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Validation of the Lean Startup methodology through an
artificial intelligence-assisted fashion e-commerce company

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Validation of the Lean Startup methodology through an artificial intelligence-assisted fashion e-commerce company

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ABSTRACT

This study examines the effectiveness of Lean Startup methodology in an online clothing brand which offers AI-generated designs. Through iterative feedback loops and customer interaction, the brand adjusted its offerings to early adopters' needs and values. Key performance indicators such as Customer Satisfaction Score (CSAT) and Net Promoter Score (NPS) were used to evaluate success, with CSAT improving by 17.5% post-iteration. Also, the study highlights the limitations of AI text-to-image generation, emphasizing the need for businesses to invest in proprietary AI algorithms to differentiate themselves. Furthermore, it addresses the challenges of maintaining uniqueness in a rapidly evolving AI-driven fashion industry. The findings prove the value of Lean Startup Methodology in creating a customer-tailored product in the fast-paced world of ecommerce.

Keywords: Lean Startup methodology, artificial intelligence, iterative feedback, customer interaction, key performance indicators, text-to-image generation.

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1 INTRODUCTION

1.1 LEAN START-UP METHODOLOGY

1.1.1 Introduction to Lean Startup

The landscape of modern entrepreneurship is dynamic and rapidly changing, it requires fast adaptation. In these conditions startups emerged as focal points of innovation and technological breakthrough, receiving considerable attention in the past decade. There are several definitions of startups, each offering different perspectives on the nature and characteristics of these rapidly growing ventures.

According to Ries (2011), a startup can be described as a human organization established to introduce new products or services, operating within an environment characterized by high levels of uncertainty.

Meanwhile, Steve Blank makes another interpretation of the concept highlighting that startups are organizations that adopt a repeatable and scalable business model (Blank, 2007).

Ries's emphasis on navigating high levels of uncertainty highlights the inherent risks and challenges that startups face as they strive to bring innovative products or services to market. On the other hand, Blank's focus on establishing repeatable and scalable business models underscores the importance of structured approaches to growth and economic sustainability.

Considering these two definitions, a startup can be defined as an agile organization created to introduce new products or services in an uncertain environment while also striving to develop a repeatable and scalable business model for long-term growth.

The Lean Startup (LS) methodology was developed by Eric Ries in 2008 based on his findings from adapting lean management and customer development techniques in high-tech startups (Ries, 2008). This term describes hypothesis-driven entrepreneurship in which the main goal is waste minimization. This means that the venture is scaled up only after business model validation through various tests (Eisenmann et al., 2011).

Business Model

A business model is a plan that outlines a new venture's special offerings to customers, how it will organize its operations to provide that value, and how it intends to maintain profitability over time (Eisenmann, 2011).

The main difference between LS methodology and traditional businesses lies in their approach to business models: while the latter implement a business plan from the start, the former search for an appropriate business model (Blank, 2013). The main goal of a startup is to find a solution to an existing market problem, however, not every solution is one that is accepted by customers. After conducting market research, a LS formulates several hypotheses that are validated afterwards by a few customers, called 'early adopters' (Umbreem, 2021).

Lean Startup Approaches are composed of Business Model Canvas (BMC), Customer Development, and Agile Development (Wang et al., 2022). Ghezzi's survey confirmed that more than 90% of entrepreneurs implement BMC (Ghezzi, 2019). These methods are praised for their practical way of solving problems and business making decisions.

Building upon this foundation, the framework LS product development, meticulously outlined by Eric Ries and Thomas Eisenmann, contains seven strategic steps.

First, the vision of the problem detected in the market is formed and the possible solution on which the startup is determined to focus is outlined. Then the vision is translated into falsifiable business model hypothesis that can be verified or rejected through experiment. It is important to highlight that the hypotheses should be such that they can be validated by quantitative metrics (Eisenmann, 2011).

Once a set of hypotheses is generated, it has to be tested through analyses of customer interaction with a Minimum Viable Product (MVP).

MVP is a key element to LS methodology. According to Umbreen, MVP is the product that is not complex but enough to be released to the market to be tested by the end users in terms of the viability and overall functionality (Umbreen et al., 2022). By releasing a MVP, startups gather feedback from early adopters and use the information obtained to refine their product and business model (Lindgren et al., 2022). This iterative approach can significantly reduce the risk of investing resources into developing a product that may not meet the needs or expectations of the target customers

(Yordanova, 2021). MVP is constantly relaunched to a small number of customers, the 'early adopters', after refining based on the feedback and metrics obtained.

According to Blank (2007), the metrics often used by entrepreneurs are as follows:

- A/B testing. During this experiment the users are divided into two groups, a 'control' group A and a 'treatment' group B. Group B uses the modified product, while group A uses the original product. Then the results from both groups are analyzed (Kohavi et al., 2009).
- Conversion funnel. This concept represents the interactions between the customer and the product in each step of the process until they potentially become loyal customer, while other customers are lost at some step, which is why the process resembles a funnel (Eisenmann, 2011).
- Customer Cost Acquisition (CAC). It references the cost to get a new customer, calculated by dividing the total costs of acquiring customers (marketing, sales, etc.) by the number of customers gained (Botteri, 2008).
- Lifetime value (LTV). It is the predicted net profit attributed to the entire future relationship with a customer, reflecting their long-term value to the business (Groeger et al., 2015).
- Net Promoter Score (NPS). It references the customer loyalty and satisfaction based on the likelihood of customers recommending a product or service (Reichheld, 2003).

In the LS approach, if the MVP proves successful, the existing business model must be maintained and refined. This involves making improvements and adjustments to create an optimal product. On the other hand, if the MVP doesn't resonate with customers, it's essential to listen to their feedback. In such cases, it's advisable to let go of the current business model and pivot back to the initial stages. This means going back to the drawing board, hypothesizing a new business model, and repeating the cycle (Sadeghiani, 2022). This iterative process continues until the startup achieves a strong fit between its product and the market demands, known as product-market fit.

1.1.2 Importance of Early Adopters

The role of early adopters (EAs) should not be underestimated when analyzing startup initial development. These customers lead the way for new innovations and also play a key role in shaping how a product or service is perceived in the market (Blank, 2008).

When it comes to marketing strategy, EAs actively promote the diffusion of the product, where they act as living catalysts in promoting the product's adoption. The platform innovations' diffusion powered by EAs has an impact on the adoption of such products by the target customers (Frattoni, 2014).

However, it is noteworthy that despite the acknowledged importance of EAs in various aspects of a startup's evolution, there is a gap in research regarding their importance in the pivoting process. This study aims to address this gap by exploring how EAs influence the critical pivoting phase.

1.2 ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) is driving the evolution of contemporary society, alongside big data, virtual reality, and other recent innovations in technology.

Although AI has gained significant public interest in recent years, research and development of this technology have their roots in the 1950's. Technological advancements in computer science sparked the curiosity of researchers like Alan Turing and John McCarthy who are now considered fathers of AI.

To understand this concept, several definitions were proposed. According to Simmons, artificial intelligence refers to the behavior exhibited by a machine that, if replicated by a human, would be deemed intelligent (Simmons, 1988). It can be stated that AI is viewed as the simulation of human intelligence in machines.

Rich proposed that AI is the study of enabling machines to do the task that, for now, humans do better (Rich, 1983). However, in recent years there has been an important surge in AI development, that enabled the integration of AI in many industries such as healthcare, education, business, agriculture or even fashion.

1.2.1 Text-to-image generation

AI-assisted image generation is a useful technology that helps people in everyday life. It uses smart algorithms to make realistic pictures without humans doing all the work. In art, for example, AI can create images from textual descriptions, allowing humans to generate a visually pleasing picture within seconds with no need for drawing or photography skills. It goes even farther – AI-generated images are also used in design, marketing and content creation.

Text-to-Image generation process involves converting human-written textual descriptions into visual concepts that match the meaning of the description (Nervana, 2023). 'Prompt' is the technical word used for these textual descriptions. The quality of the images depends heavily on the proper architecture of the prompts that should be clear and concise.

Early methods of text-to-image generation involved human-supervised techniques, but the actual breakthrough came in 2014 when Generative Adversarial Networks (GANs) were developed (Goodfellow, 2014).

A Generative Adversarial Network, pioneered by Ian Goodfellow, is an unsupervised machine learning technique that identifies and learns patterns to naturally generate and distinguish images. This model has the ability to produce new images and videos based on existing datasets. The GAN training process involves two key components: the Generator and the Discriminator. The Generator utilizes random noise to generate multiple images, aiming to deceive the Discriminator. Meanwhile, the Discriminator is tasked with distinguishing between real and fake images (Kumar, 2023).

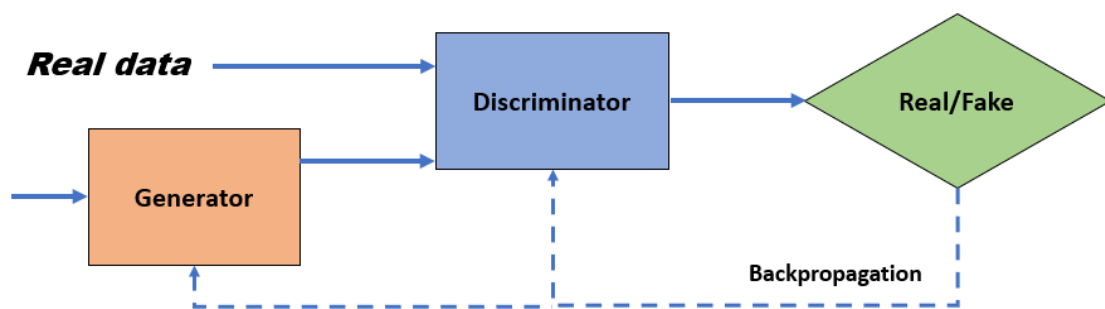


Figure 1. GAN model work principle (Reproduced from Kumar, 2023).

In 2016 different GAN-based architectures were developed, such as GAN-CLS or MS-COCO, that gave ground to further development up to these days (Reed et al, 2016). They reported acceptable results in generating credible images from detailed textual descriptions.

DALLE-2

The real breakthrough in the field of text-to-image generation happened in 2021 when OpenAI developed DALLE-2 which attracted public attention. DALLE-2 is a Large-scale Text-to-image Generation Model (LTGM), different from GAN-based architectures, which did not require large datasets containing textual and image pairing (Ko et al., 2023). DALLE-2, on the contrary, used an incredibly large dataset with 250 million of text-image pairs. With these characteristics, it was not only possible to create versatile

and accurate images and make several variations of the same image but also to edit them in-situ. LTGM achieved great use in zero-shot fashion (Ramesh, 2021).

The latest and most efficient approach to image creation involves diffusion modeling (Dhariwal, 2021). This method of image generation consists of continually adding noise to an initial image. Each step is treated as a new starting point, and these steps can be performed independently without referencing past images (Nervana, 2023).

Midjourney

Midjourney is a text-to-image model created by independent homonymous research laboratory. It can be accessed through chat program Discord and the image is generated based on user's text input in the message box. It became popular among artists due its tendency to generate surrealistic pictures (Borji, 2022).

Stable Diffusion

Stable Diffusion, introduced in 2022 by StabilityAI, CompVis, and RunwayML, is a set of models based on diffusion techniques and it is used for creating images from text inputs (Rombach et al., 2023). Beyond just generating pictures, it can also handle tasks like filling in missing parts (inpainting), extending images (outpainting), and various image-to-image tasks.

What makes Stable Diffusion stand out is its capability to produce detailed and aesthetically pleasing images and its popularity due to being open-source, user-friendly, and compatible with regular graphics cards. This accessibility democratizes image generation, allowing anyone interested to explore and contribute to its development (Zhao, 2023).

1.2.2 AI in fashion industry

The fashion industry is currently experiencing significant changes due to technological innovations, especially in AI (Carvalho et al., 2019). AI developments have improved the analysis of big data, helping online retailers track what customers buy and offer personalized services, leading to increased sales. Furthermore, AI technologies make accurate predictions about future fashion trends, improving inventory management efficiency (Choi, 2023).

“Alsthetic Apparel”

In 2023, Portuguese entrepreneur João F. Santos launched a startup called Alsthetic Apparel which attracted a lot of public attention by showing a groundbreaking

fusion of fashion industry dynamics and AI innovation. Remarkably, ChatGPT, an AI chatbot, took on the role of CEO, with Santos acting as an assistant. ChatGPT made key decisions, such as choosing the business niche, creating the brand name and logo, and devising a 10-point business plan. The focus was on selling T-shirts featuring AI-generated designs by Midjourney. After partnering with on-demand printing service Printful, the company launched an online store.

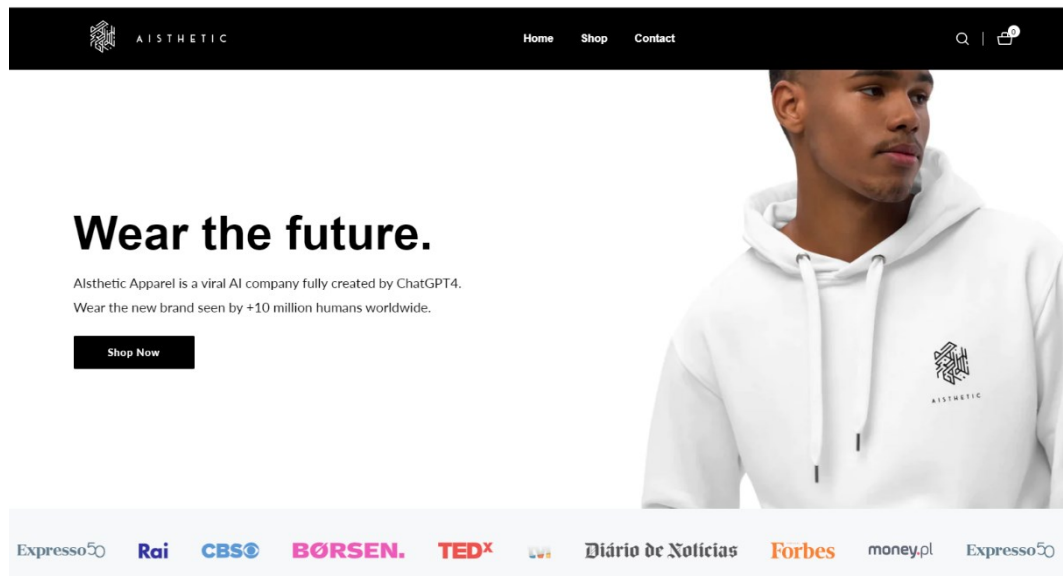


Figure 2. Alsthetic Apparel webpage screenshot.

Securing funding from investors, Santos acquired \$2500 for a 25% stake, starting with an initial investment of \$1000. ChatGPT set a price of €35 per T-shirt, and in just five days Alsthetic Apparel generated over €7000 in profit. ChatGPT anticipates an annual profit of €40000 and a company valuation of €4 million if the sales trend continues (Nucleus_AI, 2023).

2 PROJECT OBJECTIVES

The main objective of this research is to apply Lean Startup principles to develop a simulated clothing brand, which will involve the integration of AI-generated design, a business plan, and a brand strategy. The research aims to evaluate the initial performance of the company based on feedback gathered from early adopters.

