How Quick Apps Can Address Ecological Concerns in the Fashion Industry

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Executive Summary

- Addressed ecological concerns currently existing in the fashion industry in order to give broader context to the project.
- Ecommerce and fast fashion have led to a greater ecological damage occurring along with changing consumer cultures leading to greater waste.
- Increasing costs in production have led to an increase in fast fashion practices in order for firms to cut costs.
- Emphasised need for Quick Apps that could decrease the severity of damages.
- Europe identified as main market.
- 474 million mobile phones in Europe, 67.2% belonging to Android phones.
- Analysis revealed that consumers are willing to spend more money on sustainable brands, and that 38% of European take fashion brands social and environmental impact into account when making purchasing decisions.
- Social Media identified as marketing platforms in collaboration with influencers.
- Guerrilla approach to marketing also discussed, placing of QR codes into public spaces with heavy footfall, reaches large market of potential consumers with low costs.
- Developed prototypes for Quick Apps which could help the platform address ecological concerns.
- AR virtual try-on app seen as suitable implementation for increasing customer returns from clothing bought via online retailers.
- Quick App which allows users to partake in a group purchasing option.
- Development of ecommerce platforms to increase communication between suppliers and customers, solidifying the relationship and creating digital communities.
- Analysis of case studies that researched consumer behaviours towards green products identified education as a key determinant of customers who purchase sustainable goods.
- Quick Apps should be used to serve as informative and educational resources that teaches potential consumers about the necessity of sustainable clothing.
- Myriad of ways to implement this, ranging from acting as a hub of information that provides free educational resources to educational mobile games that promote sustainability for younger audiences.

- Quick Apps can be used by consumers as social activism platforms where they are empowered to “vote with their wallet”.
- Identified implications of Quick Apps for suppliers that could reduce their carbon footprint.
- Quick Apps should aim brands to create accountability and promote sustainability.
- Quick Apps can be used throughout supply chains to ensure each stage is documented and that the decision makers can be held accountable. This data can be held and encrypted by the Quick App ensuring it cannot be removed whilst also decreasing the need for excess paper documentation.
- Using Quick Apps to ensure traceability at all stages from conception to storefront.
- A rating system for brands on their sustainable practices ranging from 1-10 can be used by brands to aim for higher sustainability scores which could become part of their branding and marketing strategy.
- Brands with higher rating scores can use their rating as a point of disparity in marketing materials against competitor brands.
- Creation and fostering of digital communities concerned about sustainability is essential based on analysis of successful case studies of fashion brand Patagonia, which inspires its community to engage in communal sustainable practices through digital media.
- Advertising seen as easiest entry point in achieving monetisation. Other possibilities include Quick Apps acting as social commerce sites taking revenue cut from purchase.

Contents

Introduction-

The purpose of this report is to ascertain if and how the emergent platform of Quick Apps can be used to address ecological concerns within the fashion industry. This report will analyse the ecological concerns of the fashion industry at present before understanding how technology could be used to reduce this, before recommendations are given on how Quick Apps can be used to address these concerns whilst charting the end-user journey of both consumers and suppliers and how the two are intertwined. Additionally, monetisation and marketing strategies will be outlined in the report.

Background Context on the Fashion Industry

It is necessary to provide a contextual foundation regarding the industry at large and how its current trajectory poses significant environmental threat. The fashion industry is split into four distinctive sectors, the value chain consists of primary, secondary, retail and auxiliary level activities, and encompasses all facets of the production and retail process (Kabaivanova, 2017). These various elements are responsible for the manufacturing of approximately 100Bn garments per annum, 92Mn tonnes of which is estimated to end up in a landfill (Igini, 2022). Within Europe, an average individual will discard 11kg of textile waste a year, yet consumption is forecasted to grow by a further 63% by 2030 (Jahnz et al, 2022). This is the result of our transition towards a throwaway culture; wherein the number of times a particular garment is worn has depreciated by 36% across the past fifteen years (UNEP, 2021).

