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Analyzing the Impact of COVID-19 on Business Performance through the Case-Study of a Green Italian Start-Up

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Abstract: The COVID-19 pandemic, which began in December 2019 and spread globally, has triggered numerous studies examining its profound effects on societies and economies. This paper investigates the impact of the pandemic crisis on people's environmental awareness and sustainable consumption in the Italian market and tests several hypotheses related to this impact on the performance of green start-ups. Hypothesis 1 suggests that COVID-19 has increased environmental awareness, positively influencing green consumption behavior. Hypothesis 1bis focuses on businesses selling green products, proposing that they benefited from COVID-19. Hypothesis 2 posits that COVID-19 had a positive impact on online sales, while Hypothesis 3 suggests it damaged businesses based on a product-oriented PSS (Product-Service Systems). The study centers around a mixed method: a and an in-depth interview (qualitative research) with one of VAIA's founders-a green Italian start-up taken as a case study for this research and quantitative research on the Italian consumers, carried out through an internet-based questionnaire with 706 participants Findings reveal significant shifts in environmental awareness and sustainable consumption patterns due to the pandemic: participants reported heightened awareness of environmental issues and an increased inclination toward sustainable consumption, influenced by reflections on human health-environment interdependence, lockdown-induced lifestyle changes, and a collective sense of responsibility. The study demonstrates as well that a green start-up can experience positive outcomes during the pandemic: this elicits insights that can inform businesses, policymakers, and practitioners in the sustainability sector, enabling them to adapt and capitalize on emerging consumer preferences.

Keywords: COVID-19; sustainable financing; consumption; environmental awareness; start-up



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1. Introduction

The COVID-19 pandemic has unleashed a global crisis, profoundly impacting lives and economies worldwide [1]. As societies grapple with the aftermath of this unprecedented event, policymakers are increasingly highlighting the urgency of transitioning to new economic and social development models that prioritize both green and digital transitions [2]. This paradigm shift reflects the growing recognition of environmental sustainability's critical role in shaping the political and economic landscape, which has grown in both companies and consumers [3]. Consequently, comprehending the pandemic's repercussions on achieving the 2030 Agenda for Sustainable Development has become imperative for practitioners, academics, and society as a whole [1].

The outbreak of the pandemic in 2020, unfortunately, led to a rise in poverty rates for the first time in two decades, disproportionately affecting vulnerable economies and posing challenges to achieving the first Sustainable Development Goal (SDG) of eradicating poverty [1]. Concurrently, environmental concerns continue to persist, with greenhouse gas emissions on the rise and biodiversity and ecosystems facing deterioration, hindering

progress towards SDG 13 and 15 [2]. The 2021 UN Report underlines the pandemic's reflective nature, laying bare fundamental issues plaguing our societies, such as weak healthcare systems, inequalities, and environmental degradation. Nevertheless, the crisis has also unveiled the capacity of governments and institutions to innovate swiftly and find sustainable solutions, exemplified by the rapid development of vaccines and the adoption of environmentally friendly production and consumption models.

This global context has transformed consumer behavior, with environmental issues and sustainability gaining increasing prominence in purchasing decisions. Consumers now consider not only the price-to-quality ratio but also the sustainability of products and their production processes. This "green revolution" emerged in Europe, driven by the identification of environmentally toxic products, prompting a quest for sustainable alternatives to promote greener consumption [4,5].

In this landscape, businesses face compelling pressure to improve their environmental performance in order to meet the new consumers' green preferences and thus secure their financing: on the one hand, they must adhere to evolving policies and leverage opportunities presented by policymakers, while on the other hand, they are allowed by sustainable practices to meet the evolving expectations of environmentally conscious consumers [2]. To remain competitive and navigate pressures from NGOs, governments, and environmentalists, companies find it imperative to adopt labels like "Sustainable", "Environmentally friendly", and "Green" while embracing sustainable and socially responsible attitudes [4,5]. For instance, some studies highlight the crucial role of SMEs and start-ups in developing a competitive advantage to ensure sustainability in the context of the COVID-19 pandemic [6], especially in the case of green-oriented start-ups [7].

Amidst this backdrop, our study aims to explore the impact of the COVID-19 pandemic on environmental awareness and consumers' purchasing habits, which has a fallout on the financing of companies, in particular green ones. Our focus is on Italian green start-ups, which should meet the demand for sustainable consumption. To achieve this objective, our research has considered a case study: the VAIA green company, an Italian start-up exemplifying sustainability, which allowed the authors to address specific research gaps and objectives.

Research Gaps: while previous studies have examined various aspects of the COVID-19 pandemic's impact on consumer behavior and businesses, there remains a notable gap in understanding how this crisis has specifically influenced environmental awareness and green consumption patterns. Moreover, limited research has investigated the specific dynamics of green start-ups' financing amidst the pandemic, particularly within the Italian context.

Motives of the Study: our study is motivated by the need to contribute to the existing knowledge on the pandemic's implications for green start-up financing, consequently to a change in consumers' sustainable levels of consumption. By focusing on the Italian market, we aim to provide insights that can be applicable to other regions facing similar challenges. Additionally, we seek to shed light on the adaptability of businesses during crises and how they can capitalize on sustainable practices to meet consumer demands and regulatory changes.

Objectives of the Study: the primary objectives of our research, in order to reach the research aim, are twofold:

- To examine the impact of the COVID-19 pandemic on environmental awareness and consumers' green purchasing habits in the Italian market through quantitative research.
- To investigate the financing dynamics and challenges faced by green start-ups during the pandemic and the strategies they adopt to navigate through these uncertainties through qualitative research on the case study.

By reviewing the existing literature on the impact of COVID-19 on sustainable consumption, the service industry, and e-commerce and focusing on studies and secondary data related to green consumption in Italy, we endeavor to offer comprehensive insights into the complexities and opportunities arising from this unprecedented crisis. More-

over, through the case study of VAIA, we aim to provide practical examples of innovative strategies and sustainable solutions amid and after the pandemic.

Overall, this study sheds light on the implications of the COVID-19 pandemic for green start-ups and provides a comprehensive understanding of how the crisis has influenced environmental awareness and consumer behavior in the Italian market. By examining these dynamics, our research contributes to the broader discourse on financing for green start-ups and encourages further exploration of this vital area.

2. Literature Review and Hypotheses Development

The present research builds upon four main hypotheses that are developed in the following section and tested through the experience of the case study. The figure below (Figure 1) encompasses all our hypotheses and ties them with the financing of green start-ups, which have been impacted by the pandemic.

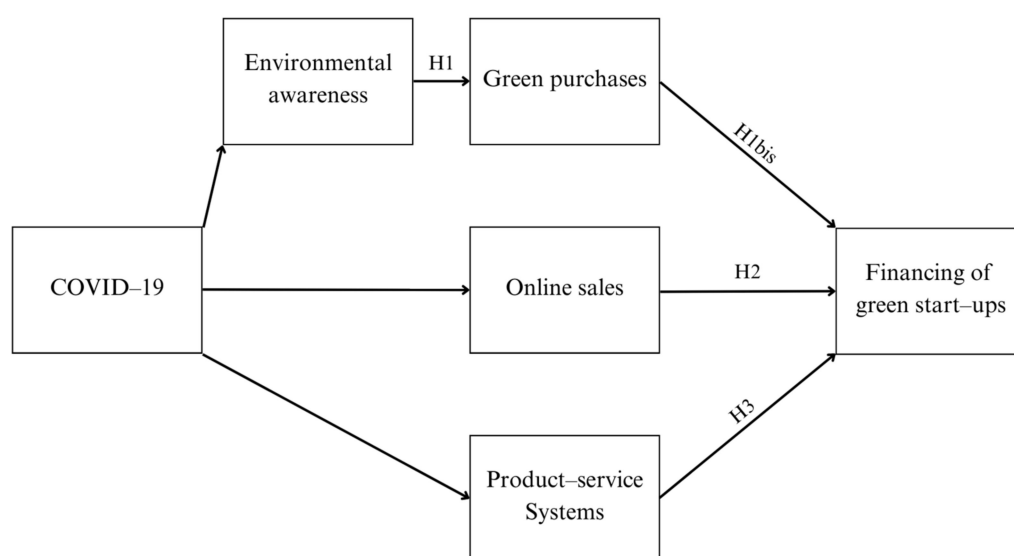


Figure 1. Theoretical Framework.

2.1. The Impact of the COVID-19 Pandemic on Sustainable Consumption

Consumers' buying decision process is influenced by many factors. Among the influencers, environmental uncertainty plays a relevant role. As already pointed out, the Coronavirus disease caused not only a health crisis but also heavily affected societies. Indeed, it has been the subject of many studies about consumer behavior during a period of high environmental uncertainty, as pandemic crises are one of the most relevant examples of it. During a pandemic, public confidence in companies and their vision drastically decreased, and a sudden shift towards green consumption has been generally registered [8].

