A DIGITAL APPROACH TO SLOW FASHION

MAPPING SECOND-HAND STORES IN PORTO

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Abstract

This paper discusses the design of "I finded," a mobile app aimed at mapping and promoting second-hand clothing stores within Porto's historic centre. Developed as part of a master's thesis at the University of Porto in 2023, the app addresses the rising interest in second-hand clothing and the limited awareness of such shops in Porto. Given the fashion industry's significant environmental impact, the project encourages sustainable shopping choices to o support eco-conscious consumer behavior and environmental sustainability. The app's main goal is to make second-hand stores more accessible, featuring a consistent store page format with a summary, image carousel, style description, target demographics, customer reviews, location with map, and contact details. Research methods included questionnaires, interviews, visual analysis, and observation, with a focus on inclusivity, diversity, and usability in design. Two shops, "Kilo" and "Com Sotaque," served as test cases, each offering unique aesthetics within the second-hand market. By integrating sustainability into design, this project aims to promote environmental conservation and encourage a sustainable future. The app represents a concrete outcome, with the next step being potential collaborations with local institutions to bring it to life.

INTRODUCTION

The fashion industry, long criticized for its significant environmental impact, is increasingly exploring sustainability solutions, one of which is the rising "second-hand" market. This market emphasizes the resale of pre-owned items as an alternative to new purchases, with a notable focus on fashion and clothing. The second-hand approach is gaining traction in many countries as consumers seek more environmentally and economically responsible choices.

Research conducted in the context of ifinded research in the city of Porto, has shown that perceptions about second-hand fashion are often influenced by three main biases: prejudice, concerns over quality, and financial insecurity.

However, an array of second-hand options catering to various tastes and budgets is gradually dispelling these myths, encouraging more people to reconsider outdated stereotypes.

One area experiencing substantial growth is the luxury second-hand market. Initially, owning second-hand luxury items was met with skepticism, often stigmatized by sentiments like "Who buys used items?" or "Why buy used if you can afford new?" Such views are increasingly outdated, as the second-hand luxury market embodies deeper social and environmental values that go beyond these superficial notions.

This shift reflects a broader change in attitudes: many now see value in decluttering wardrobes and selling items that would otherwise

sit unused and depreciate over time. According to Assunção (2021), this trend spans generations but manifests differently across age groups. Young adults are engaging by investing in their first designer pieces, marking a milestone purchase, while older consumers are approaching fashion with a focus on refinement and mindful consumption. As Assunção notes, "...today, people think differently, from an 18-year-old buying their first designer bag to a 60-year-old who no longer sees the need to have so many items sitting unused in a closet."

Several factors contribute to the persistence of fast-fashion consumption, notably the ease and affordability of buying new. Few people consider second-hand gifting, often associating it with financial constraints or inferior quality. This mindset perpetuates the fast-fashion cycle, characterized by impulsive consumption and environmental disregard. Yet, those who break free from this cycle recognize the benefits of sustainable shopping, a perspective that needs to reach a broader audience.

This shift in consumer behaviour is closely linked to the growing emphasis on sustainable shopping practices. Sustainable shopping refers to purchasing habits that prioritise environmental and social responsibility, aiming to reduce waste, minimize overproduction, and extend the life cycle of products. Within this context, second-hand shopping emerges as a key strategy: by buying pre-owned items, consumers help to lessen the demand for new production, reduce textile waste, and decrease the overall carbon footprint associated with fashion. Rather than contributing to the fast-fashion cycle, second-hand shoppers actively participate in a more circular economy, where reuse and thoughtful consumption take precedence over constant acquisition.

The second-hand market continues to grow rapidly, with signs pointing to further expansion. According to ThredUp's 2023 Resale Report, the market is projected to reach a total value of $351 million by 2027, up from its current $117 million. This growth reflects a positive trend toward increased environmental consciousness and budget constraints, leading major brands to cautiously enter the second-hand space.