The study aims to answer the following research questions:

RQ1. What key performance indicators (KPIs) can be utilized to measure the effectiveness of feedback-driven product modifications in the company?

RQ2. How does the iterative feedback loop with early adopters contribute to the pivoting process and final customer satisfaction?

RQ3. What are the benefits and limitations of using AI text-to-image design generation from the business's perspective?

3 METHODOLOGY

3.1 BUSINESS PLAN

A startup is an entity intentionally created to search for a business model rather than committing to a predefined one from the start (Blank, 2007). In this search process four questions are raised:

Who could be potential customers?

What is their problem?

What product can be offered to solve their problems?

How can value be created by the company while delivering the solution?

This final question precisely pertains to what is known as a business model. However, in the initial stages when no substantial data is available, only preliminary business models can be imagined, primarily based on hypotheses about the potential market and its needs. These models must later be validated by data and subject to iteration or pivoting if necessary.

3.1.1 Business Model Hypothesis. Canvas

The Business Model Canvas (BMC) is a strategic management template used for developing new business models and documenting existing ones. This model was proposed by Alexander Osterwalder based on his earlier work on Business Model Ontology. It has since become a popular tool in business development and strategy (Blank, 2013).

A BMC offers a visual table with nine elements describing a company's value proposition, infrastructure, customers, and finances, as it is represented in Figure 3.

According to Osterwalder and colleagues, the structure of the BMC has the following elements:

1. Customer Segments: The different groups of people or organizations an enterprise aims to reach and serve.
2. Value Propositions: The collection of products and services that create value for a specific customer segment.

3. Channels: How a company communicates with and reaches its customer segments to deliver a value proposition.
4. Customer Relationships: The type of relationship a company establishes with its customers.
5. Revenue Streams: The way a company makes income from each customer segment.
6. Key Resources: The resources that are necessary to create value for the customer.
7. Key Activities: The most important activities in executing a company's value proposition.
8. Key Partnerships: The network of suppliers and partners that make the business model work.
9. Cost Structure: All the costs required to operate a business model (Osterwalder, 2009).

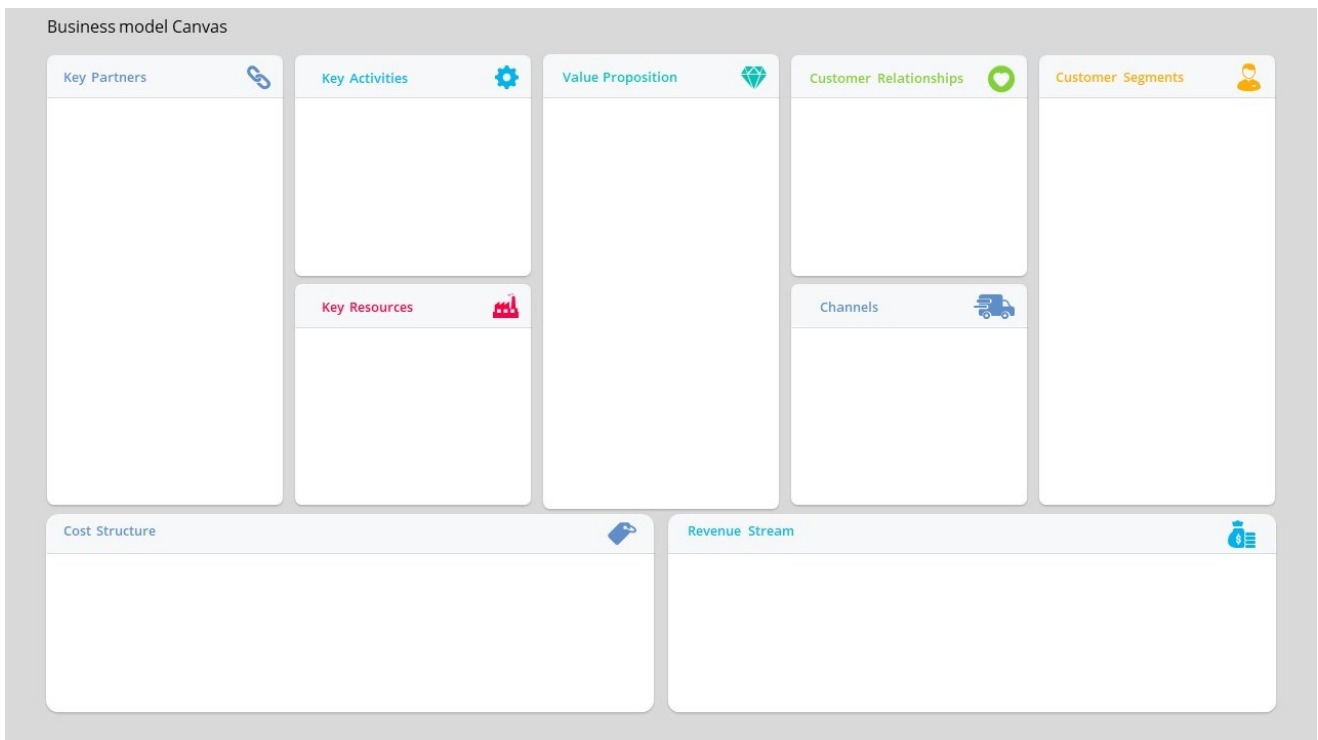


Figure 3. Representation of BMC (adapted from Osterwalder, 2009).

In this study, the Lean Methodology will be applied to a hypothetical fashion company that offers unique T-shirts designed by AI. The company's name is AICHIC Ecowear, by which it will be referred from now onwards.

Brand name: AICHIC Ecowear

"AI" reflects the use of artificial intelligence in the design process. "Chic" represents the brand's commitment to high-quality, fashionable products. "Ecowear" highlights the use of sustainable materials and eco-friendly delivery options, appealing to customers who are conscious of their environmental impact.

Customer segments

The first step in the Business Model search is to determine the potential customer problems and needs. The outset hypothesis is that there are three customer segments:

- **Tech enthusiasts**: Intellectually inclined individuals, predominantly in their twenties and thirties, who are passionate about progress and innovation. They are beta-testers of new technologies, gamers and science fiction lovers. They appreciate products that integrate technology into their lifestyle.
- **Eco-conscious shoppers**: Environmentally conscious individuals who prioritize sustainability in their purchasing decisions and seek brands that align with their values.
- **Trendsetters**: Fashion-forward individuals who embrace new trends and look for unique clothing to express their individuality. They are active on social media platforms, follow fashion influencers and attend cultural events such as music festivals. They value exclusivity and authenticity in their fashion choices.

Since there is still no data about the actual potential market, in Table 1 several assumptions about the customer segments problems and needs will be described, as well as the solution that AICHIC can provide for each segment.

Value proposition

The company's value proposition lies in its integration of AI technology with fashion, targeting three key customer segments. For tech enthusiasts, it offers tech-inspired items that blend their love for technology with style. Trendsetters are offered AI-designed, limited-edition fashion pieces that allow them to stand out affordably. For customers focused on sustainability and ethics, the company provides ethically produced and sustainable clothing options, ensuring that style doesn't come at the cost of environment.

Customer Segment	Need	Pain	Value Proposition
Tech enthusiasts	Innovative and personalized fashion designs.	Lack of tech-inspired, personalized clothing options.	Offer AI-generated, customizable clothing.
Trendsetters	Unique and affordable fashion items.	Difficulty finding unique yet affordable fashion.	Create exclusive, limited-run fashion items.
Eco-conscious shoppers	Sustainable and ethically produced fashion.	Limited choices in sustainable fashion and at high price.	Ensure transparency in production and offer eco-friendly pieces at competitive price.

Table 1. Customer Segments' pains hypotheses and value proposition. Source: Own elaboration

Business Model Canvas

In Figure 4, the initial business model for AICHIC is described using the Canvas template.

The Business Model Canvas (BMC) for AICHIC outlines how the company operates and what makes it unique in the fashion industry. AICHIC partners with AI technology providers, T-shirt suppliers, such as Printful, logistic partners such as Correos, to create its products, and influencers to reach customers. Key activities include developing AI algorithms, managing the online store, marketing on social media and managing product quality and inventory.

AICHIC's resources include AI technology and a user-friendly website. The brand offers AI-generated T-shirt and sweatshirts designs using high-quality, sustainable materials and fast shipping.

AICHIC sells its products through its website, social media, and email marketing campaigns. Costs include technology development, inventory management and marketing. Revenue comes from sales and potential collaborations with influencers or tech companies.

Business Model Canvas for AICHIC

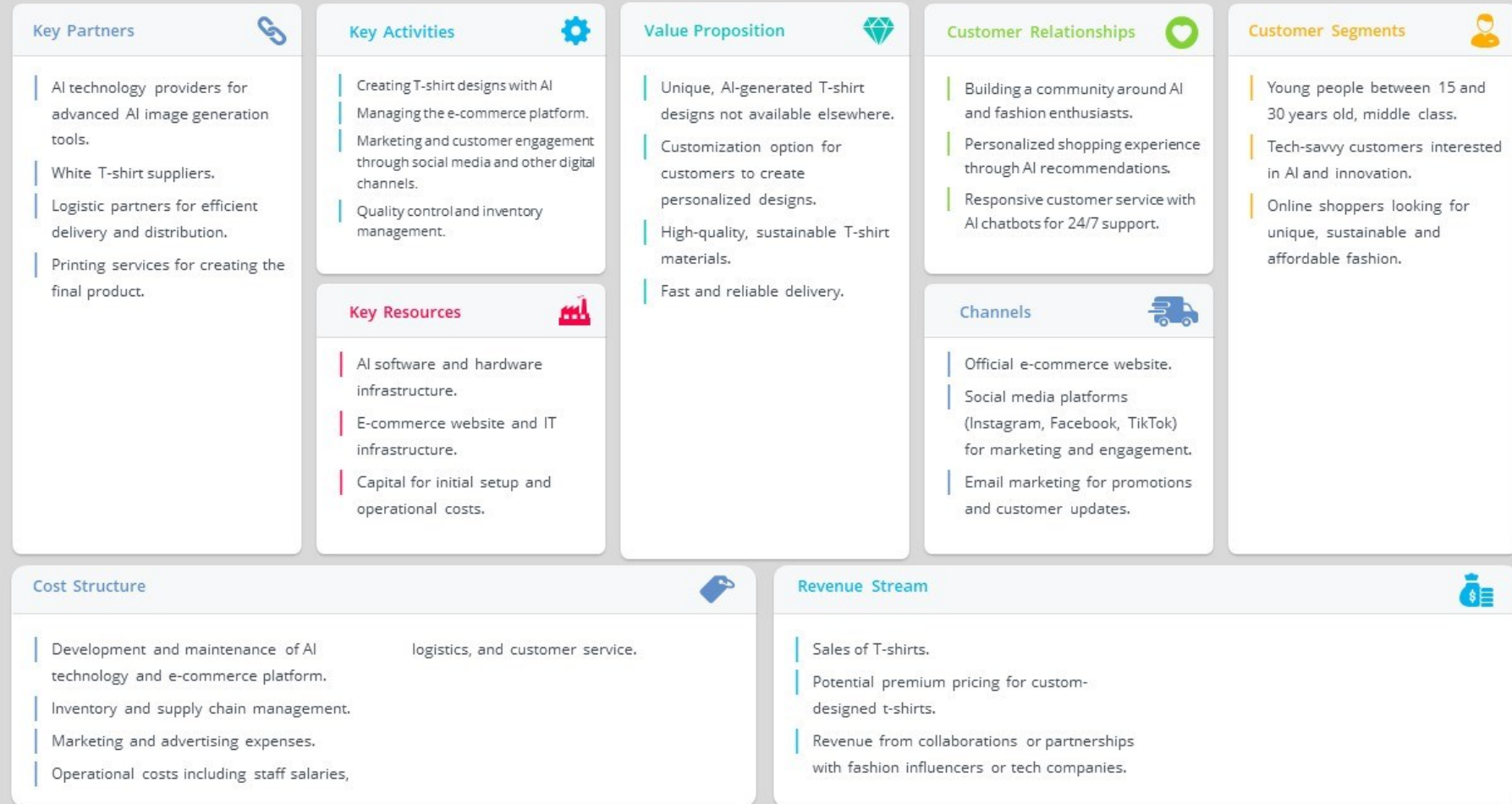


Figure 4. BMC initial assumptions for AICHIC Ecowear. Source: Own elaboration

3.2 STARTING POINT DIAGNOSTIC

In this section, the overall market environment by which the business will be influenced, will be analyzed. This analysis delves into the political, economic, social, technological, environmental, and legal factors provided by PESTEL analysis, market size definition, competitors analysis, detailed prototype development and, finally, SWOT analysis will be conducted, summing up the findings of the section.

3.2.1 PESTEL Analysis

Political.

The stability of the Spanish government system allows businesses, including e-commerce, to operate effectively. Furthermore, both Spanish and European Union (EU) political agendas promote sustainability in business, aligning with the 2030 Sustainable Development Goals. In Spain, Law 7/2021, of May 20, on Climate Change and Energy Transition establishes that companies will be obliged in 2023 to reduce their carbon footprint.

Economic.

Currently Spain offers favorable economic conditions with an interannual GDP growth rate of 2.4% and positive growth projections (Expansión, 2024). Additionally, the significant contribution of e-commerce to the Spanish GDP, surpassing the European average, highlights the growing importance of online commerce in the market. In 2022, online commerce accounted for 5.42% of Spain's GDP, which is a remarkable result (Adigital, 2023). However, inflation may have an impact on consumers' spending habits, with the CPI leading indicator showing an annual variation of 3.3% in April 2024 (INE, 2024).

Social.

In the past two years, Spain's population saw a notable increase, driven by a significant influx of immigrants, leading to a 0.95% annual surge in demography in 2023. Despite the demographic growth, consumer spending habits have remained relatively stable in 2018, with 63.3% of consumers reporting similar spending levels compared to the last five years. According to the survey, 26% of the respondents consider that the main change in their consumer behavior in the past 5 years was notable use of online shopping (Inmark, 2018). Furthermore, the social behavior of the younger population is generally aligned with the socialist policies promoted by the Spanish government. These

policies emphasize values such as sustainability, tolerance, and the progressive ideals of modern democracy.

Technological.

Globally, the influx of big capital into AI across various industries signifies a growing reliance on advanced technologies. Beyond AI, the sector experiments overall technological advances and investments in software and microchips. In Spain, big companies are updating their workflow towards adopting innovation as such generative language models integration in their processes.

Environmental.

Across the globe, the awareness of climate change has spurred action on multiple fronts. New laws aimed at controlling carbon footprints and reducing environmental impact are driving a shift towards eco-friendliness, ethical production, and sustainable manufacturing practices. EU's Green Deal set a goal of achieving carbon neutrality by 2050 and implementing measures to transition to a circular economy. Additionally, Spain's National Energy and Climate Plan aligns with these objectives, aiming to increase renewable energy usage and reduce greenhouse gas emissions.

Legal.