In 2020, Cohen [9] defined the COVID-19 pandemic as the starting point of a sustainable consumption transition. Overall, the health crisis has affected people's environmental awareness, sustainable consumption, and social actions, as shown by the research conducted by Severo, De Guimaraes, and Dellarmelin in 2021 [10] on the Brazilian and Portuguese markets. In 2020, Jribi et al. [11] acknowledged the positive impact that the pandemic has had on Tunisian consumers' awareness, attitudes, and behavior in terms of food waste. The researchers, though, hypothesize the changes to be due to the economic slowdown caused by the situation rather than to environmental concerns. At the same time, other studies consider quarantine as the cause of an increase in inorganic waste; the reason is the growth of consumers' demand for home delivery, where food is shipped packaged. Overall, though, Severo, De Guimaraes, and Dellarmelin's research results suggest an increase in consumption of sustainable and eco-friendly products in Brazil and Portugal during the pandemic, which led many businesses to adopt greener strategies [10]. In this scenario, it is possible to develop the following hypotheses:

Hypothesis 1. *COVID-19 has led to increased environmental awareness, which positively impacted green consumption behavior.*

Hypothesis 1bis. *Businesses selling green products benefited from COVID-19.*

Sticking with the theme of green consumption patterns: while focusing on the market of interest of this paper, secondary data on the Italian market during the pandemic showed the crucial impact that COVID-19 has had on the country's economy and everyday life. Overall, the Italian scenario witnessed the expansion of green attitudes since the influence of the COVID-19 outbreak on buying behavior in Italy. In fact, according to recent research [12], +40% of the respondents affirmed being willing to become more mindful of where they would spend their money; 25% said they would start researching brands and products before choosing which one to buy; the remaining 30%, instead, intended to change to less expensive products to save money.

Another survey [13], conducted specifically on green consumption, shows Italian consumers' willingness to spend on sustainable products, higher than the one they had before the start of the pandemic. Here, most respondents (27%) indicated that if a company offered sustainable and eco-friendly products, this would motivate them to invest more money in that company.

Another study [14] analyzed worldwide the share of consumers who plan to avoid buying new products specifically for reasons related to sustainability and environmental protection in 2022: in its ranking, Italian consumers are the fourth in the world to express preferences for environmentally sustainable products.

Moreover, a recent survey [15] (focused on the purchasers of casual lifestyle brands) suggests that consumers of selected countries, in 2022, have been more concerned about sustainability compared to the year before. In the related ranking, China is at the top, with 80% of respondents affirming to care more about the sustainability of products in 2022 than in 2021. Italy follows right after China, with 77% of participants making this claim.

Italy, therefore, represents a good scenario for an investigation aimed at understanding what are the reasons that led people to move towards sustainable consumption after the pandemic and the fallout of this phenomenon on the financing of green companies.

For this purpose, an Italian green start-up has been chosen as the case study of this research: this allowed a qualitative interview with the company's founder useful to triangulate the secondary data and the data of the quantitative research (a questionnaire conducted on a sample of the Italian population).

2.2. The Fallout of Green Consumption on Sustainable Companies

Especially during the first period of spread, COVID-19 has been characterized by a high level of contagiousness. The population could get the disease by interacting with infected people (e.g., through coughs or sneezes) or simply by touching surfaces that had been touched and thus infected by them. This has deeply affected the financing and earnings dynamics of businesses. On the one hand, the pandemic has led to a greater gap between online and offline businesses, forcing the latter, particularly those with a business based on interpersonal interactions, to rethink and redefine their sales strategy.

Generally speaking, due to the pandemic and the limitation of movements and transport consequent to the lockdown periods, e-commerce registered an enormous increase in sales. "E-commerce" refers to the purchase of products and services through online platforms, and, during the latest years, it has brought new and relevant opportunities for businesses of any size and in many countries [16]. For instance, in her research, Kunchaparthi [16] shows how India, during the pandemic, registered an increase in the number of people shopping online for the first time, the so-called FTUs (first-time e-commerce users). An example provided by the research is the message published by Big Basket—a big player in the Indian market of online grocery shopping—in March 2020: it informed about an

unprecedented rise in demand, which forced the business to restrict access to its website to existing customers only to manage to respond to it [16].

Overall, many studies have investigated the impact of e-commerce adoption on businesses. For example, research focused on SMEs confirmed the important role played by e-commerce and digital technology in general for their success. In particular, Dirga, Said, Siti, et al.'s study of 2021 [17] analyzed the impact of COVID-19 on the income of SMEs that are e-commerce adopters compared to those that are not. The results suggest that the so-called “non-adopters” registered a higher and significant decline in income compared to “adopters”, which was ultimately damaged by the restrictive measures adopted by governments towards social activities. Thus, the necessity of digitalization and e-commerce adoption, especially during a crisis such as COVID-19, becomes evident.

The authors of this research decided to contribute to the limited number of studies on the topic, particularly within the Italian context. In light of the above, they hypothesized that the pandemic has had a positive effect on online sales also in the Italian market.

Hypothesis 2. *COVID-19 had a positive impact on online sales.*

However, as already introduced, the lockdown affected businesses in a varied way. If, on the one hand, it seems to have positively affected online sales, on the other hand, it has had negative effects on all those businesses whose strategy gives a significant role in social interaction. In this context, VAIA is an example of how the lockdown and social distancing have impacted business since a relevant part of its strategy is based on consumer involvement through events organization, other than the sale of tangible products alone. In fact, VAIA's business model can be defined as a product-oriented PSS (Product-Service System) since it combines the delivery of products and services altogether. Moreover, PSS has been under the spotlight due to its link to sustainability: indeed, businesses adopting this strategy can respond to consumers' needs while maintaining a lower impact on the environment. In 2015, Park and Yoon [18] affirmed that PSS “appears to be an optimal strategic alternative for sustainable development of firms”. In other words, the value proposition of businesses based on PSS not only provides higher profits but can respond at the same time to the new needs of consumers by focusing on sustainability by reducing resource consumption and environmental impact [18]. According to Tukker and Tischner [19], there are three typologies of PSS:

- Product-oriented PSS: refers to the addition of a service to an already existing product system.
- Use-oriented PSS: it refers to services such as product renting and sharing.
- Result-oriented PSS: refers to services that are “need-oriented” and can fulfill the product's function completely [19].

De Medeiros, Marcon, Ribeiro et al.'s study [20] focused on the effects of COVID-19 on the second typology. Their results showed that the pandemic negatively affected consumers' feelings and evaluations towards user-oriented PSS (e.g., car sharing). For example, rather than trust, relief, optimism, and enthusiasm, due to the pandemic, consumers have been influenced by fear, anxiety, and stress, mainly due to sanitary issues, e.g., hygiene. On this basis, we hypothesize that product-oriented services have been affected negatively by the pandemic disease.

Hypothesis 3. *COVID-19 damaged businesses based on a product-oriented PSS.*

3. Case Study: VAIA and Its 4Ps

The idea behind the start-up VAIA was born in 2018. It is named after the Vaia storm, an unprecedented catastrophe that should be taken as an example of all possible results of climate change, showing the importance of preventing such events through more environmentally conscious behavior [21].

Here comes the VAIA project. In September 2019, one year after the storm, three young businessmen officially founded the start-up VAIA. They decided to take action and convey a message of rebirth: retrieving the wood from the destroyed trees—which may be considered as “waste” by many—they conceived the VAIA Cube, their main product. It is a useful yet beautiful object which combines design, sustainability, and functionality [22].

VAIA’s mission is to restore beauty from destruction, as conveys the decision to use the name of the storm. Their main goal is to give back to nature what it has lost and what human beings have been taking for centuries. Their mission is to create a sustainable business that can be applied to other situations and places by always keeping at the center the importance of territories, local communities, and people, that is, being environmentally, economically, and socially sustainable. In other terms, VAIA’s model is a project with a significant positive impact on the environment [23].

3.1. VAIA’s Product Management

The idea was born from one of the founders, who had received an amplifier entirely made of acacia and walnut wood as a gift from his grandfather. After the Vaia storm, his colleagues decided to use the wood from the destroyed trees to create a design object with the same shape. In this way, they could exploit the functional amplification of resonance fir trees and convey, at the same time, a metaphorical meaning of “amplifying a message of rebirth”.

3.1.1. The Importance of Wood in the Supply Chain

In one of the articles published on the start-up’s blog, VAIA’s founders stress the strategic relevance of wood as a raw material, both for present and future generations. According to them, using wood as a resource could help local supply chains, which are a reserve of globally well-known Italian know-how and expertise. Moreover, it could play a crucial role in the circular transformation and avoid the extraction of non-renewable materials.

Compared to the European average of 33% of woodland, Italy registers a higher value of 38% [24]. However, the Italian industry makes use of imported raw or semi-finished wood (at least 80% of it), which causes damage to tropical forests. Moreover, rather than focusing on the primary processing sector, Italian craftsmanship registers in its trade balance a higher number of companies working in secondary processing. On the contrary, VAIA wants to stress how its products go through all the stages of the wood supply chain, starting from the sawmill to the last steps of the creation of the final product. By improving the management of our forests and stopping imports of raw timber, the Made in Italy wood industry would grow together with the local supply chains of first processing. Another important aspect to take into consideration is how forests capture carbon dioxide. Thus they are a perfect tool to use to mitigate climate change. On average, Italian forests capture 46 million tonnes of carbon dioxide each year [24]. Thus, we can see how planting trees supports UN SDGs, such as Goal 13, which encourages fighting the impact of climate change, and Goal 15, which instead focuses on the protection of the ecosystem and the promotion of sustainable management of forests, fighting against desertification and biodiversity loss. Moreover, the EU Biodiversity Strategy 2030 includes 200 million seedlings to be planted in Italy.