Retailers acknowledge that sustainability, revenue, and brand loyalty are key advantages of resale, with second-hand sales also providing a safeguard against counterfeiting ("57% of young

Portuguese are open to buying second-hand products," 2023). Young consumers, particularly Generation Z, have been at the forefront of this movement, challenging norms and advocating for environmentally and socially aware practices.

A survey by Wallapop, featured in "Grande Consumo" (2022)[1], revealed that frequent second-hand shoppers gradually feel more secure, satisfied, and conscious, reinforcing the value of sustainable habits: "(...) when respondents make second-hand purchases more frequently, they feel less insecure and suspicious, and they start to feel more conscious, satisfied, useful, and intelligent."

The COVID-19 pandemic[2] further accelerated this market's growth by shifting consumer behavior. With borders closed and limited access to new goods, online searches for second-hand items surged by 572%, as reported by "Terra" in Brazil (2022)[3]. This surge demonstrated that e-commerce facilitated continuous access to pre-owned luxury items, sustaining consumer interest during challenging times.

In Portugal, the arrival of the Vinted app in 2021 marked a significant milestone for second-hand fashion. This platform, available across Europe and boasting over 40 million users, offers secure transactions and quick access to second-hand clothing, thus broadening the reach of sustainable fashion.

Recognizing these shifts, fast-fashion retailers have also begun adapting. For example, ulaunched an online platform in late 2022 that allows customers to sell, repair, or purchase second-hand Zara items. According to Ampuero (2022), this initiative supports a "circular consumption strategy," extending the life of garments and curbing the demand for new production.

This introduction underscores the evolving landscape of second-hand fashion, marked by shifting attitudes, market growth, and industry adaptation, all contributing to a more sustainable future.

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1   57% of young Portuguese people are willing to buy second-hand products. Grande Consumo.
2   The impacts of COVID-19 on the fashion world. UFJF Notícias
3   Online consumption of luxury second-hand items is boosted by the COVID-19 pandemic.

CONSUMPTION AND SECOND-HAND MARKETS

The textile industry has far-reaching and significant negative impacts, both immediate and long-term. The documentary "The True Cost[4]" profoundly influenced the author's views on clothing consumption by shedding light on the full lifecycle of the fashion industry—from initial production to runway showcases, consumer behaviour, and ultimately, the disposal of garments in global landfills. It prompts viewers to ask crucial questions: Who makes our clothes, and under what conditions? The documentary uncovers the grim reality of this industry, highlighting that while the price of clothing has plummeted over the years, the human and environmental toll has escalated sharply. As noted in the film, "the cost of clothing has decreased over decades, while human and environmental costs have risen dramatically" (The True Cost, 2015).

Brands are increasingly recognizing that consumer behavior is shifting toward more sustainable and conscious practices. Carvalhal (2016) insightfully observed, ". . . I said that the natural selection of brands would occur based on relevance, and that life would demand truth, authenticity, and purpose from them. Today, I add another tag to this list: consciousness."

If major companies are adapting to this new awareness, perhaps it is time for individuals to do the same. The process starts by examining and questioning our own habits. The book "F**k Fast Fashion", published by Trapeze (2020), serves as a practical guide, offering 101 actionable ways to transform purchasing behaviors and contribute to the planet's well-being. One of its most straightforward yet impactful suggestions emphasise buying vintage clothing.

While purchasing second-hand items is not entirely without environmental impact, it greatly minimizes the footprint compared to buying new. Vintage shopping helps extend the lifespan of existing garments, reducing waste and the emissions linked to producing new items. This practice not only preserves resources but also champions a culture of reuse that challenges the fast-fashion model.

Notably, the 2023 Met Gala showcased several influential figures re-wearing previously seen outfits, demonstrating that even at one of fashion's most high-profile events, sustainable choices are celebrated. The Instagram accounts @ environment and @impact, which focus on social impact, climate news, and environmental topics, highlighted these instances, proving that sustainable fashion can hold a place on the global stage.