Additionally, the emergence of ecommerce as a medium of exchange has rapidly accelerate the rate at which individuals both acquire and return articles of clothing, Adegeest, (2022) found that retailers expected more than $761Bn worth of returns to be made within the American economy in 2021, which accounted for 16.6% of the total $4.583Tn sales market. Return on sales increased from 10.6% in 2020, to 16.6% in 2021, this is of significance as Moore & Vitarello, (2020) note that returns typically end up in a landfill as it is more cost efficient than re-placing the items back into circulation. Their estimations note that 5.8Bn lbs of clothing end up in landfills as a result of these returns, furthermore ecommerce was revealed to have return rates three-times as high as those of brick-and-mortar stores, producing 14% more landfill waste as a result. Returns on products is a growing ecological concern within the greater fashion industry and the emergence of ecommerce has only expedited sustainability complications.

This highlights a growing concern with regards to the negligent attitude consumers have towards clothing, the significance of which arises from the outcomes of studies done by

Janmark et al., (2022), who found that less than ~1% of textile waste born within Europe was recycled by fibre-to-fibre. Whilst an additional ~20% was either reused or exported and a further ~10% was recycled by alternative means, these findings accentuate the apprehensive nature global economies have for salvaging behaviours. While the fashion industry at large has a myriad of ecological issues associated, its most detrimental practice is without a doubt that of fast fashion. Through the use of a variety of factors including but not limited to cheap labour, low-cost materials and efficient means of replication brands are capable of en masse producing high demand and low-priced goods for a global audience, facilitating the behaviours of throwaway culture. Fast fashion practices, as noted by Nijman (2019), are the second largest consumer of water, with Bailey et al., (2022) noting estimations of 79Tn litres of water being expended annually, with further contributions in terms of wastewater estimated to be approximately 20% of annual global pollutants, with an exact distribution evident below within (Fig.1). The industry is responsible for sizable greenhouse gas emission (GHG), with estimations of 1.025Gt of carbon emissions (Sadowski et al, 2021), and seen visually within the future projections of (Fig.2). Further analysis of the fashion industry can be found in Appendix.I.

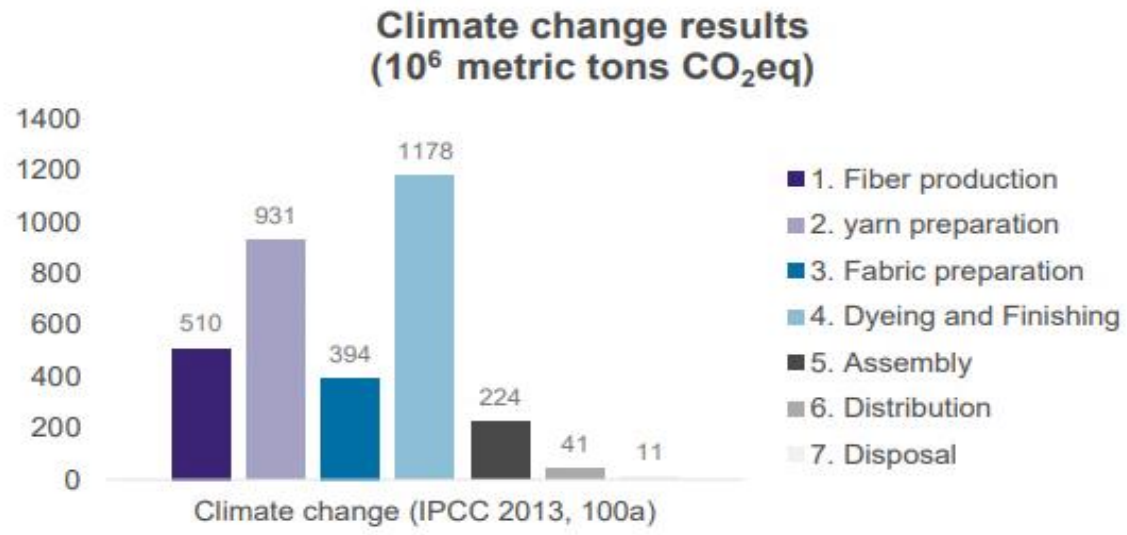

Figure 1 Climate Change Impacts by Life Cycle State, (Source: Kibbey et al., 2018)

