076
	Epsilon-squared	,067	,059	,076
	Omega-squared Fixed-effect	,067	,059	,076
	Omega-squared Random-effect	,067	,059	,076

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

**Appendix F: SPSS Outputs for B2C segment – Clicks**

**Appendix F.1 – Logistic regression: effect of AI condition on advertisings Clicks**

**Variables in the Equation**

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	AI (1=yes, 0=no)	-3,283	,077	1800,426	1	,000	,038
	Constant	-4,937	,042	13940,342	1	,000	,007

a. Variable(s) entered on step 1: AI (1=yes, 0=no).

**Appendix F.2 – Observed and predicted values for the model with independent variables**

**Classification Table<sup>a</sup>**

Observed		Predicted		Percentage Correct
		Click 0	Click 1	
Step 1	Click 0	957191	0	100,0
	Click 1	812	0	,0
Overall Percentage				99,9

a. The cut value is ,500

**Appendix F.3 – Observed and predicted values for the model without independent variables**

**Classification Table<sup>a,b</sup>**

Observed		Predicted		Percentage Correct
		Click 0	Click 1	
Step 0	Click 0	957191	0	100,0
	Click 1	812	0	,0
Overall Percentage				99,9

a. Constant is included in the model.

b. The cut value is ,500

**Appendix F.4 – LR Statistic**

**Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	1914,236	1	,000
	Block	1914,236	1	,000
	Model	1914,236	1	,000

**Appendix F.5 – Pseudo R-squares**

**Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	11195,799 <sup>a</sup>	,002	,147

a. Estimation terminated at iteration number 11 because parameter estimates changed by less than ,001.

## Appendix G: SPSS Outputs for B2C segment – Click Through Rate

### Appendix G.1 – Differences in means across conditions

#### Report

CTR

AI (1=yes, 0=no)	Mean	N	Std. Deviation
0	,07100	80856	,000000
1	,02700	877147	,000000
Total	,03071	958003	,012231

### Appendix G.2 – One-Way ANOVA

#### ANOVA

CTR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	143,325	1	143,325	4,898E+27	,000
Within Groups	,000	958001	,000		
Total	143,325	958002			

### Appendix G.3 – Eta squared

#### ANOVA Effect Sizes<sup>a</sup>

		Point Estimate	95% Confidence Interval	
			Lower	Upper
CTR	Eta-squared	1,000	.	.
	Epsilon-squared	1,000	.	.
	Omega-squared Fixed-effect	1,000	.	.
	Omega-squared Random-effect	1,000	.	.

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

#### Appendix G.4 – Frequency table

##### Frequency Table

		CTR			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,027	877147	91,6	91,6	91,6
	,071	80856	8,4	8,4	100,0
	Total	958003	100,0	100,0	

#### Appendix G.5 – Descriptives table

##### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CTR	958003	,027	,071	,03071	,012231
AI (1=yes, 0=no)	958003	0	1	,92	,278
Valid N (listwise)	958003				