To support this shift toward more sustainable consumption, the app "I Finded" was developed to help users locate second-hand stores in their vicinity. By providing a user-friendly way to find shops that align with their preferences, "I Finded" makes sustainable shopping more accessible. This app, available to anyone with a smartphone, helps users easily search for second-hand clothing options tailored to their needs, streamlining the process for those who might not know where to begin and emphasizing a commitment to eco-friendly consumption.

METHODOLOGY

This study focuses on developing an application for the second-hand clothing market by integrating UX/UI design principles and Design Thinking methodology to deliver an optimal user experience. The project originates from the need to challenge and reduce prejudice associated with second-hand clothing while facilitating easier access to such products. The research follows the core phases of Design Thinking: empathy, definition, ideation, prototyping, and testing.

EMPATHY PHASE

The initial phase, *empathy*, aimed to deeply understand the target audience by exploring their perspectives and pain points related to second-hand clothing. The initial sample was identified as the owners of second-hand shops, with the remaining participants recruited through the snowball sampling technique. In total, 73 people were interviewed. Qualitative methods such as interviews and questionnaires were employed to gather insights. Findings highlighted major challenges, including the social stigma around second-hand clothing and limited knowledge about where to find these products or their origins. This phase provided essential insights that guided subsequent steps, ensuring user-centric development.

DEFINITION PHASE

In the definition phase, data from the empathy stage were synthesized to form a clear understand-

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4   The True Cost" is released to address the real cost of fashion today. Fashion Network.

ing of user needs. The research emphasized the importance of showcasing the quality, uniqueness, and sustainability of second-hand clothing to overcome negative perceptions. This phase helped establish the core objectives for the application, focusing on addressing user concerns such as product hygiene, authenticity, and detailed information on provenance.

IDEATION PHASE

During the ideation stage, brainstorming sessions led to a range of ideas, including innovative ways to enhance user navigation and interaction. One key refinement involved reversing the typical content hierarchy within the application to streamline user journeys and make navigation more intuitive. This phase prioritized solutions that align with user preferences for seamless exploration and information clarity.

PROTOTYPING PHASE

Prototyping began with preliminary hand-drawn sketches to establish foundational design concepts. These sketches evolved into wireframes and, eventually, a digital prototype that allowed for basic usability and navigation flow testing. The progression from low-fidelity to high-fidelity prototypes enabled the iterative development of the application's interface, ensuring that user feedback could be easily incorporated.

TESTING PHASE

Due to time and logistical limitations, full-scale testing was not completed. However, the testing phase remains a crucial component for refining the application based on real user interactions and feedback. To gather preliminary insights, a survey conducted via the author's social media provided validation for the project concept. Results indicated strong interest in second-hand clothing, especially among young consumers, but also pointed out persistent barriers, such as stigma and insufficient communication about product quality and origins.

FINDINGS FROM QUESTIONNAIRE DATA

The data gathered from the questionnaire highlights the difficulties users face in locating second-hand stores and items that align with their personal style. The findings also reinforce the importance of transparent communication regarding the provenance of items and their preparation for resale, particularly to address consumer concerns about hygiene and quality.

In conclusion, the study indicates that the second-hand fashion market has significant potential, especially among younger generations seeking sustainable and distinctive clothing options. The proposed mobile application aims to overcome existing barriers by providing reliable information, dispelling common prejudices, and simplifying the search process. By addressing current gaps in the market, the app could contribute to a shift in consumer perceptions and increase both the accessibility and appeal of second-hand fashion.

PROJECT OVERVIEW: DESIGNING THE APP

The development of the app centers on creating a user-friendly platform that bridges the gap in the second-hand clothing market while challenging and reshaping common misconceptions. By focusing on both functionality and educational content, the app is designed to shift consumer perceptions about second-hand clothing, emphasizing quality, style, and sustainability (Fig. 01).

FUNCTIONALITY AND PURPOSE

The app was conceived to dispel the myth that second-hand clothing is inherently old or of inferior quality. A survey conducted for this project revealed that many consumers avoid second-hand shopping due to this stereotype. To address this, the app presents curated information showcasing how featured stores select items based on quality, durability, affordability, and diversity, including niche offerings. This ensures users can shop confidently, knowing their purchases align with their standards and values.