To conclude, we can confirm the strategic importance of wood as one of the most sustainable materials we dispose of worldwide, whose life cycle is further extended thanks to the wood recycling industry. In Italy, an important stakeholder in this industry is Rilegno, the national consortium born in 1997 after the Legislative Decree No. 22 of the same year, which encouraged the collection, recovery, recycling, and reuse of raw materials. In 2021, almost 2 million tonnes of wood were recovered and recycled thanks to the consortium, compensating for the raw materials shortage [24,25].

In this sense, what VAIA tries to stress is how wood is a source of opportunities for circular transition. For example, innovation has led to processes that are able to transform

wood extracts into insulating foams, aerogels, bio-paint, and bio-plastics, and there are many fields yet to be explored.

3.1.2. The VAIA Cube: A Practical Example

To show from a more practical point of view the challenges and difficulties that could be faced in the wood industry, the present section explains how the VAIA Cube (Figure 2) is created [26].



Figure 2. The VAIA Cube. Source: VAIA, 2019 [26].

The processing journey of this phone amplifier starts with public authorities employing loggers to take care of the cleaning and logging work. In the case of Vaia, trees fell unevenly due to the storm; therefore, they could be unsafe and make the job riskier, which could already be a factor discouraging the trunks' recovery. Another reason is related to the sudden growth in supply in the wood market, which caused a reduction in prices. The Autonomous Province of Trento, thus, decided to set up incentives for their recovery. After that, the lumber batches are sold to sawmills, where VAIA buys the wood that will be used to make the VAIA Cube. Both the sawmills and the forests from which the loggers recover the logs are PEFC-certified [27].

The PEFC is a global non-profit and non-governmental organization whose aim is to promote the sustainable management of forests by using an independent third-party certification. The third-party ensures that all national forest certification systems respect international requirements before approving them. Currently, there are a total of 47 national systems approved [28]. In the case of the Trentino region, it certifies that the trees used in the supply chains have been recovered from the destruction caused by the Vaia storm.

After the selection of the wood, the Cube takes its final shape thanks to the work of some craftsmen who oversee many delicate steps such as the marking, the slots for the smartphone, and the fracture made through the axe blow [27].

For what concerns the waste produced during the manufacturing process, VAIA tries to avoid it as much as possible. Indeed, the chips are used to create natural fuel pellets. In line with this thought, VAIA decided to make full use of "waste" and also recover the wood affected by atmospheric agents. As a result, the VAIA Cube Imperfetto was created [27].

- The VAIA Cube Imperfetto

The idea behind this version of the phone amplifier (Figure 3) was born from the desire to rescue the logs that fell in the most inaccessible areas, too, which are characterized

by imperfections due to prolonged exposure to the external environment and weather. In this way, not only these inaccessible areas are restored, but the risks of bark beetle proliferation are reduced. Moreover, the VAIA Cube Imperfetto is strictly connected with a project of restoration of the Violin's Forest of Paneveggio (TN), as it supports the Trentino Tree Agreement whose objectives include the planting of 500,000 seedlings to revive the Paneveggio forest, which has been attracting violin makers since the 1600s [29].



Figure 3. VAIA Cube Imperfetto. Source: VAIA, 2021 [29].

The message of the VAIA Cube Imperfetto is to recognize our imperfections and defects and accept them since they shape our human personality [29].

- The VAIA Cube JOY

The VAIA Cube JOY is a colored version of the VAIA Cube. In this case, the aim is to give voice to people's emotions through colors: joy, freshness, freedom, and so on.

In other words, the VAIA Cube, in all its versions, wants to amplify the way we feel and see things other than the senses [23].

The Packaging

VAIA's product packaging is minimal (Figure 4). It has been studied to make it part of the experience when using the product. The outermost layer of the packaging is made of wood-like material—i.e., it resembles the bark of trees—and no glue is used. Indeed, it opens like an origami flower.

It is entirely made of recycled paper approved by the Forest Stewardship Council (FSC). The FSC label is used for products that support sustainable forestry and work environments. FSC-certified products guarantee that no deforestation is taking place for their production; all workers are properly trained and receive fair wages; nature is protected, and local communities living in forest areas—that is, their choices and their rights—are respected [30].

Moreover, the packaging contains two biodegradable flyers: a black and a white one. The black one is made of recycled paper from algae; the white one is made of wool paper (i.e., recycled paper which also contains wool components).



Figure 4. The packaging. Source: VAIA, 2019 [26].

3.1.3. Beyond the Product: The Reforestation Project

When customers decide to buy a VAIA Cube—any of its versions—they know that part of the earnings will be used to plant new trees in the Dolomites. Today, VAIA has reached a total of 60,000 trees planted, also thanks to its collaboration with Etifor. Etifor is a spin-off of the University of Padua, which helps organizations to improve in terms of responsible management and sustainable investments for nature-based projects [31]. Moreover, Etifor has been a member of the FSC and is committed to the promotion of already-cited FSC certification as an important tool to ensure the responsible management of products and territories [31]. For example, through its collaboration with VAIA, it provides the start-up with details about which tree species are suitable for a specific soil type and advice on which one to plant, geolocates the seedling, and monitors its health status.

Thus, we could say that purchasing a VAIA Cube does not only include the product itself, but it also comprehends a service. It is an example of a product-oriented PSS. Indeed, in terms of environmental impact, every newly planted tree results in less CO₂—as the emissions are captured—and, thus, better air quality for everyone. It enables VAIA to use sustainable shipments, as the emissions caused by them are compensated by the new trees, which also help conserve the soil. Moreover, planting a tree also means responding to the already-cited Goal 15 of the Agenda 2030. In other words, planting trees fights climate change.

Another remarkable project worth mentioning is the collaboration with Glac-Up, which is related to the glaciers rather than the forest. Glac-Up was born with the idea of responding to the necessity of protecting the glaciers, which scientists expect to reduce in volume by 90% by the end of the XXI century due to climate change if the population does nothing to prevent it [32]. Thus, VAIA decided to act and protect the Earth's "thermometers" through their new product, the VAIA Focus, an amplifier that augments the smartphone's images and videos. The start-up describes the VAIA Focus as a magnifying glass that lets Vaiers observe the world with different and positive eyes and focus on what is truly important, getting rid of everything superfluous [33].

Again, the purchase of a VAIA Focus goes beyond the product itself. Indeed, it does not imply the purchase of the product alone, but it will help to prevent one square meter of the Presena glacier in the Italian Alps. Thanks to the partnership with Glac-Up, the glaciers'

surface in Passo del Tonale will be covered during summer using a geotextile sheet that reduces melting by 70% [33].

To sum up, the main features of VAIA's products are:

- (1) Craftsmanship: the products are all crafted by local artisans of the area.
- (2) Metaphorical objects: the products all have a message they want to convey, which is one of the reasons for the final purchase decision.
- (3) Uniqueness: there are no identical objects.
- (4) Circularity: they result from the transformation of something considered waste into a resource.
- (5) For what concerns the VAIA Cubes, specifically, are also characterized by musicality, as they are used to listening to music and amplifying sounds.

Moreover, since VAIA does not have a negative impact on the environment to be measured, it is not required to publish sustainability reports.

3.2. VAIA's Management of Distribution

VAIA has always been very selective when choosing its distribution channels. Indeed, what concerns online sales, the start-up only uses its own e-commerce platform as it wants direct control over the sales. It avoids any collaboration with other online distribution platforms, e.g., Amazon. However, VAIA collaborates with a limited number of offline vendors, too. The so-called VAIA ambassadors go through a selection process that establishes whether the retailers share VAIA's values of sustainability, resilience, and a sense of community. The partners are varied. There are eco-friendly hotels or artisan shops, museums and bookshops—as they are related to art and culture—and so on.

Moreover, when choosing how to select intermediaries, a firm must opt between a push or pull marketing strategy. A push strategy generally refers to those situations where the merchandiser or producer is the one that induces intermediaries to promote and sell the products. Whilst in a pull strategy, consumers are the ones to demand the merchandiser's product from intermediaries, inducing them to order it. VAIA is an example of a pull strategy, as it is generally the start-up one receiving collaboration requests, also thanks to the dedicated page on its website. It rarely makes use of a push strategy.

Overall, in 2021, VAIA's turnover was generated by the earnings made through the direct online channel by 75%, 10% thanks to VAIA Ambassadors, and 15% made through B2B sales.

3.3. Price Management: The VAIA Cube Example

Kotler and Keller [34] introduced six different pricing methods that are generally used by companies: markup pricing, target-return pricing, perceived-value pricing, value pricing, going-rate pricing, and auction-type pricing. The first method is the one used by VAIA: using the VAIA Cube as a practical example, the direct costs per unit are given by the sum of the packaging's costs, the planting of a tree, and the shipping costs, other than the creation of the Cube. The indirect costs are related to the warehouse, the offices, facility maintenance, marketing and research, and so on.