In relation to ecommerce, in Spain, there are three most important laws that must be taken into account: General Data Protection Regulation (GDPR), Law on Information Society Services and Electronic Commerce and the General Law for the Defense of Consumers and Users (Comercio Conectado, n.d.).

Summing up, the Spanish business landscape is influenced by political stability at both national and EU levels. Favorable economic conditions, driven by positive GDP growth and the rise of e-commerce, present growth opportunities amid challenges like inflation. Socially, demographic shifts and changing consumer behaviors, especially the growth of online shopping, shape market dynamics. Meanwhile, technological advancements, particularly in AI, drive innovation, while environmental concerns drive the adoption of eco-friendly practices, supported by legislative frameworks like the EU's Green Deal and Spain's National Energy and Climate Plan.

3.2.2 Competitors analysis

In retail and online fashion there is a lot of competition. In Spain, the major middle class-targeted fashion players are INDITEX brands: Zara, Bershka and Stradivarius.

These players target young population, mostly Millennials and Gen Z. They offer various styles and lots of variety of fashion products, including accessories and perfume. In terms of prices, an average cotton T-Shirt is priced 15€, while their sweatshirts are valued at 30€ on average. In terms of sustainability, Inditex expresses commitment to sustainability as one of their values (Inditex, n.d.). They optimize their operation by promoting circular economy, reducing water usage and publishing sustainability reports for transparency.

Also, online fashion giant Shein is competitor for AICHIC, since a big amount of young people, especially female, order their products in Spain. Shein is a low-cost fast fashion distributor. Its main competitive advantage is low price. For instance, a T-shirt from Shein can cost as little as 3€, while a sweatshirt 12€. However, the quality is also low and sustainability factor is not promoted by the company.

Finally, ecological fashion presents an elevated number of competitors in Spain. These brands manufacture their products locally and target people who are specially concerned about minimizing environmental impact. Some of these brands are Minimalism, Alohas, BichoBichejo, Drew Cereceda (Villach, 2024). Most of these brands sell basic tops made from sustainable fabric and respecting ethic work. These products are high value, high quality and high price. An average price for a T-shirt is 70€ and 120€ for a sweatshirt.

To make a comparison between AICHIC and main competitors, five characteristics are evaluated: competitive advantage, business reputation, target market, products, pricing and distribution channel. The comparison is presented in Table 2.

Characteristic	AICHIC	Zara	Shein	Alohas
Competitive advantage	AI-generated designs, focus on sustainability	Fast fashion	Low-cost fashion	Eco-friendly materials and ethical production
Target market	Young adults and teenagers interested in innovations	Broad market, mostly young adults and adults	Young adults and teenagers seeking low price	Eco-conscious consumers, mostly adults
Products	Customizable organic T-shirts and sweatshirts with AI-generated designs	Wide range of fashion items and accessories	Wide range of low-cost items and accessories	Sustainable clothes and footwear
Pricing	Mid-range	Affordable to mid-range	Very low to affordable	Mid-range to premium
Distribution channels	Online shopping, limited to Spain	Global network; physical stores and online shopping	Online only, global reach	Online shopping, pop-up shops

Table 2. Comparative table between AICHIC and its main competitors. Source: Own elaboration

AICHIC differentiates itself from its main competitors, Zara, Shein, and Alohas, particularly in terms of competitive advantage, pricing and distribution strategies. While AICHIC's pricing is moderate to high, reflecting its commitment to quality and sustainability, competitors like Shein offer very low prices, appealing to a price-sensitive global market. Zara, with its affordable to mid-range pricing, targets a broad demographic. In contrast, Alohas positions itself with mid-range to premium pricing, justified by its use of eco-friendly materials and ethical production practices. AICHIC's higher pricing is indicative of its focus on sustainability and the integration of advanced AI technologies, which provide a unique and personalized customer experience.

In terms of distribution, AICHIC operates through an online store with a geographic focus limited to Spain, which restricts its market reach compared to its competitors. Zara has a global network of physical stores complemented by online presence. Shein, as an online-only retailer, and has an extensive global reach. Alohas, though primarily an online store, endorses its sustainable image through pop-up shops,

which are temporally retail points that open for a short period of time and later close again.

3.2.3 Market Size: TAM, SAM, SOM analysis

In order to know the potential of AICHIC, it is convenient to estimate the market size and maximum sales revenue. For this purpose, TAM, SAM, SOM analysis is conducted using statistical data.

This framework consists of assessing three market portions:

- Total Addressable Market (TAM): The total potential market demand.
- Serviceable Available Market (SAM): The portion of the market the business can realistically target.
- Serviceable Obtainable Market (SOM): The portion of the market the business can capture within a specific period.

Estimating the exact value for the SOM is challenging when the business is not yet operating and is a mere prototype. In practice, when raw data is lacking, new businesses often aim to capture around 5-10% of their serviceable market to grab a foothold (Greene, 2020). For this case, let's assume a conservative estimate, with 5% of the SAM, the SOM makes up 253.442 individuals.

Estimating the exact value for the SOM is challenging when the business is not yet operating and is a mere prototype. However, assuming a conservative estimate, with 5% of the SAM, the SOM makes up 253,442 individuals.

Let's assume the business's ACV (annual contract value) is equal to an average of one T-shirt or sweatshirt purchased, which is €40. This price was calculated as an average value between the T-shirt price (€25) and the sweatshirt price (€55). By multiplying SAM by ACV, the maximum annual revenue estimation would be €10,137,682 annually, considering the perfect marketing and sales performance.

In Table 3, a summary for market size estimation is provided.

	Millions of individuals	Revenue estimate (million euros)
Total Addressable Market (TAM)	48.69	1947.8
Serviceable Available Market (SAM)	5.07	202.8
Serviceable Obtainable Market (SOM)	0.25	10.1

Table 3. TAM, SAM, SOM summary

3.2.4 Early Adopters Selection

A group of 39 middle-class individuals between 15 and 30 years old has been selected to participate in the testing of the business model and the prototype website that will serve as Minimum Viable Product. Three customer persona profiles matching the customer segment hypothesis described above, are shown in Figures 5, 6, 7. It is noteworthy that these profiles are based on real people who participate in the project as early adopters. Their names and pictures have been modified for privacy reasons.

The first profile is Tomás the Tech Enthusiast, who works in a tech startup. His main interest lies in technology and “cool stuff”, he prefers to stand out from the crowd and embrace his “geek” personality.

The second profile is Inma the Eco-conscious shopper. She is an environmental activist, she collaborates with ONGs and sustainability is one of her core values in life. She is selective in food and fashion, always choosing the best option in terms of cruelty-freedom, ethic manufacturing and environmental impact.

The last profile is María the Trendsetter. Communications, trends, social media, marketing are her passion. In fashion, she looks for brands that are on everyone’s lips, both well-established and new players who made big impression on public opinion.

Overall, these profiles are aligned with the average representation of each customer segment.

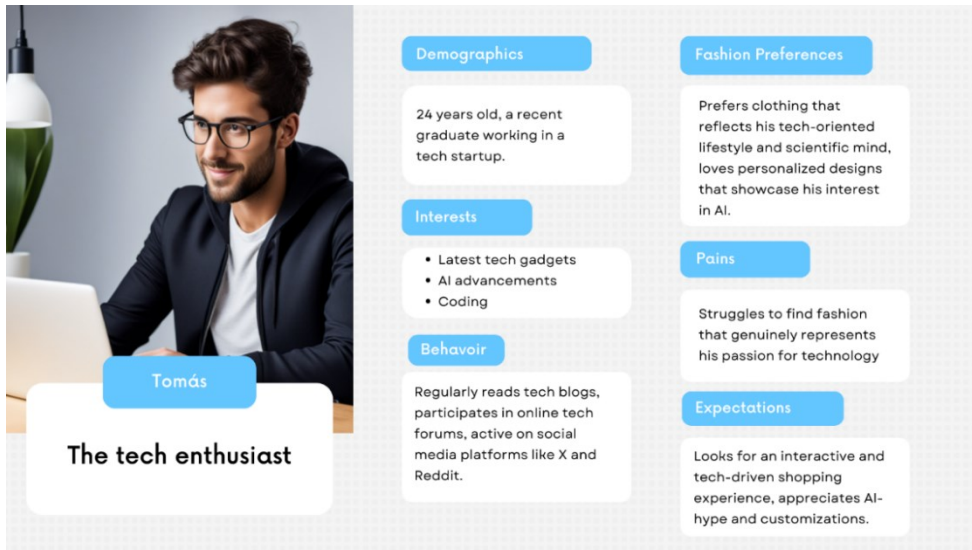


Figure 6. Customer persona profile for the tech enthusiast segment.

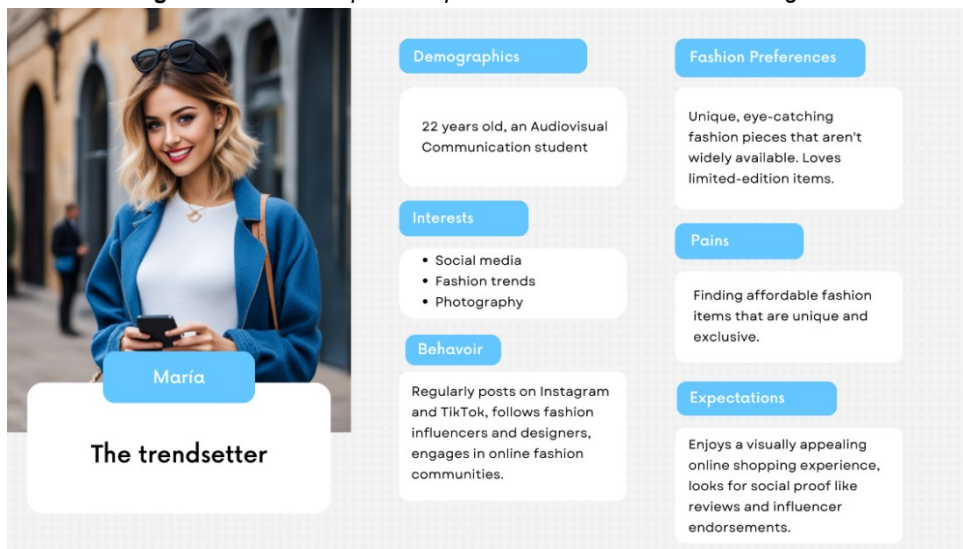


Figure 7. Customer persona profile for the trendsetter segment.

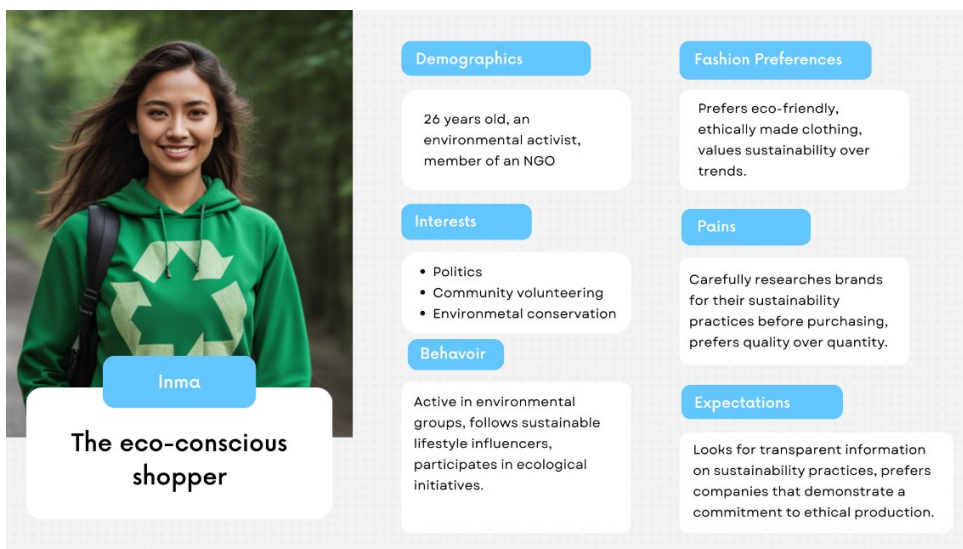


Figure 5. Customer persona profile for the eco-conscious shopper segment.

3.2.5 Product and suppliers

The primary products in AICHIC's catalogue are unisex T-shirts and sweatshirts, each featuring printed designs generated through AI-assisted methods. These designs are created using text-to-image algorithms, starting from the concept and ending in the image confection.

The T-shirts and sweatshirts are made from organic materials and printed with ecological inks, aligning with the growing trend towards eco-conscious consumerism. This commitment to sustainability is a core value of the brand, appealing to environmentally aware customers and contributing to AICHIC's mission of promoting sustainable fashion.

Once the designs are finalized, AICHIC collaborates with Printful, a print-on-demand service that operates in Spain, to make the final product. Printful supplies high-quality, ecological T-shirts and sweatshirts and uses ecological inks. The process begins with uploading the finalized designs to Printful's platform, where they are printed onto the clothes.

After that the product is packaged and shipped to the client. AICHIC employs Correos postal service to ensure reliable delivery of the products directly to customers.

In terms of design, AICHIC employs a two-step process involving AI-assisted prompt generation and image creation. Initially, the AI language model ChatGPT generates a wide array of design ideas based on prompts. These ideas are then refined and transformed into visual designs using the Stable Diffusion XL algorithm.

Additionally, AICHIC places a strong emphasis on inclusivity and versatility, offering products that are suitable for all genders, come in two basic colors, black and white, and have a large range of sizes from XS to XXL.

3.2.6 SWOT analysis

This framework is used to identify Strengths, Weaknesses, Opportunities and Threats of a business. In this section, this method is applied to AICHIC in order to comprehend its competitive position.

AICHIC's SWOT analysis reveals its strengths in using AI text-to-image technology, commitment to sustainability, cost efficiency and agility. However, its weaknesses include reliance on external suppliers, as all the operations are primarily outsourced, as well as limited geographic reach. Investing in in-house printing and

customer customization software development are the most evident opportunities for AICHIC, in addition to international expansion and multiple collaborations possibilities for marketing purposes. Although, threats such as intense competition, rapid technological changes, shifting consumer preferences and economic factors may suppose a challenge for the business's evolution.

A detailed explanation is provided below.

Strengths.

The use of AI to generate the designs represents a distinctive product offering, aligning with the trend of today's digital revolution. Using a text-to-image algorithm significantly reduces costs because it eliminates the need to hire a professional photographer and models, which are key elements in the fashion industry. For instance, a freelance product photographer charges 100€ per hour for footage and 20 edited images, including the work of a model (Luisgomeztravel, 2024). However, with AI, images can be produced in less than 15 minutes, and models are also generated by AI. Additionally, it gives more flexibility and agility to the business, as new designs can be immediately put on the website.

Moreover, the business's commitment to sustainability through the use of organic materials and ecological inks aligns with the growing trend of eco-conscious consumerism. Based on the PESTEL analysis (Section 3.2.1), current political and social trends are aligned with sustainability goals. AICHIC follows the guidelines provided by the authorities, making them visible to customers through social media and storytelling to create a community of people aligned with the brand's values, which give great importance to sustainability.

Weaknesses.