NAMING AND BRAND IDENTITY

Choosing a memorable and approachable name was crucial for the app's success. "I finded" plays on the phrase "I found," creating an accessible and quirky brand that resonates with users. Despite the unconventional grammar, this playful twist sparks curiosity and helps establish a connection with the audience, embodying the app's innovative spirit and approachability.

VISUAL DESIGN AND AESTHETIC CHOICES

The app's visual design draws inspiration from pastel colors reminiscent of the Renaissance era, blending these with bright, energetic tones. This
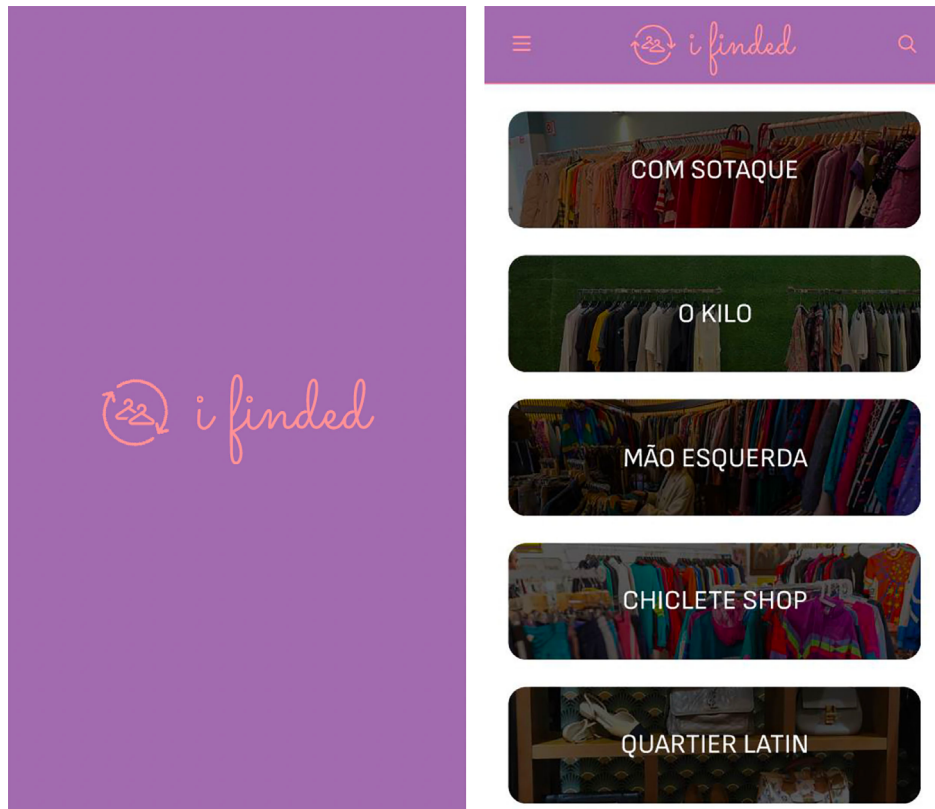
Fig. 01

selection reflects the varied, eclectic nature of second-hand fashion, which often features a wide range of colors, patterns, and textures. The use of "Candy Colours," popular in fashion and design since 2020, adds a contemporary touch that evokes positivity and energy.

Pastel tones are known for their dual nature: vibrant yet calming, making them perfect for promoting a welcoming, fresh, and inviting aesthetic. The app's interface design uses these colors alongside clear, classic sans-serif fonts to ensure optimal readability and contrast. As Joly (2015) points out, the visual appeal of structured font and layout guides the user's eye through an intuitive hierarchy, making navigation seamless (Fig. 02).

INCLUSIVITY AND REPRESENTATION
Special attention was given to curating a diverse range of images representing different genders, body types, sexual orientations, and ethnic backgrounds. The goal is to foster inclusivity and make users feel seen and represented. This aligns with the app's mission to be a safe and welcoming space for all.