After defining all the costs, VAIA conducted a survey to understand how much people would be willing to pay for a product with the Cube's characteristics (e.g., the craftsmanship of the object, the circularity of the process, the planting of a tree). The results suggested the object's value to be €50. Then, they added the markup [34]: the final price is €54, plus the shipping costs for each order placed through the website.

VAIA's products—the VAIA Cube and all the other products—include a service other than the object itself: the tree planting or saving part of the glacier. This kind of service offered by the start-up helps it create a deeper relationship with customers, which is clear and transparent and legitimizes the products and their brand, VAIA and thus increases the perceived value. VAIA's goal was to choose a price that would be both inclusive and exclusive at the same time:

- Inclusive: the idea was to create a community that believes in what VAIA does for the environment. The final price is not democratic and accessible to everyone; however, it is affordable to as many people as possible as long as they are motivated and want to be part of the project.
- Exclusive: VAIA wanted consumers to perceive the VAIA Cube as an object with a beautiful aesthetic and design and with its own soul rather than a simple gadget. The product should be something customers are proud to purchase, as it is a reminder of the VAIA's project and all its values.

Big companies often face problems related to product price discrepancies among channels: consumers could find the same product at a different price online and offline, depending on the retailer or platform selling it. VAIA, instead, easily handles these situations since it only has offline retailers—the VAIA ambassadors—to whom it always strongly recommends the same price (€54), as the start-up wants to manage pricing with transparency. In Germany—a market where brand awareness has been increasing in the latest years—the VAIA Cube costs the same; however, the final price is higher due to the higher shipping costs rather than a different country penetration strategy.

3.4. Promotion Management: The Sense of Community

Communication has always been fundamental for VAIA. It uses various channels to accompany customers through the marketing funnel, i.e., attracting and retaining customers while they go through each step of the purchase decision process. The aim is to keep the percentage of those that progress and move through the funnel, i.e., the conversion rate, high [34].

Since its foundation, VAIA has always used MPR (marketing public relations), which supports not only product promotion but also image making. According to Kotler, the major tools in marketing PR are publications, events, sponsorships, news, speeches, public service activities, and identity media [34].

VAIA immediately started with PR activities, trying to exploit the media influence since, in the first launching phase of the start-up, having someone else who speaks positively about the business has a more decisive impact than having the business talk positively about itself. Thus, the first phase was completely dedicated to reaching wider and various audiences by trying to connect with several newspapers and magazines, e.g., design and green magazines, to increase brand awareness. An important milestone was reached in 2020 when they were mentioned in *Forbes Italia* magazine among the 100 most brilliant Italian entrepreneurs under the age of 30.

Social media plays a crucial role, too. They have been essential to increasing brand awareness, creating curiosity towards VAIA, and creating a desire to be part of a project with a positive goal and a significant environmental impact. They are used not only for advertising but also to create a stronger community. Indeed, purchases may not be made immediately, as the author has discussed in Section 3: there is a phase of information search where social media, articles, and events are all very influential. In particular, VAIA's community is characterized by a continuous exchange: it is a community that writes about its own experiences and interacts a lot. Since the post-purchase phase is characterized by interactions and comments, too, VAIA decided to directly manage it. Subtracting the overlaps between the various social media, 100,000 people are part of VAIA's community. 25,000 are newsletter subscribers, 74,000 are followers on Facebook, and 27,000 are on Instagram. Plus, YouTube and LinkedIn have a total of 4000 followers.

As the author has already introduced, VAIA's main aim is to create a strong relationship between the brand and its community. In this way, customers become the first and principal ambassadors of the brand and the project. Engagement is pivotal. Vaiers often take part in various activities. In this regard, another MPR tool that VAIA uses frequently is the organization of events both offline and online. Some examples are:

- Foresta degli Innovatori (translation: Forest of Innovators):

On 8 October 2022, thanks to the support of VAIA's community and the collaboration of the Folgaria municipality and the APT Alpe Cimbra, the start-up organized an event on the Alpe Cimbra forests in Passo Coe (Folgaria, TN). Two hundred and sixty people gathered there to give new life to a forest that, in 2018, had been destroyed by the Vaia storm. The day was completely dedicated to the innovative energy of all those under-35s committed to creating value for society through research, art, sport, and culture. The founder of Yome was one of the special guests. She organized a morning yoga session in line with her platform dedicated to health and wellness. Among the other 'innovators' that spoke during the day, some examples are an activist from the South of Italy, who highlighted during her speech the difficulty and disparities faced by women in the labor market; the CEO of Walliance, a real estate crowdfunding platform; a psychologist who talked about the important topic of mental health; and so on. Then, in the afternoon, the participants planted 1000 seedlings. Each tree was dedicated to all those people that are trying to shape a better future. The Forest of Innovators is geolocated, and its development can be monitored by everyone. The idea was to create engagement and, at the same time, a place that would inspire people to put themselves on the line to shape the future they want [35].

- Back to school:

In September 2021, the three founders visited their universities as young entrepreneurs rather than students. It was the first of a long series of visits and collaborations. They were able to present the story of VAIA and discuss topics related to doing business. They conveyed a positive message and tried to make students aware of all the potential opportunities that lie ahead of them [36].

- During other events attended by VAIA, such as the Fuorisalone 2021, the start-up decided to exploit new technologies to let people experience the disaster of 2018 [37]. Today, front-end technologies such as augmented and virtual reality are able to make marketing campaigns and product exploration more engaging and captivating. In the era of Marketing 5.0, technologies have changed how companies communicate with their customers: constant engagement is indeed fundamental throughout the customer journey if businesses want them to feel satisfied [38]. Thanks to some collaborators, it was possible for VAIA to use virtual reality (VR) to create a 3D experience that allowed even people living in big cities to immerse themselves in an environmental disaster of such magnitude. Through the Oculus Quest, people could directly face and witness what they had only seen in TV programs or read in newspapers [37].

Overall, the core benefits of VAIA's products are of various kinds, such as:

- The need to have a unique object, with a story, at home;
- The need to make outstanding presents;
- The need to contribute to a social and environmental cause;
- The need to be the protagonist of a change;
- The need to be part of a community that supports your ideas and values.

Moreover, thanks to its green supply chain and all the services provided to final consumers, the start-up is able to respond to today's increasing demand for products with a low environmental impact. For this reason, VAIA was chosen by the author for further research.

4. Research Methodology

This research employs a mixed method base on both quantitative and qualitative research:

- Quantitative research has been used to test the hypotheses related to the shift of consumers towards green consumption behavior and its fallout on the financing of green companies. Therefore, a questionnaire has been used to examine whether the higher level of environmental awareness prompted by COVID-19 has caused changes in green consumption behavior.

- Qualitative research on the VAIA case study has been used to test the hypotheses related to the green financing of start-ups during the pandemic crisis and observe the strategies that these can adopt to face the related challenges.

4.1. Quantitative Analysis: Sample and Data Collection

For what concerns quantitative research, the authors administered an Internet-based questionnaire to respondents via Google to gather data. It was built using the reference literature sources that quantitatively analyzed sustainable consumption behavior [5,39–41]. The questionnaire (reported in Appendix A) presents 39 questions: 9 related to general green purchase behavior, 9 focused on the existence of a sustainable attitude-behavior gap, and 4 about the green marketing mix and potential barriers to green consumption. Moreover, it contains 3 questions regarding COVID-19, 8 dedicated to VAIA and its consumers, and, at last, 6 demographic questions used to define the profile of respondents.

The possible responses to the questions were mainly based on Rating and Likert scales—and sometimes also close-ended questions—with points scaling from 1 (no importance at all/Strongly disagree) to 7 (Top importance/Strongly agree).

Before administering it, the questionnaire was tested and checked by VAIA marketing and data analysis experts to make the questions' wording and format clearer for the final respondents. Then, non-probability sampling methods, such as convenience sampling and snowball sampling, were used for this study. For example, the distribution process exploited social media platforms such as Instagram by sending and publishing the Google form link on them.

Then, in order to evaluate the survey elements, the authors used Cronbach's alpha as a measure of internal consistency or reliability of the set of items of the questionnaire. The measure ranges from 0 to 1, where higher values indicate greater internal consistency. In general, a higher Cronbach's alpha value is considered better, as it suggests that the items in the scale are more strongly related and consistently measure the same underlying construct. Typically, a Cronbach's alpha of 0.70 or higher is considered acceptable for most research or practical purposes. It suggests a moderate level of internal consistency [42,43].

In this survey, Cronbach's alpha value is 0.73, indicating a high level of internal consistency—even though the appropriate value for Cronbach's alpha depends on the specific context and the type of data being analyzed.

Cronbach's alpha provides a useful measure of internal consistency, but its interpretation should be performed in conjunction with other validation procedures, factor analysis, and consideration of the specific research or practical context [44].

The questionnaire was administered in Italian from December 2022 to January 2023 to a total of 706 people. However, 17 participants were excluded: 11 did not qualify for participation since they were not residents of Italy, which is the country of interest for this research, whilst 6 did not follow the instructions or submitted an incomplete questionnaire. Therefore, a total of 689 Italian consumers were analyzed.