One notable weakness is AICHIC's dependence on external suppliers for manufacturing, printing, and delivery. These issues introduce risks related to quality control and supply chain disruptions. Reliance on external partners means that AICHIC has limited control over the production processes, which can lead to inconsistencies in product quality. Any lapses in quality control can damage the brand's reputation and customer satisfaction.

Additionally, external suppliers may face their own operational challenges, such as equipment failures or logistical issues, which can cause delays in production and delivery. Furthermore, the dependency on third-party suppliers can lead to increased

costs over time because suppliers may raise prices due to their own rising operational costs.

Moreover, AICHIC's geographic reach being limited to Spain restricts its market potential. This limitation may restrict revenue growth. It also limits brand visibility and global recognition, as the products are not available internationally.

Opportunities.

Dependence on suppliers creates an opportunity for AICHIC to invest in in-house printing, which would require purchasing a special textile printing machine. This strategic move would increase AICHIC's control over its production processes to ensure quality and reduce the risk of supply chain disruptions. This way AICHIC could respond faster to market demand and reduce lead times. Additionally, in-house printing can lead to cost savings in the long term by eliminating the markup charged by external suppliers.

Another big opportunity for AICHIC is investment in software which would integrate an AI text-to-image algorithm. This change would give greater personalization feature for the clients, as they could generate any design they want on the platform. Such a feature enhances customer engagement by providing a personalized shopping experience, as well as increases the products' value. Additionally, this innovation could attract tech-savvy customers and those interested in creative self-expression through fashion. On the other hand, the brand would differentiate from competitors, reducing its imitability, since the investment in such a platform is costly and requires a tailor-made programming.

Moreover, expanding into international markets such as the United States, Europe and Asia would diversify the customer base. Different regions may have varied fashion trends and consumer preferences, providing opportunities for AICHIC to diversify its products as well. In addition to the financial benefits, international expansion would also contribute to broader brand recognition and influence. A global presence would enhance AICHIC's appeal to international media and influencers, providing more opportunities for collaboration and marketing.

Threats.

According to competitors' analysis, the highly competitive nature of the fashion industry poses a threat to AICHIC. In such an environment, AICHIC faces the challenge of differentiating itself and maintaining a unique market position. The brand's reliance on AI-generated designs, while innovative, may be easily imitated by competitors who adopt

similar technologies. Additionally, established brands with larger budgets may outspend AICHIC on marketing and technology investments.

Another critical threat is the fast pace of changing trends, which can quickly turn AI from a breakthrough innovation into a mere commodity. As AI technology becomes more accessible and widespread, the novelty and competitive advantage of AI-generated designs may diminish. Consumers might begin to see AI-driven fashion as standard rather than exceptional, reducing the uniqueness of AICHIC's offerings.

In Table 4, the summary on the previous analysis is presented.

Strengths	Weaknesses	Opportunities	Threats
AI-generated designs	Dependence on external suppliers for manufacturing, printing, and delivery	Invest in in-house printing for better quality control and cost savings	Highly competitive fashion industry
Reduced costs by eliminating professional photography and models	Quality control and supply chain disruptions due to reliance on third parties	Integrate AI text-to-image algorithms for personalized designs	Easy imitation of AI-generated design strategy by competitors
Flexibility and agility in updating new designs	Limited control over production processes, leading to potential inconsistencies	Expand geographic reach to international markets for diversified customer base and increased brand visibility	Larger brands outspending on marketing and technology
Commitment to sustainability with organic materials and ecological inks	Geographic reach limited to Spain restricts market potential	Differentiation from competitors by enhancing AI capabilities and customization options	Rapid pace of changing fashion trends

Table 4. SWOT analysis summary

3.3 MINIMUM VIABLE PRODUCT (MVP-0)

In this section, the first prototype will be developed and presented to the early adopters. For the ease of nomenclature, it will be named MVP-0, being MVP-1 the prototype after the first iteration and so on.

3.3.1 Artificial Intelligence Use in Product Development

As mentioned in Section 3.2.5, AICHIC will sell two types of products: unisex T-shirts and sweatshirts, both featuring printed images designed by AI. This section details the text-to-image creation process, which is divided into three parts: Model Generation, Design Generation and Final Assembly.

3.3.1.1 *Model Generation*

During this phase, pictures of models wearing basic T-shirts and sweatshirts are generated using Stable Diffusion XL. This algorithm is available online on the platform playground.com, where users can generate up to 50 images per day for free and use them commercially, which is sufficient for this project.

To generate an image, a prompt must be formulated. This prompt is a set of specific characteristics that describe the desired image. AICHIC will offer basic black and white clothing for both male and female customers, so it will need images of male and female models wearing these black and white products.

Table 5 presents the prompts and the resulting images. Each prompt is entered into the platform, and the most suitable image is selected. For each product, two model images are generated, resulting in a total of 16 images.

Prompt

Result Images

Fashion footage style,
black sweatshirt on a
male body



Fashion footage style,
black T-shirt on a male
body



Fashion footage style,
white sweatshirt on a
male body



Fashion footage style,
white T-shirt on a male
body



Fashion footage style,
black sweatshirt on a
female body



Fashion footage style,
black T-shirt on a female
body



Fashion footage style,
white sweatshirt on a
female body



Fashion footage style,
black T-shirt on a female
body



Table 5. Model images generation results.

3.3.1.2 *Design Generation*

In this part of the process, the design that will be printed on the T-shirt or sweatshirt is developed. It consists of two steps: AI-assisted prompt generation and text-to-image generation.

The human brain can imagine stunning pictures, but it can become saturated after intense brainstorming and spend several hours on a single idea. In contrast, AI can generate an unlimited number of ideas in seconds without getting tired. This capability is why the AI language model ChatGPT is chosen to generate design ideas. Additionally, using AI for this purpose serves as a distinctive feature for the brand, as AI is known for creating bizarre and surprisingly appealing designs.

To generate ideas, the following prompt was introduced into the GPT-3.5 model: "Generate 100 most bizarre ideas for a funny T-shirt print." ChatGPT generated a long list of ideas, but not all of them were interesting. Out of 100 ideas, 8 designs were selected, as shown in Table 6.

After obtaining the design ideas, the images are generated using Stable Diffusion XL, following the same process described in the previous section (3.3.1.1). Additional characteristics are added to the ideas generated by ChatGPT to provide precise instructions to the text-to-image algorithm. The designs need to look funny and have a vector drawing style, as if they were created by an artist. This style is popular among young people on the internet and is likely to be more appealing than realistic images. Table 6 shows the complete prompts that are entered into the playground.com platform, along with the resulting images.

Prompt

Image (Stable Diffusion XL)

Picture a T-Rex in a space suit floating through the galaxy, perhaps holding a flag with a whimsical planet, vector image, solid back background, cartoon style, funny



A contemplative potato sitting on a chair, vector image, solid back background, cartoon style, funny



An avocado cut in half, where the pit is doing various yoga poses, vector image, solid back background, cartoon style, funny



Eiffel Tower being lifted by a UFO beam, vector image, solid dark background, cartoon style, funny



Robot eating cotton candy, vector image, solid dark background, cartoon style, funny



A wolf howling at the moon, wearing a suit and tie, vector image, solid dark background, cartoon style, funny



A banana wearing sunglasses and surfing on a giant wave, vector image, solid dark background, cartoon style, funny



A penguin wearing a superhero cape skateboarding in New York City, vector image, solid dark background, cartoon style, funny



An astronaut riding a horse on the moon, vector image, solid dark background, cartoon style, funny



Table 6. AI-generated designs catalogue.

3.3.1.3 Final Assembly

In this part of the process, the final image is assembled by combining the model image and the design. The procedure is straightforward: using Photoshop, the design is edited to remove the background, leaving only the object itself. Then, the cleared image is placed onto the picture of a model wearing the T-shirt or sweatshirt, creating the final look of the product. In Table 7, the final products are shown. These products are published on the website of AICHIC Ecowear.



Table 7. Final images for MVP-0 product catalogue.

3.3.2 Branding Strategy

AICHIC Ecowear was born from a fusion of sustainability, technology and innovation. The brand's inception was inspired by AI integration into day-to-day life with a vision to revolutionize the concept of fashion.

Brand Identity Prism

The brand identity prism is a framework developed by Jean-Noël Kapferer that defines a brand's identity from six angles: Physique, Personality, Culture, Relationship, Reflection, and Self-image (Ilanenko et al., 2020). In this section, the framework will be used to develop the initial brand identity for MVP-0.

- **Physique.** The physical aspects of AICHIC include its eco-friendly materials, stylish designs, and AI-generated prints.
 - Logo: it features the brand name "AICHIC ECOWEAR" in capitalized letters, font "Antonio". It is accompanied by three colorful, thick horizontal lines in the colors #DBDBDB ("Alto"), #E52B50 ("Amaranth") and #FFC901 ("Supernova"). The simplicity of the logo reflects modernity, and the vibrant colors stand for energy and creativity. Two versions of the logo (vertical and horizontal) are presented in Figures 8 and 9.



Figure 8. AICHIC's short vertical logo



Figure 9. AICHIC's full horizontal logo

- Style guide: AICHIC's style guide emphasizes minimalist aesthetics, eco-friendly materials and futuristic imagery. It ensures consistency across all brand communications and visual assets.
- Color Palette: The color palette of AICHIC Ecowear consists of vibrant colors that convey the brand personality, as shown in Figure 10:
 - #DBDBDB ("Alto"): This grey color represents metallic robot skin that is common in futuristic movies and is subconsciously associated with technology.
 - #E52B50 ("Amaranth"): Symbolizes creativity, passion, energy.
 - #FFC901 ("Supernova"): Reflects enthusiasm, adventure, excitement.



Figure 10. AICHIC's Brand identity color palette.

- Product presentation: products are shown in a modern and minimalistic way, highlighting innovative designs. Packaging is eco-friendly and may include a message about the brand's commitment to sustainability.
- **Personality.** AICHIC's personality is characterized by four main traits:
 - Sustainable: reflecting the brand's commitment to environmental responsibility.
 - Tech-savvy: emphasizing the brand's integration of technology, particularly through AI-generated prints.
 - Innovative: highlighting AICHIC's forward-thinking approach to fashion.
 - Liberal: meaning the brand's open-mindedness, inclusivity and progressive values.
- **Culture.** AICHIC stands for a community of individuals who are passionate about fashion, technology and making a positive impact on the planet.
- **Relationship.** AICHIC Ecowear focuses on building strong connections with its target audience through channels they are most used to, providing digital engagement. AICHIC uses social media platforms to tell the brand story through content creation, making the customers feel part of the brand.
- **Reflection.** This element represents the ideal customers to which the brand is marketed to. There are three types of them: tech enthusiasts, trendsetters and eco-conscious customers. The portraits of ideal customers are developed in section 3.1.3 *Early adopters*.
- **Self-image.** For consumers, AICHIC Ecowear represents a symbol of identity and expression, empowering them to be creative and lose the fear of standing out from the crowd.

3.3.3 Selling Platform Development

MVP-0 consists of a web page mockup developed using Wix.com, a user-friendly website creation tool. This online platform is designed to allow clients to purchase T-shirts and sweatshirts designed in section 3.3.1.

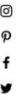
The mockup for MVP-0 is basic and straightforward. On the homepage, visitors find an array of products with their respective prices. Customers can choose between two basic color options for each product, white or black, as well as select a size ranging from XS to XXL, to accommodate diverse body types and preferences.

The distinctive feature of both the T-shirts and sweatshirts lies in their prints, which were generated through the application of artificial intelligence, specifically, utilizing the Stable Diffusion XL model. The original prompts from the images were also generated by AI language model ChatGPT. Therefore, both the concept of the design and the artistic implementation were made by AI.

In Figures 11 and 12 the web page design is shown with screenshots.



Wear the future: sustainable style, AI-inspired.



Let's Chat!



NEW ARRIVALS



I'm an avocado
55,00 €



Cottoncandy AI
55,00 €

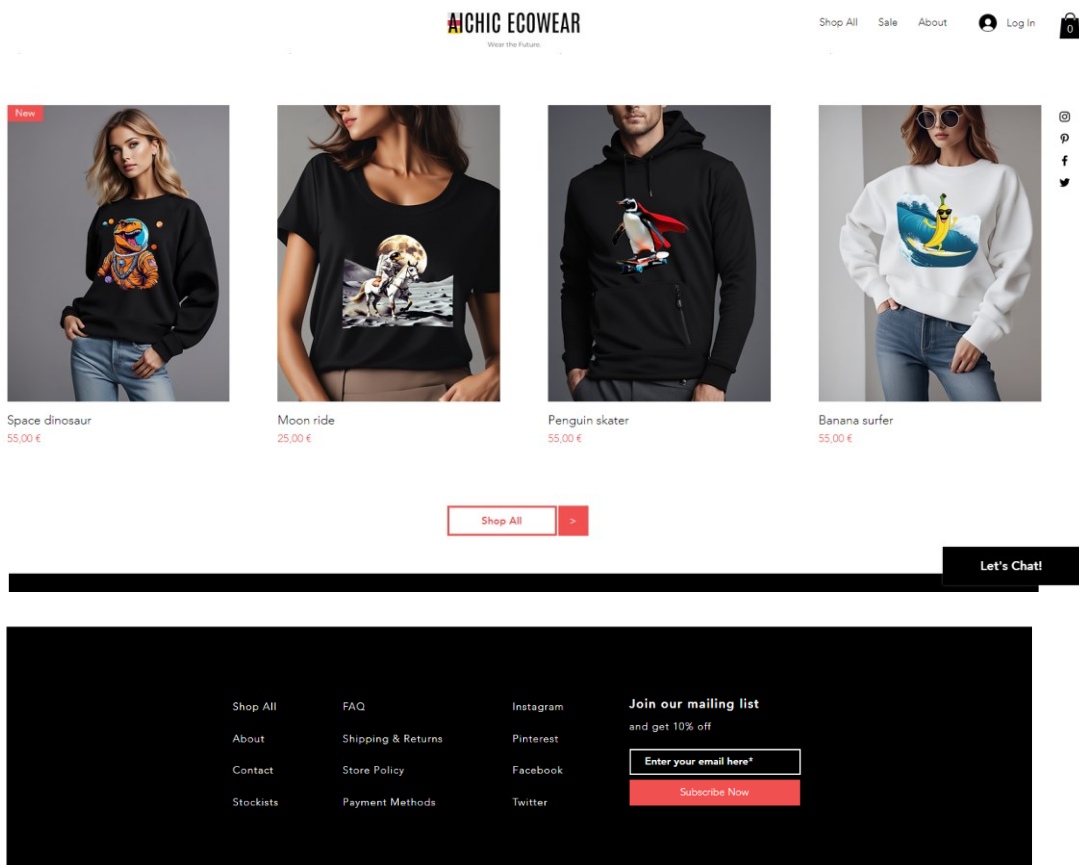


UFO Paris
25,00 €



Coach potato
25,00 €

Let's Chat!



Figures 11-12. AICHIC Ecowear webpage (MVP-0) screenshots.

After clicking on any product, the product card opens. This page contains a large image of the item along with the design image for detailed examination, as shown in Figure 13. It also displays the name of the item, reference number and price. There are buttons to select the color and size of the item, adjust the quantity and choose either "Add to Cart" or "Buy Now." For faster navigation at the top of the page there are buttons "Prev" and "Next" that lead to previous or next item respectively.