IMAGE-CENTRIC APPROACH
Recognizing the powerful role of imagery in modern communication, the app's design incorporates visual content as 80% of its material. This strategic emphasis not only enhances user engagement but also provides a richer, more interactive experience. Store profiles feature photos of shop interiors and sample items, allowing users to gauge whether a store aligns with their tastes and expectations.

"We are 'consumers of images'; hence, we must understand how images communicate and convey their messages; we cannot remain indifferent to one of the tools most dominant in contemporary communication." (Joly, 2015)

LOGO AND CIRCULAR ECONOMY CONCEPT
The app's logo symbolizes the principles of a circular economy[5], embodying the idea of reusing, repurposing, and recycling to extend the lifecycle of products. This approach underscores the app's mission of promoting sustainable consumption,

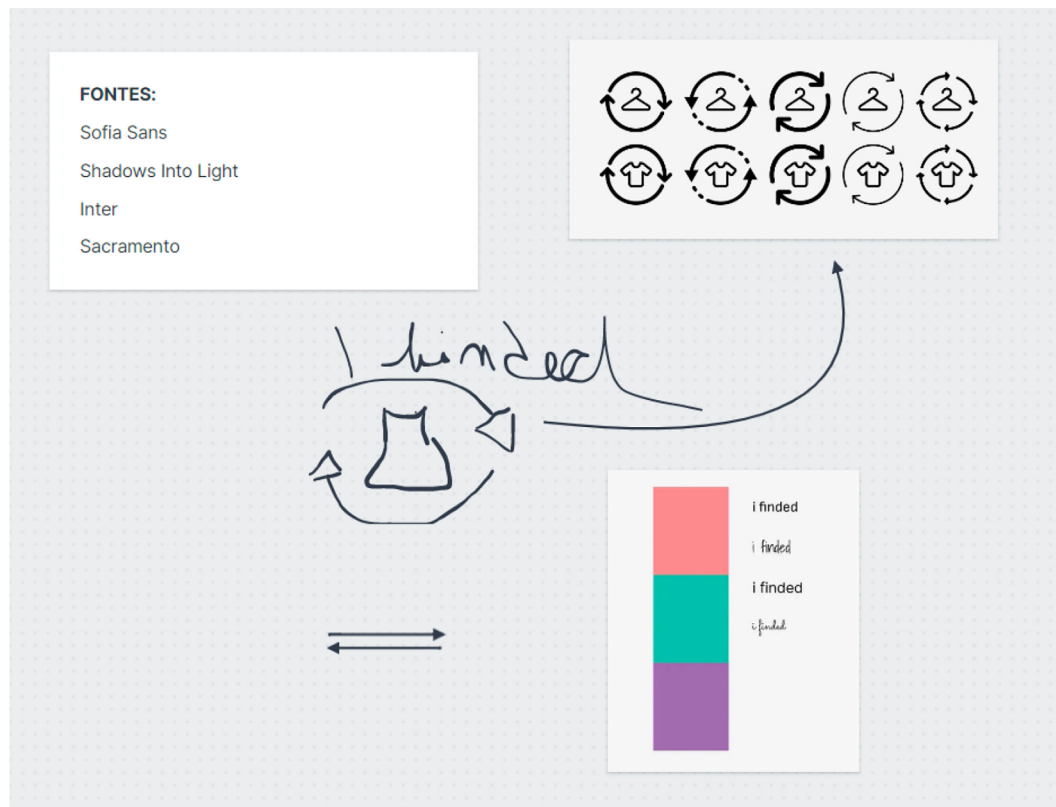5   Circular Economy: Definition, Importance, and Benefits. European Parliament.

Fig. 02

where nothing goes to waste, and items are given a second life. By aligning with this model, the app contributes to reducing environmental impact and fostering a more sustainable fashion industry (Fig. 03).