Here follows Table 1, which contains the 689 respondents' sociodemographic profiles:

As can be seen from Table 1, the total sample of 689 respondents includes a higher percentage of women (64.44%; f444) and people aged between 55 and 64 (26.71%; f184). The regions with the highest number of participants are Lombardia (20.03%; f138), Lazio (17.85%; f123), and Veneto (15.09%; f104). For what concerns the occupation, a relevant number of students or working students (10.60%; f73) and non-workers (4.79%; f33) participated in the questionnaire. However, most participants are workers (69.96%; f482) or retired people (14.66%; f101). Furthermore, the highest number of them earn a monthly salary of either 1500–2499 (37.59%; f259) or 800–1499 (27.29%; f188). The general level of education, instead, is medium-high, with 37.74% of participants having a high school diploma, 29.03% a master's degree, and 14.51% a bachelor's degree.

Table 1. Respondents' profile.

Variable	Values	Frequency (f)	Percent (%)
Gender	Female	444	64.44
	Male	236	34.25
	Non-Binary	3	0.44
	Do not specify	6	0.87
Age	<18	1	0.15
	18–24	37	5.37
	25–34	109	15.82
	35–44	107	15.53
	45–54	160	23.22
	55–64	184	26.71
	65–74	80	11.61
	>75	11	1.60
Level of education	Primary school certificate	3	0.44
	Secondary school certificate	22	3.19
	High school diploma	260	37.74
	Bachelor's degree	100	14.51
	Master's degree	200	29.03
	Doctorate	25	3.63
Occupation	Student	36	5.22
	Working student	37	5.37
	Non-worker	33	4.79
	Worker	482	69.96
	Retired	101	14.66
Monthly salary (€)	<400	70	10.16
	400–799	45	6.53
	800–1499	188	27.29
	1500–2499	259	37.59
	2500–3500	74	10.74
	>3500	53	7.69
Region of origin	Abruzzo	6	0.9
	Basilicata	3	0.4
	Calabria	6	0.9
	Campania	13	1.9
	Emilia Romagna	73	10.6
	Friuli Venezia Giulia	30	4.4
	Lazio	123	17.9
	Liguria	17	2.5
	Lombardia	138	20
	Marche	9	1.3
	Molise	1	0.1
	Piemonte	55	8
	Puglia	12	1.7
	Sardegna	10	1.5
	Sicilia	15	2.2
	Toscana	35	5.1
	Trentino Alto Adige	31	4.5
	Umbria	7	1
	Valle d'Aosta	1	0.1
	Veneto	104	15.1

4.2. Qualitative Analysis: The Interview

During the phase dedicated to the qualitative analysis, the authors interviewed one of VAIA's founders to gather data regarding the effects of COVID-19 on their strategy concerning the 4Ps (product, price, placement, and promotion) as well as on changes in income and sales.

The aim of the qualitative research was to analyze a case study directly from the Italian market and see whether it confirmed or rejected the hypotheses developed by the authors during the literature review.

5. Results

5.1. Quantitative Analysis: The Questionnaire

The acquired data was examined using the R program. Kendall's τ coefficient was chosen to calculate potential correlations and perform the statistical hypothesis tests necessary to confirm or reject the authors' hypotheses since the data analyzed is categorical, ordinal data. Kendall's test is useful to determine the strength of the association between the two variables. The Kendall coefficient of correlation can take values from +1 (a perfect positive association) and −1 (a perfect negative association). When it is equal to 0, there is no association between the variables [45].

As already mentioned, this paper is part of a broader research whose purpose was to analyze green consumption patterns and influencers in the Italian sustainable market. The authors will focus on the questionnaire part dedicated to the COVID-19 pandemic. According to the results, it influenced almost 50% of respondents' general consumption habits. The authors decided to further observe the influence of COVID-19 on green consumption and environmental concern by asking the questionnaire's respondents to answer the following Likert scale questions ("Please express your level of agreement or disagreement with the following statements, considering: 1 = Strongly disagree | 7 = Strongly agree"): (Q24) "The pandemic made me buy more eco-friendly products".

(Q25) "The pandemic made me realize the importance of the environment and its resources".

The results are expected to show a positive impact of COVID-19 on green consumption behavior as a consequence of increased environmental awareness.

Tables 2 and 3 below show how a significant part of respondents, 37.80% (f251), remained neutral in relation to Q24 (Chart 8), choosing an agreement score of 4 (neutral) or 5 (somewhat agree) as their answer. Also, most respondents either remained neutral in response to question Q25 (Chart 9), choosing 4 or 5 as their answers (32.53%; f216), or strongly agreed (7) with it (17.62%; f117).

Table 2. Results of Q24—"The pandemic made me buy more eco-friendly products".

Variable	Values	Frequency (f)	Percent (%)
Level of agreement	1	94	14.2
	2	98	14.8
	3	90	13.6
	4	134	20.2
	5	117	17.6
	6	74	11.1
	7	57	8.6

Table 3. Results of 25—"The pandemic made me realize the importance of the environment and its resources".

Variable	Values	Frequency (f)	Percent (%)
Level of agreement	1	85	12.8
	2	73	11
	3	78	11.7
	4	109	16.4
	5	107	16.1
	6	95	14.3
	7	117	17.6

However, as H1 aims to prove whether COVID-19 has had a positive impact on post-pandemic green consumption behavior, the author decided to observe whether the resulting increase in sensitivity and awareness towards environmental issues due to a crisis of such caliber could influence purchasing habits and whether, in particular, it could lead to a growth in the purchase of environmentally friendly products. For this purpose, the author analyzed the correlation between the responses to Q24 and Q25 by calculating the Kendall correlation coefficient.

The result showed a positive correlation of 0.6888807, with a p -value equal to 0.0000000000000022, thus, significant at the 0.1% level, conventionally indicated by three asterisks (e.g., ***) in statistical terms, as shown in Table 4. Hence, according to the Kendall test, the results are statistically significant at a confidence level of 99.9% ($p < 0.001$). Therefore, H1 is confirmed.

Table 4. Hypothesis test result.

Hypothesis	Path	τ Coefficient	p Value	Result
H1	COVID-19 $\rightarrow$ Green consumption behavior	0.6888807	2.2×10^{-16} ***	Confirmed

5.2. Qualitative Analysis: The Interview Results

As already anticipated, the authors interviewed one of the start-up founders. Part of the data collected during this research phase has already been introduced in Section 4.1. to introduce VAIA's 4Ps strategy. Overall, the start-up seems to be an ideal example of a green company in terms of marketing strategy and production processes. The focus will now be on the impact that COVID-19 has had on a company whose core business is related to sustainability, on its strategies and sales.

During the interview, Giuseppe Addamo confirmed how VAIA's business model has changed due to COVID-19. In addition to an extreme enhancement of smart working, which resulted in a lower carbon footprint (thus supporting VAIA's way of doing business), the restrictive measures implemented by governments led to a greater need and use of external collaborators. The pandemic has forced not only VAIA but also other companies to rethink their business model and priorities. A company must be flexible to survive in the market; it needs to be able to manage things and deal with unforeseen events, such as natural disasters and new EU legislation. For instance, after the 2008 crisis, the COVID-19 pandemic was the first event to show that if a company does not manage to be chameleon-like, it will be wiped out of the market.

Generally speaking, start-ups can be more flexible than big companies, which are instead characterized by crystallized and less flexible models. For concerns VAIA and its 4Ps, for example, it had to rethink its Promotion and Place strategies due to the pandemic.

5.2.1. Place

As the authors have already introduced, VAIA started its business online and has its own e-commerce platform since it wants direct control over sales. It is a significant element in its distribution strategy: for example, in 2021, the online channel generated 75% of the earnings, while the offline channel produced 10%. The remaining 15% was made through B2B.

In particular, during COVID-19, there has been a boost in online shopping in many sectors: for example, according to the data collected from the interview, VAIA registered a substantial growth in online shopping, during the pandemic, that practically increased its income of 10 times from 2019 to 2021.

During these years in fact, Italy experienced the beginning of the pandemic in 2020, due to the first official cases of COVID-19 and the start of the lockdown in March of the same year. Since then, VAIA's growth in income, which has not slowed down regardless of the end of the lockdown period, represents a relevant demonstration of the positive impact

of the pandemic on green business and their e-commerce. These qualitative results support both Hypothesis 1 and 1 bis.

Moreover, it introduces a new era of VAIA's product promotion, since the company had to focus on its e-commerce platform, slowing down the development of offline distribution and at the same time searching for offline Ambassadors.

5.2.2. Promotion

Since the beginning, VAIA has been focusing a significant part of its strategy on consumer involvement by organizing events open to the general public. In particular, its most important events are those related to tree planting, during which the founders of the start-up, together with collaborators and Vaiers, plant the trees collected through the sale of VAIA Cubes. These events are always recorded via photos and videos and posted on the start-up's social media profiles to make all the followers unable to attend the event in person get involved, too.

However, during the lockdown and social distancing period due to COVID-19, the planting events could not be organized. Consequently, it damaged VAIA's value proposition because people wanted to receive confirmation that, after making the purchase, the trees financed through the product purchase were planted for real. Hence, the brand trust was spoiled.

As a solution, VAIA continued planting trees by financing forestry. Yet, the main problem was the lack of records since even the founders could not go there to take photos or videos and document the planting activity. In other words, forestry was paid to plant trees, but there was a lack of visual demonstration to provide to end consumers.