On the Home page, the entire catalog is displayed, including both male and female clothes, since the products are unisex. There is also a special "Sale" page dedicated exclusively to promoted items with a discount.

Customers have the option to register and create an account, and later log in using their email and password. This feature enhances customer loyalty and engagement, as registered users can save their information for faster purchases and add products to their "Favorites" library. Additionally, this serves a marketing purpose, as newsletters can be sent to users who have provided their email and consented to receive them.

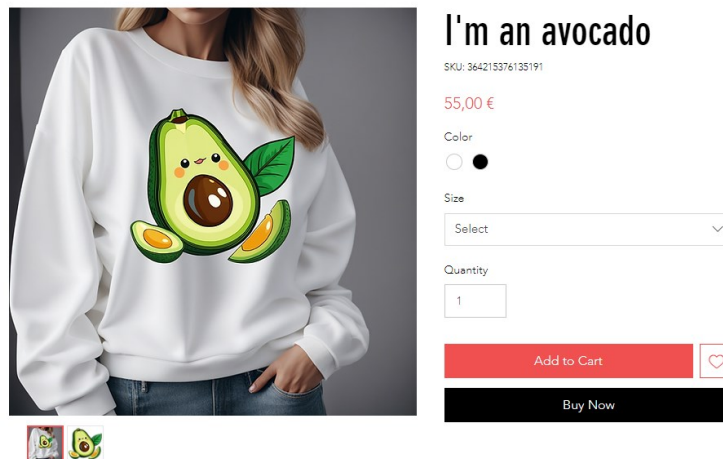


Figure 13. Product description card.

3.3.4 Key Performance Indicators

According to Alexandra Twin, there are four types of metrics used in business: Financial, Customer Satisfaction, Economic Performance, Marketing, IT, and Sales. The author provided a detailed classification of the KPIs that fall into each category, how to calculate them and how to benchmark the result (Twin, 2024). However, this study will only use three of them in order to adjust the metrics to the actual framework of the experiment.

There are three groups of Key Performance Indicators for this project:

- Customer Satisfaction KPIs: these indicators are designed to measure the quality of the product from the customer perspective and the likelihood of purchasing the product. There are 2 main indicators in this group that will serve as guides towards the direction of iterations: CSAT and NPS.
- Economic KPIs: These indicators serve to evaluate the business's economic performance based on the effectiveness of operations. This group includes the most common indicators used by startups, as mentioned in section 1.1.1 *Introduction to startups*.
- Digital Marketing: These indicators analyze the performance of the advertising strategy.

The complete list of KPIs, including formulas, purposes, variables and benchmark values is shown in Table 8.

Group	KPI	Formula	Purpose	Benchmark Values
Customer satisfaction	Customer Satisfaction (CSAT)	$(\text{Number of satisfied customers} / \text{Total number of customers surveyed}) \times 100$	Measure customer satisfaction with the product.	80% or above is considered good.
	Net Promoter Score (NPS)	Promoters - Detractors	Measure customer loyalty and likelihood to recommend the product.	Positive NPS is desired. Typically, NPS above 0 is considered good, above 50 is excellent.
Economic	Customer Acquisition Cost (CAC)	$\text{Total Cost of Marketing and Sales} / \text{Total Customers Acquired}$	Measure the cost to acquire a new customer. Lower CAC indicates more cost-effective acquisition strategies.	CAC should ideally be lower than Customer Lifetime Value (LTV).
	Average Order Value (AOV)	$\text{Total Revenue} / \text{Total Number of Orders}$	Measure the average value of each order. Higher AOV indicates customers are purchasing more.	AOV varies by industry but increasing AOV is generally a positive sign.
	Customer Lifetime Value (LTV)	$\text{Average Revenue per Customer} \times \text{Average Customer Lifespan}$	Measure the total revenue a business can expect from a single customer over their lifetime.	LTV should be significantly higher than CAC.
Marketing	Click-Through Rate (CTR)	$(\text{Total Clicks} / \text{Total Impressions}) \times 100$	Measure the effectiveness of digital ads in generating clicks. Higher CTR indicates more engaging ads.	5% for ecommerce is considered good.

Table 8. KPI overview (Twin, 2024)

3.3.5 Budget Plan

This section outlines the initial budget planning, detailing both fixed and variable costs estimates. Table 8 displays the fixed costs, with a total projection of €390.2 per month.

Expenses	Cost (€/month)	Details
Website hosting	29.0	Wix.com platform offers a standard hosting plan.
AI design software subscription	11.2	Playground.com offers a Pro plan allowing to generate up to 1000 images per month and use them commercially for 12\$/month (€11.2).
Marketing	300.0	These expenses cover Google Ads services and social media ads.
Eco delivery services	50	An average subscription price for eco delivery companies like Ecoscooting, Correos and GLS in Spain.
Total expenses	390.2	

Table 9. Fixed monthly cost estimation

Needless to say, this initial estimation may increase depending on Marketing performance. For assessing it, CTR and conversion funnel KPIs are measured. According to Clicka Digital, a good CTR and Conversion funnel lies between 3-5% across industries.

Variable costs cover the production, delivery, packaging and on-demand printing services. The expenses are presented in Table 9.

Expenses	Cost (€/unit)	Details
T-shirt	7.7	Several services like Printful and helloprint offer digital printing on organic cotton T-shirts and sweatshirts. The price is calculated including the base product and printing.
Sweatshirt and printing	19	
Packaging materials	1.7	<i>Cajas para envíos</i> offer personalized biodegradable packaging boxes. They also print client's logo on the package.

Table 10. Variable costs.

3.3.5.1 Selling Price Calculation

Based on the cost of goods sold (COGS), determined above in Table 9, selling price is calculated assuming gross profit margin at 120%. In Spain, VAT is 21%, it is also included in the calculation.

$$\text{Selling price for Tshirts} = (1 + 1.2) * (7.7 + 1.7) * (1 + 0.21) = \text{€}25$$

$$\text{Selling price for Sweatshirts} = (1 + 1.2) * (19 + 1.7) * (1 + 0.21) = \text{€}55$$

With this selling prices, fixed costs can be covered with 16 sold T-shirts or 9 sold sweatshirts per month.

3.3.6 Promotion strategy

First, it is convenient to analyze the promotion strategy implemented by competitors. For this purpose, two well-established companies are examined: the Spanish fashion brand Zara and the Chinese e-commerce fashion startup Shein.

According to Brand Vision Insights, Zara uses social media platforms for promotion. They make use of their YouTube channel to show behind-the-scenes design processes, which creates a sense of exclusivity among customers. Additionally, they use their Instagram account to share fashion images that promote the latest collections in an artistic way. Both channels perfectly align with the brand identity (Brand Vision, n.d.).

In the case of Shein, their promotion strategy on social media involves collaborating with bloggers and influencers who have a moderate number of followers on platforms like TikTok and YouTube (Allison, 2024). These influencers partner with Shein to create content that promotes clothes and accessories purchased from Shein to their audience, which largely overlaps with Shein's target. This type of content is

commonly referred to as a "haul" in internet slang, where influencers "unpack" their Shein packages and show the items they bought, emphasizing their low price and stylish appearance.

Based on this analysis, the promotion channels for AICHIC will involve maintaining an active presence on social media and creating engaging content. This content will include behind-the-scenes videos that highlight sustainable fashion practices and local manufacturing, as well as inspirational content aimed at empowering customers to embrace their uniqueness and stand out confidently.

According to Statista, as of January 2024, Facebook, YouTube, Instagram and TikTok lead the top social media platforms with the most monthly active users, with Facebook reaching 3 billion users and occupying the first place (Statista, 2024). AICHIC plans to utilize these four platforms to publish its content and run marketing campaigns.

On Facebook, Instagram Reels, Youtube Shorts and Tiktok the same content will be published daily, targeting peak engagement times between 7 a.m. and 8 a.m., as suggests a study conducted by Buffer (Lang, 2024). The content will include behind-the-scenes videos showing sustainable fashion practices, announcements of new collections and reposting customers' content featuring AICHIC designs. Additionally, interactive posts such as polls and Q&A sessions will engage the audience and gather feedback.

Following Shein's influencer marketing model, AICHIC will also use influencer partnerships. However, instead of focusing on affordability like Shein, AICHIC will collaborate with young tech bloggers whose values align with AICHIC's focus on technology and innovation, rather than low-cost fashion. According to Noticias Ai, Ringa Tech, Dot CSV, and AprendelA con Ligdi Gonzalez are the most popular YouTube channels that create content related to AI, making them the most promising candidates for AICHIC's first promotion campaign (Dun, 2023).

To establish a strong online presence, AICHIC will implement both SEO and SEM strategies. SEO will focus on keyword research and on-page optimization to improve search rankings. This strategy will drive cost-effective traffic to the website and needs little to no capital investment. SEM strategies, however, will include paid search ads, display ads and pay-per-click (PPC) campaigns, provided by Google Ads, to achieve immediate visibility.

Finally, email marketing can be an effective tool for sharing newsletters with customers who register on the website and provide their email addresses. The

newsletters will inform customers about new collections, discounts, sales, and other relevant information. This tool enhances customer loyalty as well as maintains the brand's visibility among existing customers.

3.3.7 MVP-0 test preparation

After finishing the MPV-0 digital structure, a link to the product was sent to 39 early adopters, accompanied by a link to a Google Forms survey that should be filled by each early adopter after finishing the testing. The survey consists of 9 questions that gather the following information: age range, customer segment, products' design rating, user-friendliness of the website rating, importance of sustainability for the customer, likelihood of purchase, customer satisfaction rating (for CSAT calculation), likelihood of recommendation to others (for NPS calculation) and suggestions for improvement, which requires a long answer. The survey can be found in the Annex II.

The results of the first survey are presented in the following section.

4 RESULTS

4.1 MPV-0 TEST RESULTS

After several weeks of gathering survey data, all 39 responses were obtained and analyzed in a spreadsheet. In this section, the most relevant results are presented.

4.1.1 Age and segment

As previously mentioned, the early adopters are predominantly young, with ages not exceeding 30 years. Specifically, 49% of the respondents are aged 18 to 24, 46% fall within the 25-30 age range, and only 5% are under 18 years old (Figure 14).

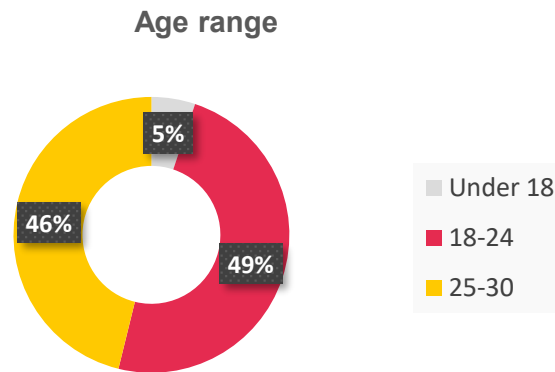


Figure 14. Early adopters age groups representation (chart).

Regarding the segment breakdown, the most predominant group consists of tech enthusiasts, comprising 47% of the respondents. Following this group, trendsetters make up 30%, and eco-conscious customers 23%, as Figure 15 shows.

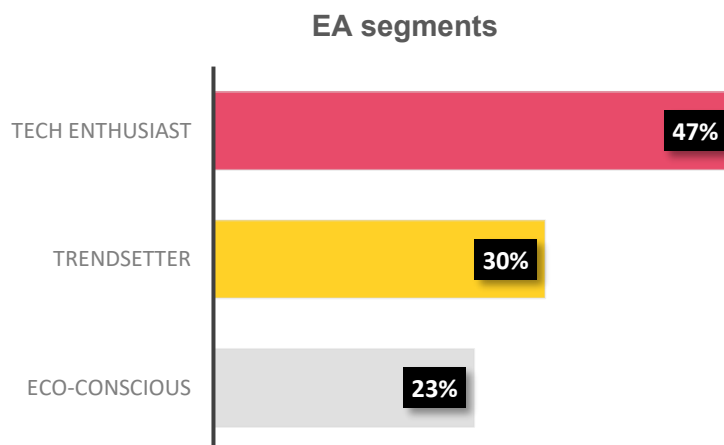


Figure 15. Early adopters' segments composition presentation (chart).

It's important to note that the survey permitted respondents to select multiple answers for this question, so respondents who identify with more than one category are included in the percentage calculations as well.

4.1.2 Satisfaction

Within each group, the average satisfaction slightly varies, however the results are not bad in the first place. The most unsatisfied segment is tech enthusiasts with an average of 6.82. Eco-conscious customers and trendsetters show greater level of satisfaction, scoring 7.45 and 7.50 respectively, as shown in Figure 16.

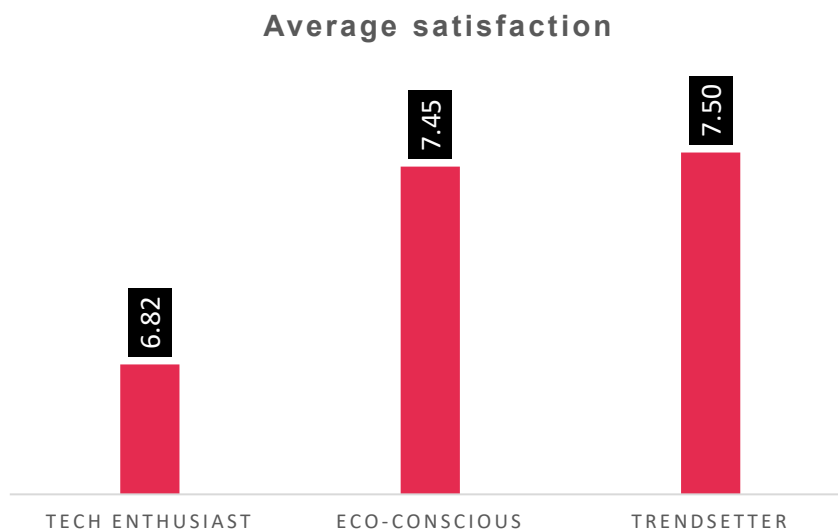


Figure 16. Average satisfaction index within the segments (chart).

An unsatisfied customer refers to a respondent with a level of satisfaction lower than 5. In total, the number of unsatisfied customers ascends to 10, while the number of satisfied customers is 29. With these values, the CSAT indicator is calculated.

$$CSAT = \frac{\text{satisfied customers}}{\text{total respondents}} \cdot 100\% = 74\%$$

Literature indicates that any CSAT value higher than 80% is considered good. However, this result is still higher than the initial expectations and is equally decent for a prototype.