CURRENT APP FEATURES AND FUTURE DEVELOPMENT

At present, two stores, including Com Sotaque, have clickable profiles that showcase detailed store information. Other stores like *Mão Esquerda*, *Quartier Latin*, and *Chiclete* Shop have been scouted for inclusion in future updates, allowing for expanded access to more second-hand shopping options.

The app also features a secondary section aimed at educating users about the benefits and practices of sustainable fashion. This section, accessible via the menu, offers articles on sustainable trends and second-hand fashion insights, with three introductory articles already available to promote informed and conscious consumption (Fig. 04).

KNOWLEDGE HUB FOR SUSTAINABLE PRACTICES

To further support the mission of demystifying second-hand shopping, the app's knowledge hub offers practical articles that empower users with sustainable tips and practices. This initiative helps integrate eco-friendly choices into everyday life, fostering a culture of responsible consumerism.

By emphasising clear communication, an engaging visual design, and educational resources, the app "I finded" sets the stage for changing perceptions and creating an accessible pathway into the world of second-hand fashion.

CONCLUSION

This research has provided valuable insights into the second-hand clothing market, revealing that these businesses select high-quality items and fabrics to ensure durability and added value. Entrepreneurs in this field are actively working to dispel myths surrounding second-hand consumption, making it more appealing and accessible. This shift encourages consumers to take their first step toward buying second-hand, understanding that their choice contributes to lower emissions and
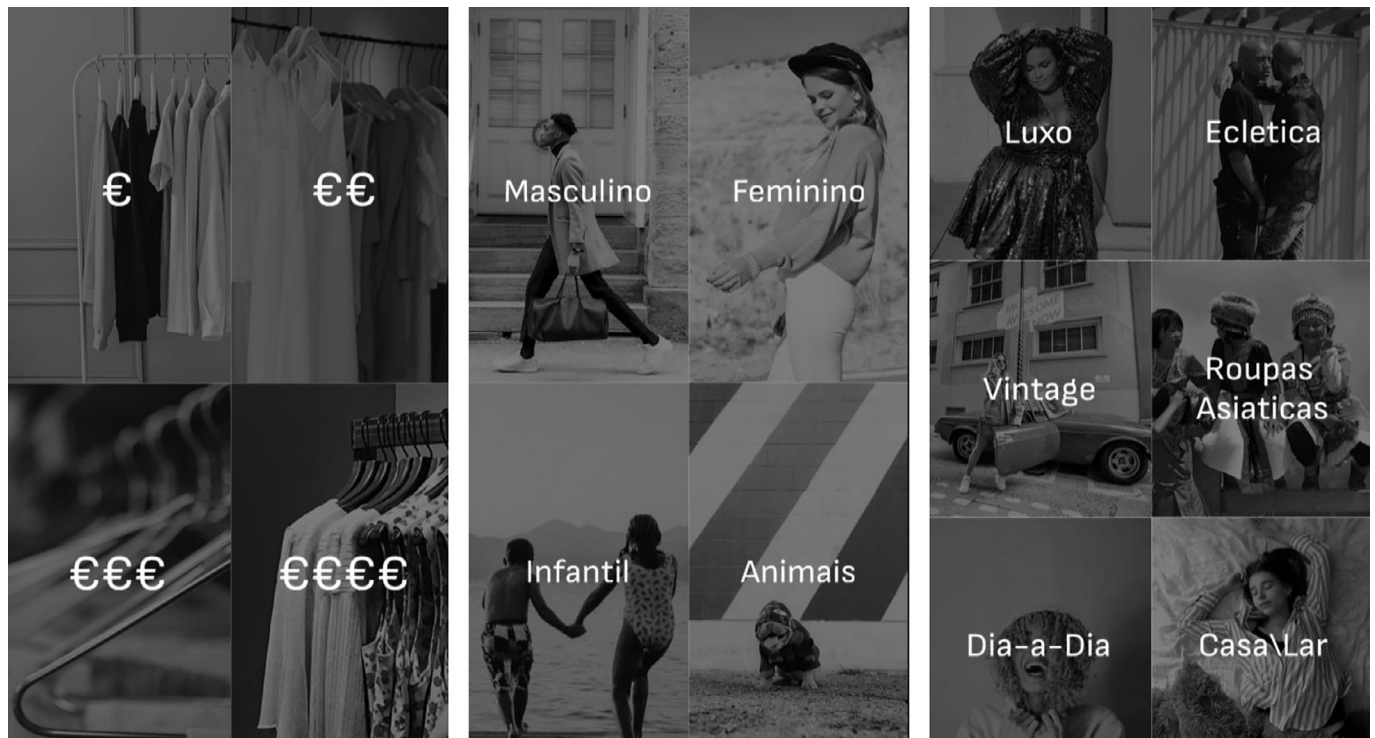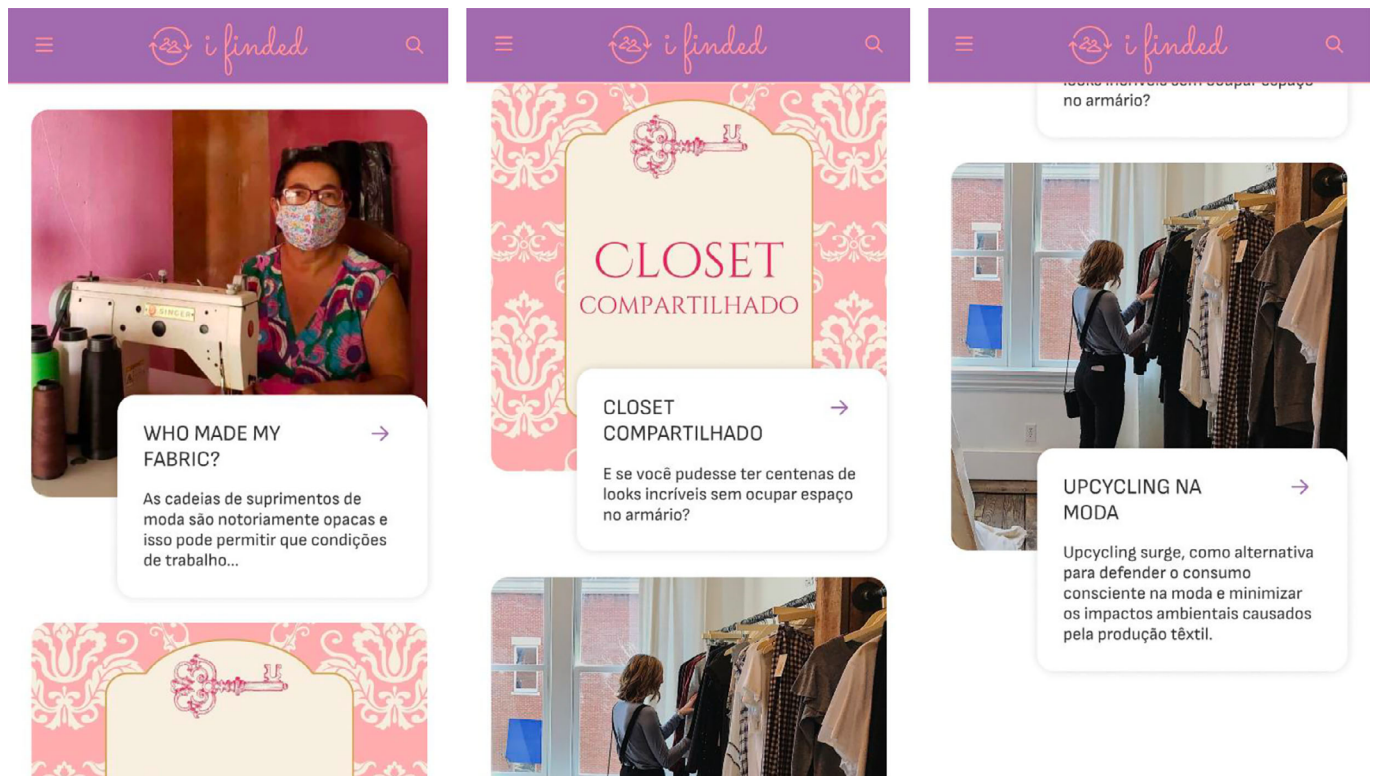
Fig. 03

Fig. 04

provides a unique, cost-effective garment. Over time, this often leads to an emotional connection with these items, reinforcing the appeal of sustainable fashion.