However, VAIA started organizing these events again as soon as the distancing period was over. Thus, they regained credibility and reliability.

The planting of trees connected to the sale of a VAIA Cube is an example of product-based PSS, which has been introduced in Section 2. Thus, the data provided by VAIA's founder supports Hypothesis 3.

It is important to stress that, in this case, the service offered by the start-up—the reforestation project—is supported by the organization of public events, as consumers need visual confirmation that the service is truly being provided.

6. Discussion

Quantitative analysis results demonstrated that COVID-19 had a significant impact on approximately 50% of the respondents' general consumption habits. The main focus of our study was to investigate the effects of COVID-19 on green consumption behavior and environmental concern. Respondents were asked to rate their agreement with statements related to the increased purchase of eco-friendly products and their heightened realization of the environment's importance during the pandemic. The correlation between these two variables was found to be positive, indicating that COVID-19 played a role in positively influencing green consumption behavior. This finding aligns with previous research [46–48], which also observed an increase in environmentally friendly practices during times of crisis. Therefore, our study supports the existing body of literature in demonstrating that the pandemic heightened environmental awareness and, consequently, green consumption behavior.

In addition to the quantitative approach, the authors conducted a qualitative analysis by interviewing one of the founders of VAIA to gain insights into the effects of COVID-19 on the company's strategies and sales. This approach allowed the authors to supplement the findings with real-world experiences and perspectives from industry experts. According to the interview, VAIA, like many other businesses, had to adapt its business model to navigate through the challenges posed by the pandemic. Emphasizing flexible approaches was crucial for the company's survival during this period. The shift in consumer behavior towards online shopping led to notable growth in VAIA's online sales, prompting the company to prioritize and strengthen its e-commerce platform. However, the pandemic

also disrupted VAIA's promotional strategy, resulting in the cancellation of planting events that were pivotal for engaging consumers. This situation affected the brand's trust, but VAIA actively sought alternative solutions to maintain customer involvement and trust. Previous research on companies adapting to crises [10,49], even in different sectors and countries [50,51], echoes the importance of businesses being agile and creative to overcome such challenges.

Overall, this study adds to the growing body of knowledge on the impact of COVID-19 on consumption behaviors, particularly in relation to green consumption and environmental awareness. By combining quantitative and qualitative approaches and drawing on relevant previous studies, we present a comprehensive analysis of the effects of the pandemic on both individual behaviors and business strategies.

7. Managerial Implications

The study provides several practical implications for businesses operating in the sustainability sector:

Emphasize the importance of green marketing: The research highlights the positive impact of COVID-19 on green consumption behavior and increased environmental awareness. Businesses in the sustainability sector should leverage this trend by emphasizing their green initiatives and marketing their products or services as eco-friendly. Highlighting the environmental benefits and sustainability features of their offerings can attract environmentally conscious consumers.

- **Adapt distribution strategies:** The study shows that online sales and e-commerce platforms experienced significant growth during the pandemic. Businesses should focus on strengthening their online presence and optimizing their e-commerce platforms to cater to the increasing demand for online shopping. Investing in user-friendly websites, efficient logistics, and secure payment systems can help capture a larger share of the online market.
- **Enhance consumer involvement and engagement:** The research indicates that consumer involvement and engagement play a crucial role in promoting green products. Businesses should explore innovative ways to involve consumers, even in a socially distanced environment. This can include virtual events, interactive online campaigns, and leveraging social media platforms to keep consumers engaged and connected with the brand's sustainability initiatives.
- **Build brand trust and transparency:** The study reveals the importance of brand trust in the sustainability sector. Consumers want to ensure that their purchases contribute to real environmental impact. Businesses should focus on building and maintaining trust by being transparent about their sustainable practices and ensuring that their claims are backed by credible certifications or third-party verification. Providing clear information about the environmental benefits and the actual outcomes of their initiatives can help establish trust with consumers.
- **Stay adaptable and resilient:** The COVID-19 pandemic has highlighted the need for businesses to be adaptable and resilient in the face of unforeseen challenges. The study suggests that companies that can quickly respond and adapt their strategies to changing market conditions are more likely to thrive. Sustainability-focused businesses should be prepared to adjust their marketing, distribution, and promotional strategies to navigate crises effectively and ensure long-term viability.

Overall, the study underscores the opportunities and challenges for businesses operating in the sustainability sector. By leveraging the positive impact of COVID-19 on green consumption behavior, adapting distribution strategies, enhancing consumer involvement, building trust, and maintaining adaptability, businesses can position themselves for success in the evolving sustainable market.

8. Conclusions

The study concluded that COVID-19 had a significant impact on green consumption behavior in the Italian market, which is deemed to be an asset for value co-creation with companies and, thus, a variable that impacts the financing of the latter [52]. The quantitative analysis showed that the pandemic increased environmental awareness and positively influenced the purchase of eco-friendly products. The qualitative analysis revealed the specific changes and challenges faced by VAIA, a green company, during the pandemic, highlighting the importance of flexibility and adaptation in the business model.

The findings of this research contribute to the understanding of how crises, such as the COVID-19 pandemic, can affect consumer behavior and the strategies of environmentally conscious companies. The study emphasizes the need for businesses to be adaptable and responsive to unforeseen events and highlights the potential for growth in online sales for green businesses during challenging times.

Overall, the research provides insights into the relationship between COVID-19, environmental awareness, and green consumption behavior in the Italian market and offers practical implications for businesses operating in the sustainability sector.

Limitations and Further Research

While the study provides valuable insights, it is important to consider its limitations. Understanding these limitations can help identify areas for further research to bridge the gaps. Here are some limitations of the study:

- Generalizability: the study might have focused on specific regions, industries, or consumer segments, which limits the generalizability of the findings. Further research can expand the scope by including a more diverse range of geographical locations, industries, and consumer groups to obtain a more comprehensive understanding of the impact of COVID-19 on sustainability-related behavior.
- Long-term effects: the study primarily focuses on the short-term impact of COVID-19 on sustainability behavior. Further research can explore the long-term effects of the pandemic on consumer attitudes and behaviors in the sustainability sector. This would provide insights into whether the observed changes during the pandemic have persisted or if there has been a reversion to pre-pandemic behaviors.
- Causality and confounding factors: the study might not establish causality due to its observational nature. Other confounding factors beyond the pandemic could influence sustainability behavior. Future research could employ experimental designs or longitudinal studies to establish causal relationships and control for other influencing factors.
- Limited qualitative insights: the study might have predominantly relied on quantitative data, such as surveys and sales figures, which may not capture the richness of individual experiences and motivations related to sustainability behavior. Further research can employ qualitative methods, such as in-depth interviews or focus groups, to gather more nuanced insights into consumer perspectives and motivations.
- Industry-specific considerations: the study may not have addressed industry-specific nuances within the sustainability sector. Future research could explore how the pandemic has influenced different industries, such as renewable energy, sustainable fashion, or circular economy initiatives. This would provide industry-specific insights and help businesses tailor their strategies accordingly.
- Evolving context: the study's findings may be based on data collected during a specific period of the pandemic. As the situation evolves, consumer attitudes and behaviors may continue to change. Conducting follow-up studies or analyzing ongoing data would help capture any shifts in sustainability behavior as the pandemic progresses and post-pandemic recovery takes place.

To bridge these gaps, future research could address the limitations by conducting large-scale studies across diverse populations, examining long-term effects, employing experimental designs, incorporating qualitative methodologies or content and sentiment

analysis on sustainable issues [53], as well as other methodologies exploring industry-specific dynamics [54], and considering the evolving context. By addressing these limitations, researchers can contribute to a more robust understanding of the impact of COVID-19 on sustainability behavior and inform businesses and policymakers accordingly.

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Appendix A. Questionnaire

Appendix A.1. Green Buying Behavior

(1) Have you ever purchased sustainable products?

☐ No [Go to question 2]

☐ Yes [Go to question 3]

(2) If “No”, please choose one of the following reasons [Go to Appendix A.5]:

☐ Too expensive

☐ I do not know where to buy them

☐ I do not trust companies’ environmental declarations

☐ I find being sustainable too difficult

☐ Other (please specify): ____

(3) What type of eco-friendly products do you buy most frequently?

☐ Food and nutrition

☐ Personal care (e.g., cosmetics, soaps, ...)

☐ Gadgets/Gadgets

☐ Clothing and accessories

☐ Other (please specify): ____

(4) How often do you buy sustainable products?

☐ At least once a week

☐ At least once a month

☐ Once every 2–3 months

☐ Once every 6 months

☐ Once a year

(5) How much do you spend on average each year on sustainable products?

☐ Less than 300 euros

☐ 300–499

☐ 500–799

☐ 800–1499

☐ 1500–2499

☐ More than 2500

(6) What reasons do you think might discourage your purchase of sustainable products?

☐ None

☐ Price too high

☐ Inferior quality

☐ I do not trust companies’ environmental declarations

☐ Limited variety of products

☐ Other (please specify): ____

(7) *What does influence the most your purchase of sustainable products?*

☐ TV, radio, newspapers

☐ Social networks (e.g., Instagram, Facebook, ...)

☐ Feedback and reviews

☐ Word of mouth (friends & family)

☐ In-store promotion (e.g., fairs, corners, ...)