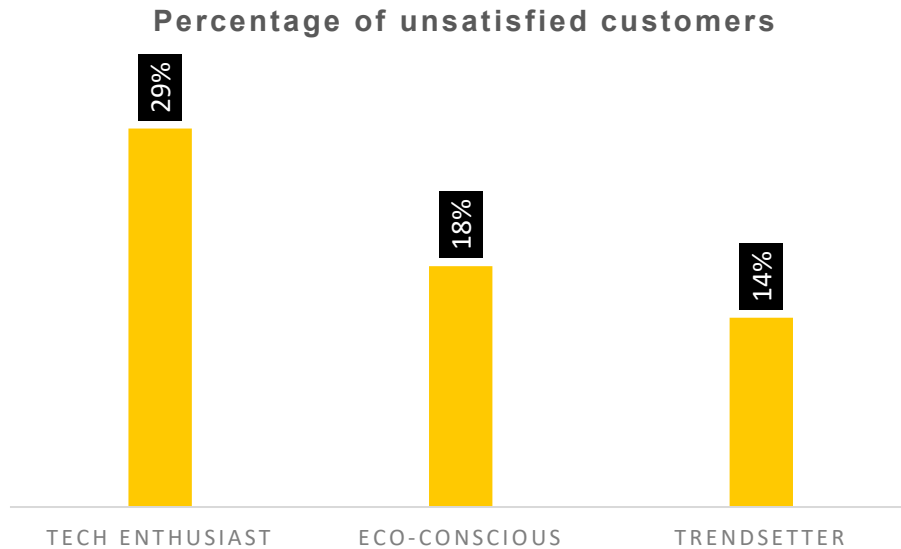


Figure 17. Percentage of unsatisfied customers among the segments (chart).

The tech enthusiasts segment presents the greatest percentage of unsatisfied customers (29%), followed by eco-conscious customers (18%) and trendsetters (14%), according to Figure 17.

The final question in the survey required to write suggestions that could help to improve the prototype accordingly to the customers' needs. It was an open question that permitted early adopters to write a long answer. Each suggestion was analyzed manually, and some similarities were found among the answers. They were categorized into four groups, as shown in Figure 18.

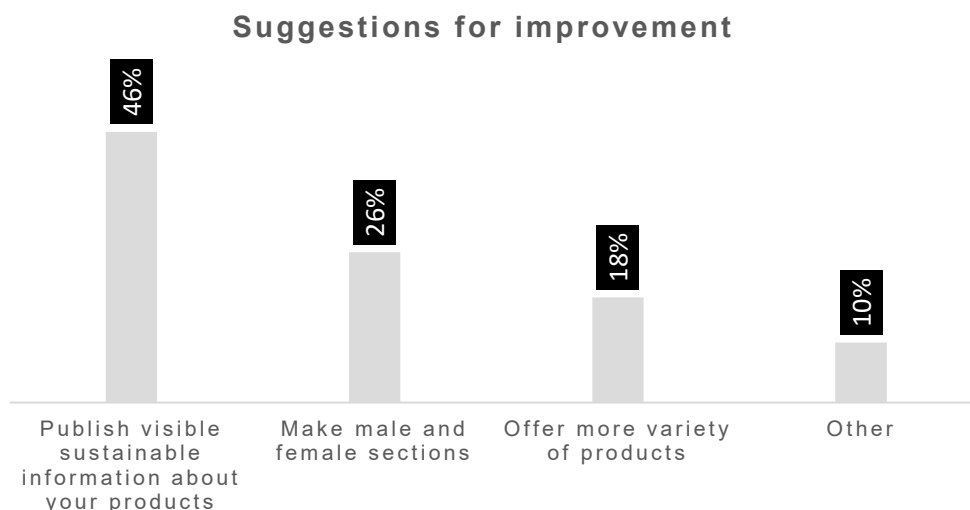


Figure 18. Suggestion category percentage (chart).

Suggestions that could not be categorized are included in the group “Other”.

These suggestions will be considered for the first iteration in order to improve customer satisfaction in the second test for MPV-1.

4.1.3 NPS

Finally, the NPS is calculated based on the question regarding likelihood of recommendation to others. Early adopters chose a number between 0 and 10 that represents the probability of them acting as promoters of the product. NPS is calculated by subtracting detractors from promoters, according to the rule, represented on Figure 19.



Figure 19. NPS calculation categories representation.

NPS value can range from -100 to 100. Negative numbers indicate bad results that need improvement. NPS between 0 and 30 is considered a good result. Any result between 31 and 100 is an excellent result.

As shown in Figure 20, NPS for MVP-0 is 9. This result is acceptable, it means that there are twice as many promoters than detractors. However, it can be improved during iteration to reach a value higher than 30.

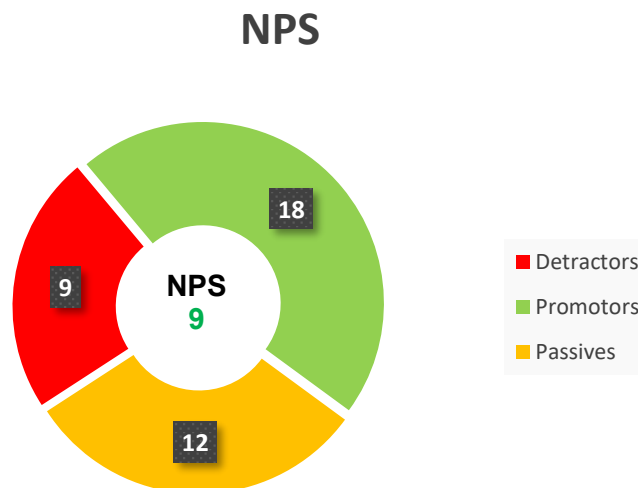


Figure 20. NPS visual representation (chart).

4.2 FEEDBACK ANALYSIS

Based on the early adopters' feedback in the first survey, the three main suggestions were addressed (Figure 18).

First of all, the survey results showed that transparency about business's sustainability is the most important feature for the early adopters. According to their comments, MVP-0 was positioned as a sustainable business, however there was no real evidence published on the website. Some of the respondents called it "greenwashing", which is a false claim of environmental benefits of a product, and it has a negative impact on the company's reputation. Early adopters suggested developing a clear sustainability management strategy, such as KPIs, sustainable product manufacturing and delivery, and make it visible on the website.

Another suggestion from the survey was to introduce distinct sections for Men and Women's clothing. Additionally, feedback pointed out the limited variety of products. Both issues can be addressed by expanding the product catalog and creating dedicated pages for Men and Women's sections on the website.

4.3 MVP-1 DEVELOPMENT

4.3.1 Additional KPI category



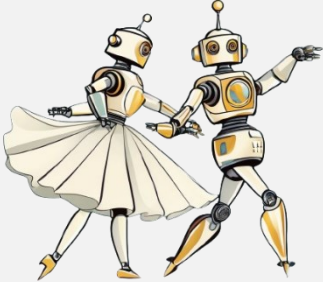

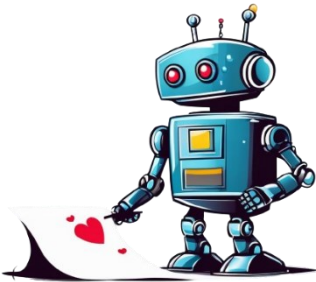

In addition to the business KPIs developed in section 3.3.4 *Key Performance Indicators*, a new category of Sustainability KPIs is introduced to satisfy early adopter's need for transparent information.

- Sustainability KPIs: This group refers to those indicators that track the eco-friendliness of the business, since one of the main characteristics of the branding strategy is sustainable clothing and one third of the estimate market size care about being sustainable.

The Global Reporting Initiative (GRI), a widely recognized standard for sustainability reporting, supports the selection of Carbon footprint, Waste management, Energy usage, and Water usage as key sustainability KPIs for e-commerce businesses (GRI Indicator Table, n.d.). These indicators will be used by AICHIC to track sustainability performance, and this information will be published on the website.

4.3.2 Additional designs

To address customers' requests for a broader product catalogue, as expressed in frequent suggestions, new designs have been developed using the same AI-assisted method described in Section 3.3.1. Additionally, some customers have complained about the limited number of pictures featuring male models. Therefore, in this iteration, the new designs have been added to male models.

Design Prompt	Design	Final Product
A sloth on vacation relaxing in a hammock, cartoon, funny, vector image, solid background		
Elegant robots performing a ballet dance routine, cartoon, funny, vector image, solid background		
Cute robot painting a picture, cartoon, funny, vector image, solid background		

Miniature robot tending to bonsai trees, cartoon, funny, vector image



Cute robots engaged in alchemical experiments, surrounded by bubbling potions, cartoon, funny, vector image, solid background



Table 11. Catalogue expansion for MVP-1 based on customers' comments.

4.3.3 New website layout

Addressing the needs of the early adopters, several pages are added in the website structure: Men, Women and Sustainability. These links are accessible from every page of the site and are located in the horizontal banner. On the home page, a more interesting design is created, maintaining the brand identity colors, as shown in Figure 21.

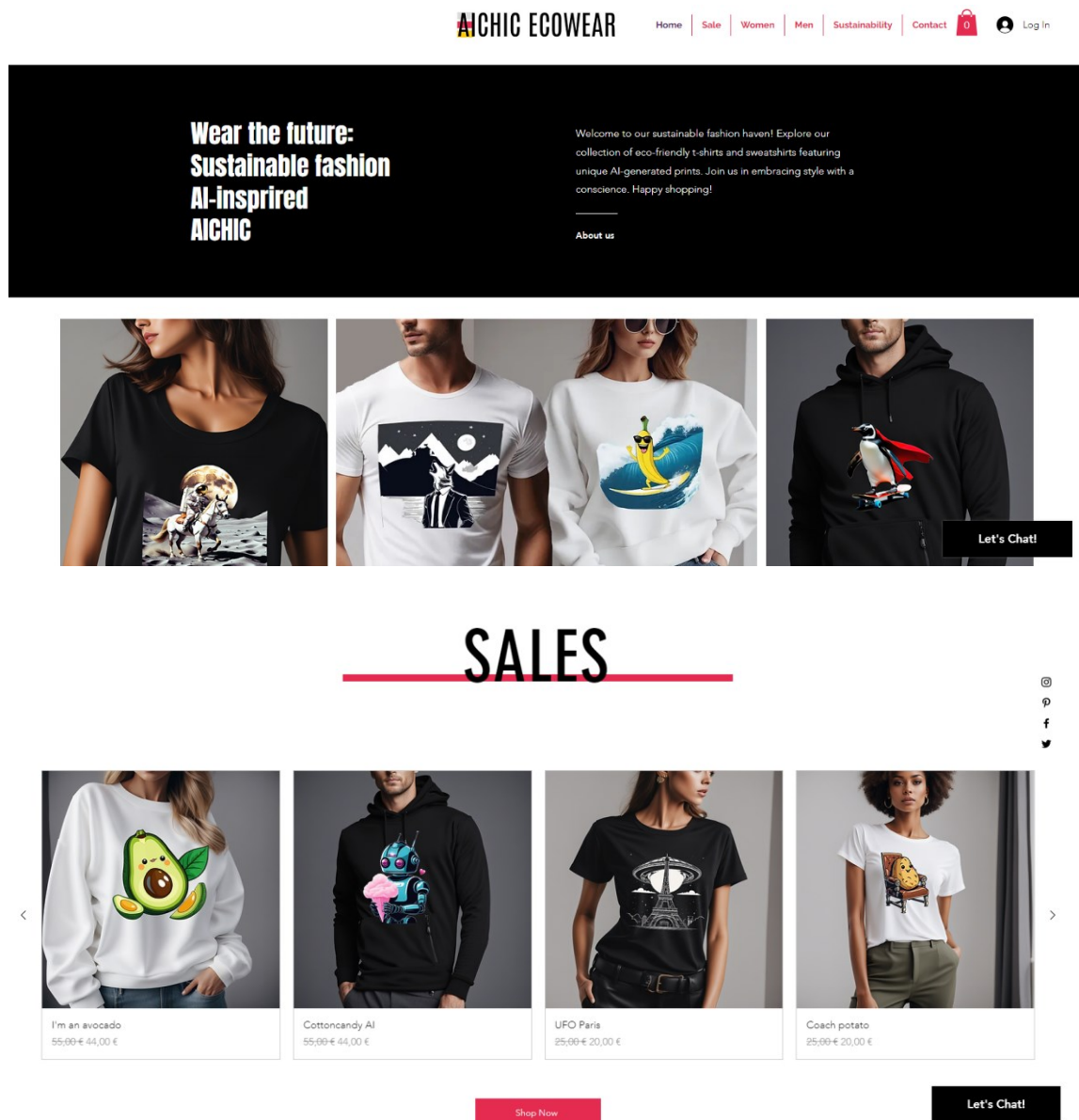


Figure 21. MVP-1 Home page screenshot.

Furthermore, the sales section is added directly on the homepage to give more visibility to the promoted products. It also has a button “Shop Now” that opens the whole sales catalogue with all the discounted products.

In Men and Women section models of respective genders are shown separately, repeating the structure of Home page. In Figure 22 and 23, the screenshot of Women and Men section are presented respectively.

The screenshot displays the AICHIC ECOWEAR website interface. At the top, the navigation bar includes 'Home', 'Sale', 'Women', 'Men', 'Sustainability', 'Contact', a shopping cart icon with '0' items, and a 'Log In' button. The main heading is 'Explore the Collection' with the tagline 'Embrace fashion that cares for the planet'. Social media icons for Instagram, Pinterest, Facebook, and Twitter are on the right. The 'Now on SALE!' section features five items:

Item Name	Original Price	Current Price	Label
I'm an avocado	55,00 €	44,00 €	
UFO Paris	25,00 €	20,00 €	Best Seller
Coach potato	25,00 €	20,00 €	
Space dinosaur	55,00 €	44,00 €	New
Moon ride	25,00 €	20,00 €	

Each item has an 'Add to Cart' button. A 'Let's Chat!' button is located at the bottom right of this section. The 'New Arrivals' section features four items:

Item Name	Price	Label
Candy lover	25,00 €	New
Mechanical dance	55,00 €	New
Bonsai peace	25,00 €	New
Alchemist	55,00 €	New

Each item has an 'Add to Cart' button.