Unlike digital platforms that offer second-hand clothing, many brick-and-mortar stores in Porto remain hesitant to sell online due to logistical challenges and the unique, limited nature of their inventory. Unlike fast fashion, second-hand stores often carry only one piece in a specific size or color. While some view this as exclusivity, others see it as a limitation. This aspect of the second-hand market highlights the importance of setting consumer expectations and showcasing the benefits of finding one-of-a-kind items.

The app at the center of this project aims to draw new consumers into the second-hand market by featuring stores like O Kilo and Com Sotaque, each with distinct aesthetics and unique approaches. Longtime patrons are typically loyal to both the practice of second-hand shopping and specific stores, frequently returning to discover new treasures. Research through surveys and interviews shows that Portuguese consumers, in general, have been slower to embrace second-hand shopping, partly due to the late entry of fast fashion brands after Portugal's EU integration.

Personal experiences, such as participating in clothing swaps and hand-me-down traditions, reinforce the notion that second-hand consumption goes beyond sustainability—it fosters community and shared experiences. My time in São Paulo (2016–2019) involved participating in women's clothing swap events that combined practical exchanges with storytelling, laughter, and camaraderie. Similarly, swap fairs in Porto reflect this spirit, emphasizing the values of sustainability, connection, and collective action.

Early exposure to second-hand practices, such as my mother donating outgrown clothes to neighbours and community centres, shaped my perception that newness is relative; an item doesn't need a "new" tag to be valuable. This mindset has stayed with me, where each second-hand piece I acquire feels renewed and unique to me.

Modern shopping centers increasingly showcase brands claiming sustainability, using recycled materials and sustainable practices. However, the challenge of distinguishing between genuine sustainability efforts and mere greenwashing[6] remains significant. While consumers may

question the authenticity of such claims[7], the key lies in individual responsibility and awareness. Absolute avoidance of fast fashion or products with unclear supply chains may be unrealistic, but a conscious approach can guide more informed decisions, fostering a gradual shift towards responsible consumption.

Integrating sustainability into design discussions is crucial, as design is a vital tool for innovating products and services that provide better solutions. Designers must embrace the principles of "Design for Planet", which focus on creating products, systems, and solutions that prioritize environmental and social responsibility. This approach aims to minimize negative impacts and conserve natural resources while fostering inclusivity and community engagement.

"Design for Planet" covers all aspects of sustainability, including product lifecycles, material choices, energy use, and social impact. While this research has focused on the fashion sector, the underlying principles can be applied across industries to contribute to environmental conservation and promote a balanced, sustainable future. By incorporating these practices, designers can inspire broader change and support the development of solutions that benefit both people and the planet.

CAPTIONS
[Fig. 01] Screenshot of the "ifinded" application showing the brand logo and the five second-hand shops featured in the study, located in Porto. Created by Ana Fidelis (2023). Reproduced with permission.

[Fig. 02] Colour palettes and typefaces used in the visual identity of the "ifinded" application, including brand logo evolution and typographic choices. Created by Ana Fidelis (2023). Reproduced with permission.

[Fig. 03] Diverse criteria for accessing second-hand shops in Porto as presented in the app interface (e.g., gender, price, pets, age, luxury, vintage, Asian clothes, daywear, home, and eclectic). Created by Ana Fidelis (n.d.). Reproduced with permission.

[Fig. 04] Visual representation of the "shared closet" initiative, allowing users to borrow clothes temporarily as an upcycling strategy. Created by Ana Fidelis (2023). Reproduced with permission.

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