(8) *Do you prefer to buy via online or offline channels?*

☐ Online

☐ Offline

(9) *Please indicate the level of importance of the following elements in your purchasing decisions, considering: 1 = No importance | 7 = Top importance*

(9.1) *"Packaging sustainability"* 1 2 3 4 5 6 7

(9.2) *"Presence of sustainable labels on packaging"* 1 2 3 4 5 6 7

(9.3) *"Product quality"* 1 2 3 4 5 6 7

(9.4) *"Product price"* 1 2 3 4 5 6 7

(9.5) *"Product availability"* 1 2 3 4 5 6 7

(9.6) *"Advertising"* 1 2 3 4 5 6 7

(9.7) *"Brand/Branding"* 1 2 3 4 5 6 7

Appendix A.2. Attitude-Behavior Gap

Please express your level of agreement or disagreement with the following statements, considering: 1 = Strongly disagree | 7 = Strongly agree

(10) *"I am concerned about the waste of resources of our planet."* 1 2 3 4 5 6 7

(11) *"I consider myself well informed on environmental issues."* 1 2 3 4 5 6 7

(12) *"Even the actions of the single person can make a difference in protecting the environment."* 1 2 3 4 5 6 7

(13) *"The products I buy must not harm the environment"* 1 2 3 4 5 6 7

(14) *"I am willing to refrain from buying a product if it is not sustainable."* 1 2 3 4 5 6 7

(15) *"I have switched to more sustainable alternatives of products."* 1 2 3 4 5 6 7

(16) *"I persuaded family and friends to purchase sustainable products."* 1 2 3 4 5 6 7

(17) *"People around me expect me to adopt sustainable behavior."* 1 2 3 4 5 6 7

(18) *"I try to be an example to others through my sustainable behavior."* 1 2 3 4 5 6 7

Appendix A.3. 4Ps and Barriers to Green Consumption

Please express your level of agreement or disagreement with the following statements, considering: 1 = Strongly disagree | 7 = Strongly agree

(19) *"I am willing to buy more expensive products as long as they are less harmful to the environment."* 1 2 3 4 5 6 7

(20) *"I think green products cost too much."* 1 2 3 4 5 6 7

(21) *"I react positively to brands that use environmentally friendly messages when they advertise their products."* 1 2 3 4 5 6 7

(22) *"I do not trust companies' environmental declarations."* 1 2 3 4 5 6 7

Appendix A.4. COVID-19

Please express your level of agreement or disagreement with the following statements, considering: 1 = Strongly disagree | 7 = Strongly agree

(23) *"The pandemic has affected my general consumption habits."* 1 2 3 4 5 6 7

(24) *"The pandemic made me buy more eco-friendly products."* 1 2 3 4 5 6 7

(25) *"The pandemic made me realize the importance of the environment and its resources."* 1 2 3 4 5 6 7

Appendix A.5. VAIA

(26) Do you know VAIA?

- ☐ Yes [Go to question 27]
☐ No [Go to Appendix A.6].

(27) How did you hear about VAIA?

- ☐ Instagram
☐ Facebook
☐ YouTube
☐ LinkedIn
☐ Google
☐ TV, radio, newspapers
☐ Word of mouth (friends & family)
☐ I received a VAIA product as a gift
☐ Event

(28) Have you ever purchased VAIA products in the past?

- ☐ No [Go to question 29]
☐ Yes [Go to question 30]

(29) Please choose one of the following reasons [Go to Appendix A.6]:

- ☐ Too costly
☐ Single-product reality
☐ Lack of clarity of the project
☐ Not interested* in the product
☐ Other: ____

(30) What was the main reason for your purchase?

- ☐ For myself
☐ As a gift for others
☐ To plant a tree
☐ Other: ____

(31) With which word do you associate the VAIA's project?

- ☐ Sustainability
☐ Design
☐ Uniqueness
☐ Craftsmanship
☐ Innovation
☐ Rebirth
☐ Other: ____

(32) What do you like about the VAIA Cube?

- ☐ Uniqueness of the product
☐ Sound
☐ Packaging
☐ Craftsmanship
☐ Design
☐ Its message
☐ Other: ____

(33) Please express your level of agreement or disagreement with the following statements, considering: 1 = Strongly disagree | 7 = Strongly agree

(33.1) "VAIA is a trustworthy retailer." 1 2 3 4 5 6 7

(33.2) "I have a positive impression of the quality of VAIA's customer service (pre- and post-purchase)." 1 2 3 4 5 6 7

(33.3) "I strongly recommend the purchase of the VAIA Cube." 1 2 3 4 5 6 7

(33.4) "I plan to buy VAIA products again in the future." 1 2 3 4 5 6 7

(33.5) "Through the purchase of VAIA's products, I feel part of a community with strong environmental values." 1 2 3 4 5 6 7

(33.6) "I intend to take part in VAIA's future projects." 1 2 3 4 5 6 7

Appendix A.6. Demographic Questions

(34) Gender:

- ☐ Male
- ☐ Female
- ☐ Non-Binary
- ☐ Not specified

(35) Region of origin: _____

(36) Age:

- ☐ Less than 18
- ☐ 18–24
- ☐ 25–34
- ☐ 35–44
- ☐ 45–54
- ☐ 55–64
- ☐ 65–75
- ☐ More than 75

(37) Level of education:

- ☐ Primary school certificate
- ☐ Secondary school certificate
- ☐ Secondary school diploma
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctorate

(38) Occupation:

- ☐ Study
- ☐ Study and work
- ☐ Work
- ☐ Not working
- ☐ Retired

(39) How much do you earn on average per month?

- ☐ Less than 400 euro
- ☐ 400–799
- ☐ 800–1499
- ☐ 1500–2499
- ☐ 2500–3500
- ☐ More than 3500

References

- United Nations. The Sustainable Development Goals Report 2021. 2021. Available online: <https://unstats.un.org/sdgs/report/2021/#sdggoals> (accessed on 6 August 2023).
- Fondazione Symbola; Unioncamere. GreenItaly 2021. Un'economia a Misura D'uomo per il Futuro dell'Europa. I Quaderni di Symbola. 2021. Available online: <https://www.symbola.net/ricerca/green-italy-2021/> (accessed on 6 August 2023).
- Hu, P.; Bhuiyan, M.A.; Rahman, M.K.; Hossain, M.M.; Akter, S. Impact of COVID-19 pandemic on consumer behavioural intention to purchase green products. *PLoS ONE* **2022**, *17*, e0275541. [[CrossRef](#)] [[PubMed](#)]
- Mahmoud, T.O. Green marketing: A marketing mix concept. *Int. J. Electr. Electron. Comput.* **2019**, *4*, 20–26. [[CrossRef](#)]
- Raewf, M.B.; Thabit, T.H.; Jasim, Y.A. The relationship between the elements of marketing mix and consumer behavior during environmental uncertainty. *Cihan Univ.-Erbil J. Humanit. Soc. Sci.* **2021**, *5*, 50–55. [[CrossRef](#)]
- Ngoc Su, D.; Luc Tra, D.; Thi Huynh, H.M.; Nguyen, H.H.T.; O'Mahony, B. Enhancing resilience in the COVID-19 crisis: Lessons from human resource management practices in Vietnam. *Curr. Issues Tour.* **2021**, *24*, 3189–3205. [[CrossRef](#)]
- Alshebami, A.S. Green Innovation, Self-Efficacy, Entrepreneurial Orientation and Economic Performance: Interactions among Saudi Small Enterprises. *Sustainability* **2023**, *15*, 1961. [[CrossRef](#)]
- Di Crosta, A.; Ceccato, I.; Marchetti, D.; La Malva, P.; Maiella, R.; Cannito, L.; Cipi, M.; Mammarella, N.; Palumbo, R.; Verrocchio, M.C.; et al. Psychological factors and consumer behavior during the COVID-19 pandemic. *PLoS ONE* **2021**, *16*, e0256095. [[CrossRef](#)]
- Cohen, M.J. Does the COVID-19 outbreak mark the onset of a sustainable consumption transition? *Sustain. Sci. Pract. Policy* **2020**, *16*, 1–3. [[CrossRef](#)]