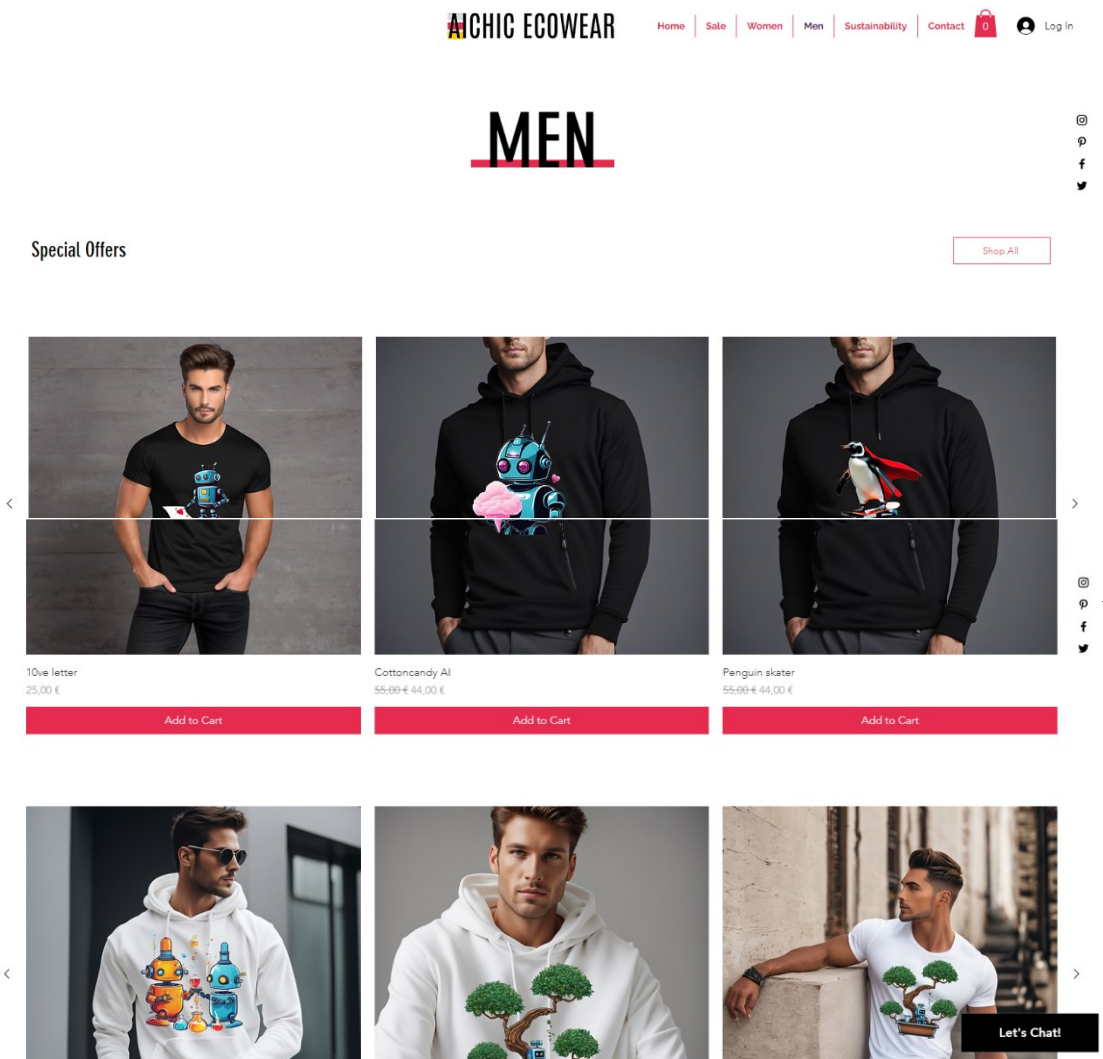


Figure 22-23. Women and Men section screenshots respectively.

Sustainability Section

In the Sustainability section, users can find a clear explanation of AICHIC's eco-friendly policies. At the beginning of the page, there is a promotional message explaining the values of AICHIC and the positive impact it aims to bring to the world.

Users can download Sustainability Reports directly from the website, as shown in Figure 24. At this stage of the project, there are no reports available yet because the business is not operational. However, offering these reports will be a distinctive feature that adds value for customers and helps avoid the risk of losing reputation and customer loyalty due to accusations of greenwashing.

OUR STORY

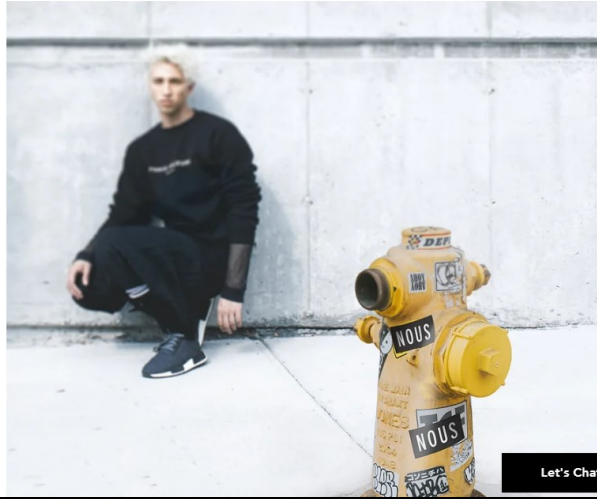


Welcome to AICHIC ecowear, where sustainable fashion meets cutting-edge style. We're not just a brand; we're a revolution dedicated to serving the environmentally conscious. Our commitment to sustainability goes beyond words; we track key performance indicators (KPIs) like water and energy usage reductions to ensure a positive impact.

Our garments are crafted using organic cotton, ensuring a softer feel while minimizing environmental impact. The inks we use for our AI-generated prints are water-based and eco-friendly, providing vibrant colors without harming the planet.

At AICHIC ecowear, we embrace circular fashion by offering recycling programs for your old garments. Our eco-friendly delivery options use minimal packaging, reducing waste and carbon emissions.

Join us in wearing your values sustainably and stylishly. Explore our collection of basic organic cotton t-shirts and sweatshirts adorned with unique AI-generated prints. Express yourself while supporting ethical production practices. Together, let's make a positive impact—one stylish step at a time.



Let's Chat!

Sustainability Commitment

We track our carbon footprint



At AICHIC ecowear, we take our environmental impact seriously. We actively track several key performance indicators (KPIs) to ensure that our operations are as sustainable as possible. Some of the most important sustainability KPIs we monitor include carbon emissions per product, water usage in production, energy consumption, waste generation, and the use of recycled materials in our products. By consistently monitoring and improving these metrics, we aim to minimize our carbon footprint and contribute positively to the planet's health.

[Check Sustainability Reports](#)

Figure 24. Sustainability section screenshot.

In Figure 25, more information is provided regarding sustainable practices adopted by AICHIC, such as the use of ecological ink and eco-friendly packaging.

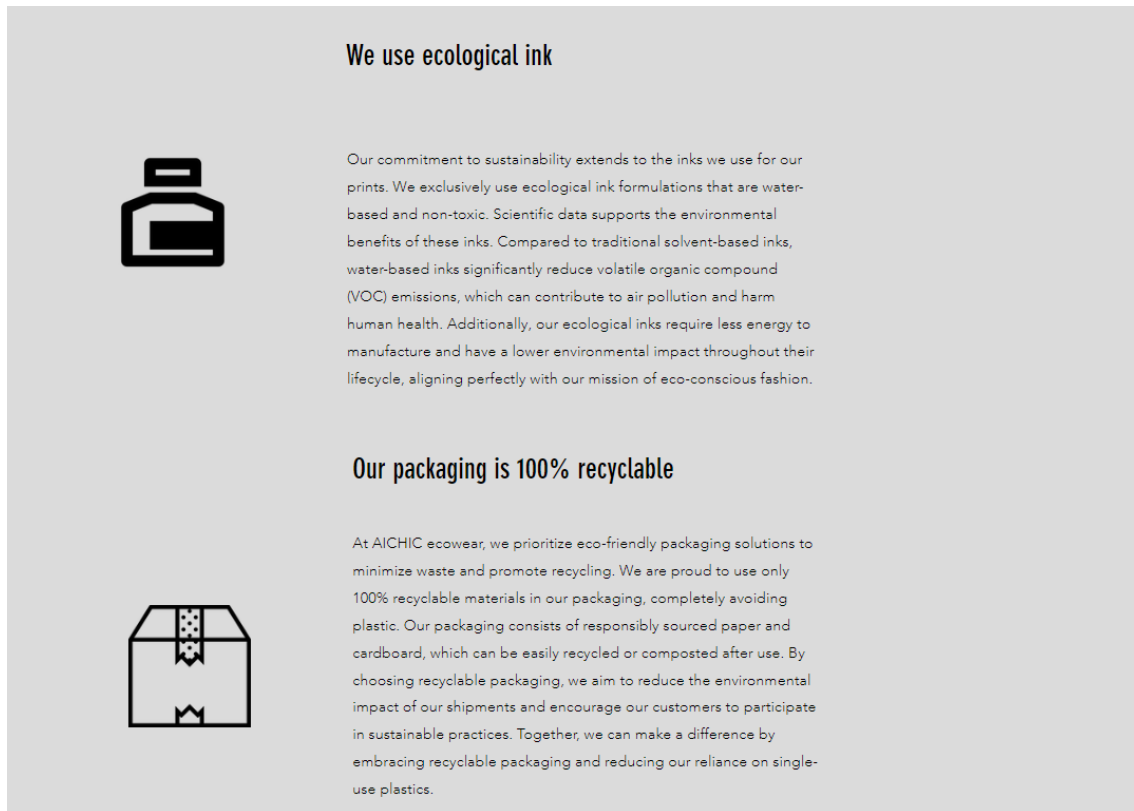


Figure 25. Sustainability page screenshot (continuation).

4.4 MVP-1 TEST RESULTS

After implementing the changes described in the section above, a second test was conducted. The same group of early adopters were presented with the iterated product based on their feedback. The second survey can be found in the Annex II. In this section, the results of this customer development test are analyzed.

4.4.2 Satisfaction

In Figure 26, the average satisfaction for MVP-1 test are compared to the previous results of MVP-0 test. The number notably increased across the three customer segments, the highest value reaching 8.55. It is worth noting that previously in MVP-0 test, the most satisfied group was trendsetters, however, now eco-conscious customers present the highest value. This result may be due to the added Sustainability section and transparent information on the website. However, tech enthusiasts remain the least satisfied group.

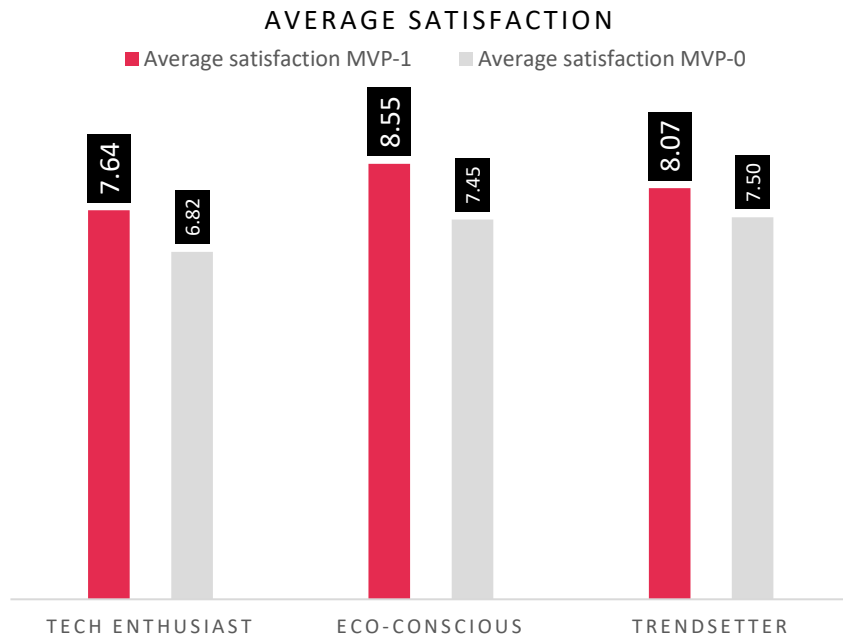


Figure 26. Average satisfaction results compared between MVP-0 and MVP-1.

The CSAT KPI value also increased, reaching the value of 87%, versus 74% in MVP-0. This new value surpasses the benchmark of 80%, indicating a very good performance.

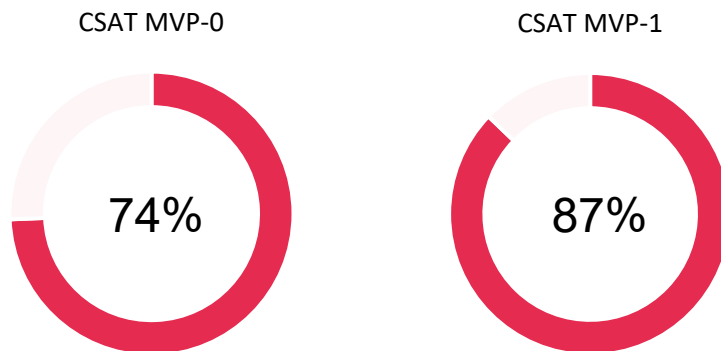
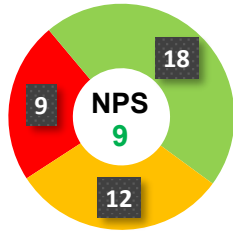


Figure 27. CSAT results comparison

4.4.3 NPS

The results for NPS also increased in the second test, rising from 9 to 12, resulting from a gain of 2 promoters. Overall, this result is satisfactory, considering the relatively small number of testers. In Figure 28, the visual comparison between MVP-0 and MVP-1 is presented.

NPS MVP-0



NPS MVP-1

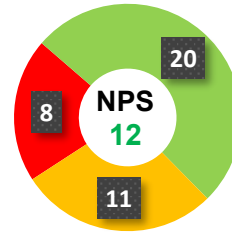


Figure 28. NPS results comparison.

5 DISCUSSION

In this section, the findings of the study are discussed in relation to the objectives stated in section 2. *Project Objectives*. The main objective of this study was to apply Lean Startup principles to develop a clothing brand provided with AI designing methods. The theoretic methods described in literature were applied to build a business plan and a brand strategy from scratch, relying on the early adopters' feedback to evaluate the initial performance and see in what direction to pivot.

The findings of the project revealed that the integration of Lean Startup principles facilitated the development of the brand in alignment with customer's preferences. The iterative feedback loop led to improvements in the product development and marketing, as well as contributed to higher customer satisfaction.

Answering the research questions, it was found that key performance indicators such as CSAT and NPS were effective in measuring the performance of feedback-driven product modifications (RQ1). After iteration, the CSAT value increased by a 17.5%, surpassing the benchmark value. NPS also increased with a gain of 2 promoters. Also, after iteration, more information about sustainable practices of the business were published on the website, justifying the business's commitment, which resulted in a surge in satisfaction among eco-conscious customers, proving the effectiveness of the methodology (RQ2). Furthermore, the study identified both benefits and limitations of using AI text-to-image design generation (RQ3). One of the notable limitations of this method is imitability, which is a temporary competitive advantage and not sustainable in long term. However, its most important benefit is low cost and high savings in photography production and time investment, since all the designs were created in one day and where free to make. Practical implications of this work encompass informing entrepreneurs and businesses on the benefits of iterative feedback loops.

Comparing the findings with existing literature, there was alignment with previous studies on Lean Startup methodologies. Karlsson et al. applied this method to large businesses and reported that direct interaction with customers enhances product development, however there are certain barriers in large companies that hinder this type of management compared to startups, i.e. stakeholders' resistance to change.

6 CONCLUSIONS

This study aimed to prove the effectiveness of Lean Startup methodology applied in e-commerce company that used AI as its distinctive feature. For that, a new brand of clothing was created accompanied by a detailed business plan, including a BMC, strategic marketing techniques (4Ps and Brand Prism), as well as competitors' analysis and SWOT. Two main principles of the LS were applied, customer interaction and iterative feedback loop in order to create an appealing product. The brand was intended to sell t-shirts and sweatshirts with AI-generated designs and addressed three customer segments: tech enthusiasts, trendsetters and eco-conscious customers, all ages between 15 and 30. The customers interacted with a prototype of online store platform and were interviewed afterwards. Based on their feedback, the platform was iterated, and the customers tested it again.