10. Severo, E.A.; De Guimarães, J.C.F.; Dellarmelin, M.L. Impact of the COVID-19 pandemic on environmental awareness, sustainable consumption and social responsibility: Evidence from generations in Brazil and Portugal. *J. Clean. Prod.* **2021**, *286*, 124947. [CrossRef]
11. Jribi, S.; Ben Ismail, H.; Doggui, D.; Debbabi, H. COVID-19 virus outbreak lockdown: What impacts on household food wastage? *Environ. Dev. Sustain.* **2020**, *22*, 3939–3955. [CrossRef]
12. McKinsey & Company; Statista. Consumers Willing to Increase the Following Shopping Behaviors in Italy as of June 2020. 2020. Available online: <https://www.statista.com/statistics/1171914/change-in-shopping-mindset-since-covid-19-in-italy/> (accessed on 6 August 2023).
13. McKinsey & Company; Statista. Share of Italian Consumers Willing to Spend More Than at the Start of the Pandemic in 2020, by Companies' Initiative. 2020. Available online: <https://www.statista.com/statistics/1171890/companies-initiatives-influencing-sustainable-shopping-italy/> (accessed on 6 August 2023).
14. Ipsos; Statista. Share of Consumers that Plan to Avoid Buying New Goods for Sustainability Reasons in Selected Countries Worldwide in 2022. 2022. Available online: <https://www.statista.com/statistics/1310047/sustainable-attitudes-towards-buying-goods-world/> (accessed on 6 August 2023).
15. Stifel; Statista. Share of Lifestyle Brand Consumers Who Care More about the Sustainability of Products in 2022 Than They DID a Year Ago in Selected Countries. 2022. Available online: <https://www.statista.com/statistics/1312314/increase-care-for-sustainability/> (accessed on 6 August 2023).
16. Kunchaparthi, S. Impact of COVID-19 on E-Commerce. *J. Interdiscip. Cycle Res.* **2021**, *12*, 1161–1165. [CrossRef]
17. Lestari, D.; Siti, M.; Wardhani, W.; Yudaruddin, R. The impact of COVID-19 pandemic on performance of small enterprises that are e-commerce adopters and non-adopters. *Probl. Perspect. Manag.* **2021**, *19*, 467. [CrossRef]
18. Annarelli, A.; Battistella, C.; Nonino, F. Product service system: A conceptual framework from a systematic review. *J. Clean. Prod.* **2016**, *139*, 1011–1032. [CrossRef]
19. Tukker, A.; Tischner, U. Product-services as a research field: Past, present and future. Reflections from a decade of research. *J. Clean. Prod.* **2006**, *14*, 1552–1556. [CrossRef]
20. De Medeiros, J.F.; Marcon, A.; Ribeiro, J.L.D.; Quist, J.; D'Agostin, A. Consumer emotions and collaborative consumption: The effect of COVID-19 on the adoption of use-oriented product-service systems. *Sustain. Prod. Consum.* **2021**, *27*, 1569–1588. [CrossRef]
21. VAIA. One Year after the Storm VAIA. 2019. Available online: <https://www.vaiawood.eu/vaia-the-storm/one-year-after-storm-vaia/?lang=en> (accessed on 6 August 2023).
22. VAIA. Il Team. 2019. Available online: <https://www.vaiawood.eu/il-team/> (accessed on 6 August 2023).
23. VAIA. The Mission. 2019. Available online: <https://www.vaiawood.eu/mission/?lang=en> (accessed on 6 August 2023).
24. VAIA. Why Our Future Depends on Wood. 2021. Available online: <https://www.vaiawood.eu/vaia-the-project/why-our-future-depends-on-wood/?lang=en> (accessed on 6 August 2023).
25. Rilegno. Il Mondo Rilegno. 2017. Available online: <https://www.rilegno.org/il-mondo-rilegno/> (accessed on 6 August 2023).
26. VAIA. VAIA Cube. 2019. Available online: <https://www.vaiawood.eu/prodotto/vaia-cube/> (accessed on 6 August 2023).
27. VAIA. VAIA Cube: The Genesis. 2021. Available online: <https://www.vaiawood.eu/vaia-the-project/vaia-cube-the-genesis/?lang=en> (accessed on 6 August 2023).
28. PEFC. Che Cosa è il PEFC. 2020. Available online: <https://www.pefc.it/scopri-il-pefc/che-cosa-e-il-pefc> (accessed on 6 August 2023).
29. VAIA. Noble Imperfections: The New VAIA Cube. 2021. Available online: <https://www.vaiawood.eu/vaia-the-project/noble-imperfections-the-new-vaia-cube/?lang=en> (accessed on 6 August 2023).
30. FSC. What's in a Label? 2023. Available online: <https://fsc.org/en/what-the-fsc-labels-mean> (accessed on 6 August 2023).
31. ETIFOR. Company. 2017. Available online: <https://www.etifor.com/en/about/company/> (accessed on 6 August 2023).
32. GlacUP. GLAC-UP. 2022. Available online: <https://www.glacup.com/> (accessed on 6 August 2023).
33. VAIA. VAIA Focus. 2021. Available online: <https://www.vaiawood.eu/prodotto/vaia-focus/?lang=en> (accessed on 6 August 2023).
34. Kotler, P.; Keller, K.L. *Marketing Management*; Prentice Hall: New York, NY, USA, 2012.
35. VAIA. È Nata la Foresta Degli Innovatori: Un Nuovo Luogo per Ispirare, uno Spazio Dove la Capacità di Innovazione può Mettere Radici. 2022. Available online: <https://www.vaiawood.eu/vaia-il-progetto/e-nata-la-foresta-degli-innovatori-un-nuovo-luogo-per-ispire-uno-spazio-dove-la-capacita-di-innovazione-puo-mettere-radici/> (accessed on 6 August 2023).
36. VAIA. Back to School. 2021. Available online: <https://www.vaiawood.eu/vaia-the-project/back-to-school/?lang=en> (accessed on 6 August 2023).
37. VAIA. Rivivere la Tempesta Nella VAIA VR. 2021. Available online: <https://www.vaiawood.eu/cambiamenti-climatici-e-sostenibilita/rivivere-la-tempesta-nella-vaia-vr/> (accessed on 6 August 2023).
38. Kotler, P.; Kartajaya, H.; Setiawan, I. *Marketing 5.0: Technology for Humanity*; Wiley: Hoboken, NJ, USA, 2021.
39. Cuc, L.D.; Pelau, C.; Szentesi, S.G.; Sanda, G. The Impact of Green Marketing on the Consumers' Intention to Buy Green Products in the Context of the Green Deal. *Amfiteatru Econ.* **2022**, *24*, 330–345. [CrossRef]
40. Iftikhar, F.; Asghar, A.; Khan, M. The impact of green marketing and environmental awareness on consumers green and conscious consumption of green products. *Acad. J. Soc. Sci.* **2022**, *6*, 77–94. [CrossRef]

41. Angelova, M.; Dimitrova, T.; Pastarmadzhieva, D. The effects of globalization: Hyper consumption and environmental consumer behavior during the COVID-19 pandemic. *Int. J. Econ. Bus. Adm.* **2021**, *9*, 41–54. [\[CrossRef\]](#)
42. Cronbach, L.J. Coefficient alpha and the internal structure of tests. *Psychometrika* **1951**, *16*, 297–334. [\[CrossRef\]](#)
43. Nunnally, J.C. *Psychometric Theory*, 2nd ed.; McGraw-Hill: New York, NY, USA, 1978.
44. Revelle, W. *Psych: Procedures for Psychological, Psychometric, and Personality Research [R Package]*; Northwestern University: Evanston, IL, USA, 2019. Available online: <https://www.scholars.northwestern.edu/en/publications/psych-procedures-for-personality-and-psychological-research> (accessed on 6 August 2023).
45. Kendall, M.G. A new measure of rank correlation. *Biometrika* **1938**, *30*, 81–93. [\[CrossRef\]](#)
46. Esposito, P.; Brescia, V.; Fantauzzi, C.; Frondizi, R. Understanding social impact and value creation in hybrid organizations: The case of Italian civil service. *Sustainability* **2021**, *13*, 4058. [\[CrossRef\]](#)
47. Filho, W.L.; Salvia, A.L.; Paço, A.; Dinis, M.A.P.; Vidal, D.G.; Da Cunha, D.A.; de Vasconcelos, C.R.; Baumgartner, R.J.; Rampasso, I.; Anholon, R.; et al. The influences of the COVID-19 pandemic on sustainable consumption: An international study. *Environ. Sci. Eur.* **2022**, *34*, 54. [\[CrossRef\]](#)
48. Sun, X.; Su, W.; Guo, X.; Tian, Z. The impact of awe induced by COVID-19 pandemic on green consumption behavior in China. *Int. J. Environ. Res. Public Health* **2021**, *18*, 543. [\[CrossRef\]](#)
49. Krammer, S.M. Navigating the New Normal: Which firms have adapted better to the COVID-19 disruption? *Technovation* **2022**, *110*, 102368. [\[CrossRef\]](#)
50. Sharma, G.D.; Kraus, S.; Srivastava, M.; Chopra, R.; Kallmuenzer, A. The changing role of innovation for crisis management in times of COVID-19: An integrative literature review. *J. Innov. Knowl.* **2022**, *7*, 100281. [\[CrossRef\]](#)
51. Peñarroya-Farell, M.; Miralles, F. Business model adaptation to the COVID-19 crisis: Strategic response of the Spanish cultural and creative firms. *J. Open Innov. Technol. Mark. Complex.* **2022**, *8*, 39. [\[CrossRef\]](#)
52. Campa, M.; Paolo, E.; Brescia, V. State of the art of COVID-19 and business, management, and accounting sector. A bibliometric analysis. *Int. J. Bus. Manag.* **2021**, *16*, 1–35. [\[CrossRef\]](#)
53. Caratù, M.; Brescia, V.; Pigliautile, I.; Biancone, P. Assessing Energy Communities' Awareness on Social Media with a Content and Sentiment Analysis. *Sustainability* **2023**, *15*, 6976. [\[CrossRef\]](#)
54. Caratù, M.; Pigliautile, I.; Piselli, C.; Fabiani, C. A perspective on managing cities and citizens' well-being through smart sensing data. *Environ. Sci. Policy* **2023**, *147*, 169–176

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