Two main KPIs were measured to evaluate the performance of the iteration, NPS and CSAT. Both increased satisfactorily after the iteration, CSAT reaching an excellent result of 87%. Direct interaction with potential customers permitted the owner to understand their needs and offer a product that fulfills them rather than offering a product he supposes would create value. Overall, this method improves management, since time and capital are no longer wasted in development of the products that are not aligned with customer's perception of quality.

The study detected limitations of text-to-image generation in fashion industry, which is, although timesaving, easy to imitate. Businesses, determined to use this technique, should invest in their own AI algorithm incorporated directly in their selling platform to differentiate from competitors and create more value.

Although the effectiveness of Lean Startup methodology was proven, there are still questions that require further research. Artificial intelligence use in art and fashion is booming, new methods of expressing creativity appear with rapid pace. One of the questions would be what methods could be used to avoid imitability and differentiate products created with AI from the competitors.

I therefore believe that this study offers interesting insights before and after adopting innovative strategies, including Lean Startup methodologies and similar approaches.

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9 BIBLIOGRAPHY

Adigital. (2023). El comercio electrónico creció en Europa un 6% en 2022 · Adigital. Adigital. <https://www.adigital.org/actualidad/el-comercio-electronico-crecio-en-europa-un-6-en-2022/#:~:text=La%20aportaci%C3%B3n%20del%20ecommerce%20al,42%25%20del%20PIB%20en%20Espa%C3%B1a> (Retrieved 14/03/2024)

Allison. (2024). Shein's market strategy: how the Chinese fast-fashion brand is conquering the West. Daxue Consulting - Market Research And Consulting China. <https://daxueconsulting.com/shein-market-strategy/>

Bennett, N., Lemoine, J., (2014). What VUCA Really Means for You. Harvard Business Review, Vol. 92, No. 1/2, 2014.

Blank, S. (2007), The Four Steps to the Epiphany: Successful Strategies for Products that Win, Cafepress.com, CA.

Blank., S. (2013). Why the lean start-up changes everything. Harv. Bus. Rev. 91 (5), 63-72.

Borji A., (2022). Generated Faces in the Wild: Quantitative Comparison of Stable Diffusion, Midjourney and DALL-E 2. arXiv.org. <https://arxiv.org/abs/2210.00586>

Botteri, P. (2008). One Number to Manage Your SaaS Sales &Marketing Spend: The CAC ratio. Bessemer Venture Partners Winter 2009 Release. *Retrieved 09/11/2023*

Carvalho, A., Levitt, A., Levitt, S., Khaddam, E., & Benamati, J. (2019). Of-the-shelf artificial intelligence technologies for sentiment and emotion analysis: a tutorial on using IBM natural language processing. Communications of the Association for Information Systems. 44(1), 43. 918–943. <http://doi.org/10.17705/1CAIS.04443>

Choi, W., Jang, S., Kim, H.Y. et al. (2023). Developing an AI-based automated fashion design system: reflecting the work process of fashion designers. Fash Text 10, 39. <https://doi.org/10.1186/s40691-023-00360-w>

Comercio Conectado - Las principales leyes que afectan al ecommerce en España. (n.d.). <https://comercioconectado.gob.es/es-es/Impulsa/Paginas/Principales-leyes-que-afectan-al-ecommerce.aspx> (Retrieved 14/03/2024)

Dhariwal P., Nichol A., (2021). Diffusion models beat GANs on image synthesis, 35th Conference on Neural Information Processing Systems 1–15.

Dun, J. (2023). Los 3 mejores canales de YouTube sobre la Inteligencia Artificial. Noticias Ai. <https://noticias-ai.com/herramientas-ai/los-3-mejores-canales-de-youtube-sobre-la-inteligencia-artificial/>

Eisenmann, T. (2011). "Business Model Analysis for Entrepreneurs." Harvard Business School Background Note 812-096, December 2011.

Eisenmann, T., Ries, E. and Dillard, S. (2011). Hypothesis-driven entrepreneurship: the lean startup. Harvard Business School Background Note 812-095, pp. 1-23.

Fratini, F., Bianchi, M., De Massis, A. and Sikimic, U. (2014). Early Adopters of Platform Innovations. J Prod Innov Manag, 31: 466-488. <https://doi.org/10.1111/jpim.12108>

Goodfellow, I., Pouget-Abadie, J., Mirza, M., Xu, B., Warde-Farley, D., Ozair, S., ... & Bengio, Y. (2014). Generative adversarial nets. Advances in neural information processing systems, 27.

Greene, F. (2020). Entrepreneurship Theory and Practice. Bloomsbury Publishing. ISBN 9781137589552.

GRI Indicator Table. (n.d.). Wikirate, An Open ESG Data Platform. https://wikirate.org/GRI_Indicator_Table (Retrieved 10/03/2024)

Groeger L., Buttle F., (2015). Customer Lifetime Value. Wiley Encyclopaedia of Management: 1–3. doi:10.1002/9781118785317.weom090070. ISBN 9781118785317.

Ianenko, M., Stepanov, M., & Mironova, L. (2020). Brand identity development. E3S Web Of Conferences, 164, 09015. <https://doi.org/10.1051/e3sconf/202016409015>

Inditex. Sostenibilidad. Inditex.com. <https://www.inditex.com/itxcomweb/es/sostenibilidad> (Retrieved 12/03/2024)

INE - Instituto Nacional de Estadística. (2024). INEbase / Nivel y condiciones de vida (IPC) / Índices de precios de consumo y vivienda / Índice de precios de consumo / Últimos datos. INE. https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=125473617_6802&menu=ultiDatos&idp=1254735976607#:~:text=%C3%9Altima%20Nota%20de%2

[Oprensa&text=El%20indicador%20adelantado%20del%20IPC,hasta%20el%202%2C9%25](#) (Retrieved 13/05/2024)

Ko, H.-K., Park, G., Jeon, H., Jo, J., Kim, J., & Seo, J. (2023). Large-scale text-to-image generation models for visual artists' creative works. Proceedings of the 28th International Conference on Intelligent User Interfaces.

Kohavi, R., Longbotham, R., Sommerfield, D. et al. (2009). Controlled experiments on the web: survey and practical guide. *Data Min Knowl Disc* 18, 140–181. <https://doi.org/10.1007/s10618-008-0114-1>

Kumar, L., Singh, D.K. (2023). A comprehensive survey on generative adversarial networks used for synthesizing multimedia content. *Multimed Tools Appl* 82, 40585–40624. <https://doi.org/10.1007/s11042-023-15138-x>

Lang, K. (2024). Best time to post on Instagram in 2024 (With Heatmap). Buffer Library. <https://buffer.com/library/when-is-the-best-time-to-post-on-instagram/#:~:text=The%20best%20times%20to%20post,to%20get%20the%20most%20engagement>.

Lindgren E. and Münch J. (2016). Raising the odds of success: the current state of experimentation in product development. vol. 0, pp. 1–12, 2016, doi: 10.1016/j.infsof.2016.04.008.

Luisgomeztravel: I will be in madrid taking commercial pictures for your brand for \$120 on fiverr.com. (2024) Fiverr.com. https://www.fiverr.com/luisgomeztravel/create-your-life-style-pictures-for-your-brand?context_referrer=search_gigs&source=top-bar&ref_ctx_id=6dcddb9acd074025a2674afc8ae59498&pckg_id=1&pos=3&context_type=auto&funnel=6dcddb9acd074025a2674afc8ae59498&imp_id=a2d0653e-0d8b-46bf-96c1-78b4e4983909 (Retrieved 21/02/2024)

Nervana O. H. (2023). Artificial intelligence's effects on design process creativity: "A study on used A.I. Text-to-Image in architecture". *Journal of Building Engineering*, Volume 80, 107999, ISSN 2352-7102, <https://doi.org/10.1016/j.jobbe.2023.107999>.

Nucleus_AI. (2023). ChatGPT as CEO: Startup's €400K profit & rapid success with AI. YourStory.com. <https://yourstory.com/2023/04/chatgpt-ai-ceo-profitable-startup-aesthetic-apparel> (Retrieved 17/11/2023)

Osterwalder, A., Pigneur, Y. (2009). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. John Wiley & Sons.

Ramesh, A. (2021). Zero-Shot Text-to-Image Generation. arXiv.org. <https://arxiv.org/abs/2102.12092v2>

Reed S., Akata Z., Yan X., Logeswaran L. Schiele B., Lee H. (2016), Generative Adversarial Text to Image Synthesis. Proceedings of the 33 rd International Conference on Machine Learning, New York, NY, USA, 2016. JMLR: W&CP volume 48. <https://doi.org/10.48550/arXiv.1605.05396>

Reichheld, F. (2003). One Number You Need to Grow. Harvard Business Review. 81 (12): 46–54, 124. PMID 14712543. Archived from the original on 10 March 2013. (Retrieved 09/11/2023)

Rich, E., (1983). Artificial Intelligence. New York: McGraw-Hill, 1983.

Ries, E. (2008), The lean startup. (n.d.). <https://www.startuplessonslearned.com/2008/09/lean-startup.html> Retrieved 16/10/2023

Ries, E. (2011), The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Business, Crown Business, New York, NY.

Rombach, R., Blattmann, A., Lorenz, D., Esser P., Ommer, B. (2023). High-Resolution image synthesis with latent diffusion models - Computer Vision & Learning Group. Computer Vision & Learning Group. <https://ommer-lab.com/research/latent-diffusion-models/> (Retrieved 17/11/2023)

Sadeghiani A., Shokouhyar S., Ahmadi S., (2022). How digital startups use competitive intelligence to pivot, Digital Business, Volume 2, Issue 2, 2022, 100034, ISSN 2666-9544, <https://doi.org/10.1016/j.digbus.2022.100034>.

Simmons, A. B. and Chappell, S. G., (1988). Artificial intelligence-definition and practice. IEEE Journal of Oceanic Engineering, vol. 13, no. 2, pp. 14-42, April 1988, doi: 10.1109/48.551.

Statista (2024). Usuarios mundiales de las redes sociales líderes en 2024 <https://statista.com/estadisticas/600712/ranking-mundial-de-redes-sociales-por-numero-de-usuarios/> (Retrieved 21/05/2024)

Twin, A. (2024). *KPIs: What Are Key Performance Indicators? Types and Examples*. Investopedia. <https://www.investopedia.com/terms/k/kpi.asp> (Retrieved 06/06/2024)

Umbreen J., Mirza M. Z., Ahmad Y. and Naseem A., (2022). Assessing the Role of Minimum Viable Products in Digital Startups. International Conference on Industrial Engineering and Engineering Management (IEEM), Kuala Lumpur, Malaysia, 2022, pp. 1073-1077, doi: 10.1109/IEEM55944.2022.9989653.

Villach, Q. G. (2024). Marcas de Ropa Sostenible Hecha en España. Sostenible o Sustentable. <https://sostenibleosustentable.com/es/moda-sostenible/marcas-ropa-sostenible-hecha-espana/#drew-cereceda> (Retrieved 15/03/2024)

Wang C., Wang H., Dai M., Fang Y. (2022). Lean Startup Approaches (LSAs): Convergence, Integration and Improvement, Technological Forecasting and Social Change. Volume 179, 2022, 121640, ISSN 0040-1625, <https://doi.org/10.1016/j.techfore.2022.121640>.

Yordanova, Z. (2021). Evolution of Lean Startup over the Years – A Bibliometric Analysis. In: Huang, YM., Lai, CF., Rocha, T. (eds) Innovative Technologies and Learning. ICITL 2021. Lecture Notes in Computer Science(), vol 13117. Springer, Cham. https://doi.org/10.1007/978-3-030-91540-7_33

Zara's Marketing Strategy: A Deep Dive into Fast Fashion Dominance | Brand Vision. (n.d.). <https://www.brandvm.com/post/zaras-marketing-news#:~:text=Zara%27s%20marketing%20strategy%20revolves%20around,latest%20styles%20at%20competitive%20prices> (Retrieved 12/03/2024)

Zhao, G. (2023). How stable diffusion works, explained for non-technical people. Medium. <https://bootcamp.uxdesign.cc/how-stable-diffusion-works-explained-for-non-technical-people-be6aa674fa1d> (Retrieved 17/11/2023)

ANNEX I: SUSTAINABLE DEVELOPMENT GOALS



ANEXO I. RELACIÓN DEL TRABAJO CON LOS OBJETIVOS DE DESARROLLO SOSTENIBLE DE LA AGENDA 2030

Anexo al Trabajo de Fin de Grado y Trabajo de Fin de Máster: Relación del trabajo con los Objetivos de Desarrollo Sostenible de la agenda 2030.

Grado de relación del trabajo con los Objetivos de Desarrollo Sostenible (ODS).

Objetivos de Desarrollo Sostenibles	Alto	Medio	Bajo	No Procede
ODS 1. Fin de la pobreza.				
ODS 2. Hambre cero.				
ODS 3. Salud y bienestar.				
ODS 4. Educación de calidad.				
ODS 5. Igualdad de género.				
ODS 6. Agua limpia y saneamiento.				
ODS 7. Energía asequible y no contaminante.				
ODS 8. Trabajo decente y crecimiento económico.				
ODS 9. Industria, innovación e infraestructuras.				
ODS 10. Reducción de las desigualdades.				
ODS 11. Ciudades y comunidades sostenibles.				
ODS 12. Producción y consumo responsables.				
ODS 13. Acción por el clima.				
ODS 14. Vida submarina.				
ODS 15. Vida de ecosistemas terrestres.				
ODS 16. Paz, justicia e instituciones sólidas.				
ODS 17. Alianzas para lograr objetivos.				

Descripción de la alineación del TFG/TFM con los ODS con un grado de relación más alto.

***Utilice tantas páginas como sea necesario.

ANNEX II: SURVEYS

AICHIC ECOWEAR First Test

* Indicates required question

1. How old are you?

Mark only one oval.

Under 18

18-24

25-30

2. Which of the following best describes you? (Select all that apply)

Tick all that apply.

Tech Enthusiast

Trend-setter

Eco-conscious Consumer

3. How would you rate the design and aesthetic appeal of our products?

Mark only one oval.

Very appealing

Somewhat appealing

Neutral

Not very appealing

Not appealing at all

4. How easy was it to navigate our website?

Mark only one oval.

- Very easy
- Somewhat easy
- Neutral
- Somewhat difficult
- Very difficult

5. How important is the use of organic cotton and sustainable ink in your purchasing decision?

Mark only one oval.

- Very important
- Somewhat important
- Neutral
- Not very important
- Not important at all

6. How likely are you to purchase from AICHIC EcoWear in the future?

Mark only one oval.

- Very likely
- Somewhat likely
- Neutral
- Somewhat unlikely
- Very unlikely

7. On a scale from 0 to 10, how likely will you recommend AICHIC EcoWear to your friends and family?

Mark only one oval.

0 1 2 3 4 5 6 7 8 9 10

Very Very likely

8. On a scale from 0 to 10, how would you rate your overall satisfaction with AICHIC EcoWear?

Mark only one oval.

0 1 2 3 4 5 6 7 8 9 10

Very Very satisfied

9. Please share any additional comments or suggestions you have for AICHIC EcoWear website. *

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Google Forms

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