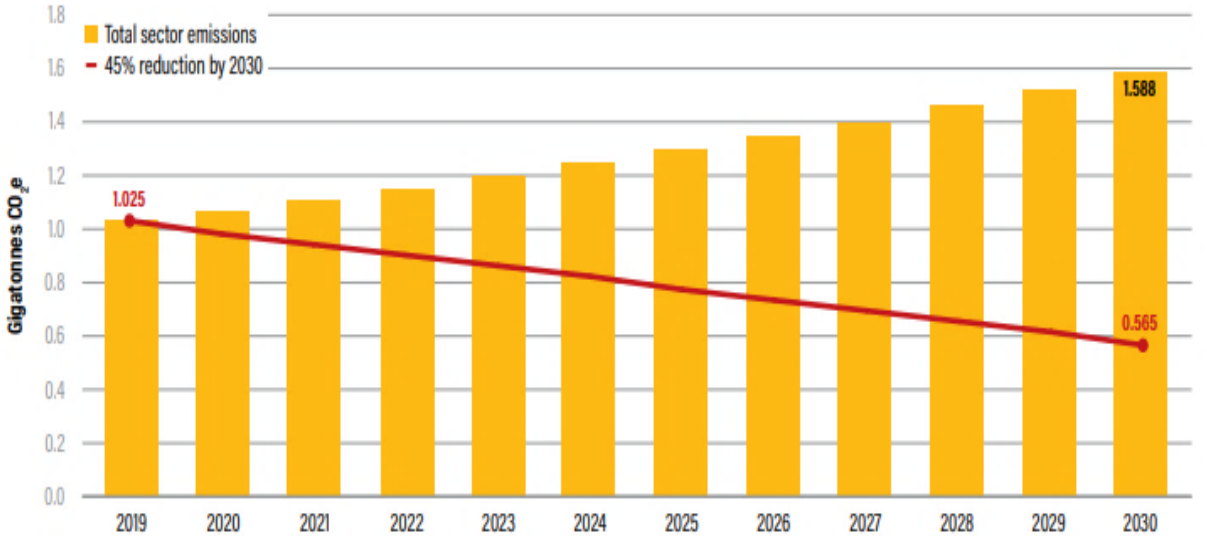

Figure 2 Projected GHG Emissions for the Apparel Sector, 2019-2030, (Source: Sadowski et al., 2021)

The greatest hurdle in mitigating the issues brought forth by fast fashion is that of cost, fast fashion is a more cost-effective means of producing goods. Sustainable fashion strives to focus upon durable products, with longer lead times with factories which enables the fair treatment of labourers (Khatib, 2021), because of which (Wanderlust, N.D.) finds that sustainable fabrics as a result are on average two and half to four times as expensive, (Smith, 2022) notes that as a result the ethical fashion is only valued at $7.5Bn. Whilst 55% of US consumers were cited as being interested in purchasing sustainable clothing, and a further 75% were willing to pay more, according to Ruiz (2023), an average purchase would only contain approximately three items.

From both the perspective of a consumer and a producer it is simply more cost effective to purchase fast fashion items, than sustainable clothing. Production is, as a result of industrialisation, typically outsourced to developing economies, Khurana & Muthu, (2021) notes that having these processes located within these low- and middle-income nations (LMICs), means firms can avail of the low production costs associated with abusive practices. Firms are often hindered in supplier auditing however, by a lack of end-to-end supply chain transparency (Hakan et al., 2020), which means producers can consequently enforce these abusive practices associated with garment-workers' conditions wages and ecological obligations. Islam et al., (2023) would note the case of Bangladesh, where 1,000 Bangladeshi factories were surveyed on their treatment during the Covid-19 pandemic, finding of those questioned, 51% reported at least one infraction of four common unfair practices, in that of the cancelation of orders, price reduction, refusal to pay for goods dispatched and/or in production

and the delaying of invoice payment. Brands such as Zara and H&M, among others were all noted as engaging in unethical practices, with the report specifically documenting that larger global brands were more likely to engage in these practices. A point of notable contention arose from certain factories not paying the minimum wage for their respective workers, specifically one in five noted they had struggled to pay the Bangladeshi minimum wage of 1,500 BDT or $14.57 per month, with 20% of recognisable brands or retailers having purchased goods from these suppliers who struggled to pay a minimum wage. This not only highlights the growing economic concerns of developing nations such as Bangladesh but a great socioenvironmental concern, as if buyers can outsource labour to nations that struggle to pay minimum wages that are but a pittance of what developed nations must pay, they will not hesitate to capitalise upon this practice, further encouraging the detrimental practices these workshops employ.

Development Strategy

Quick Apps is a nascent market but has similar ties to the regular app industry. Apps that engage in sustainability should be viewed as sources of reference for some apps. The strategy that should be put in place for these Quick Apps should be centred on innovation and incrementation.

Innovation is necessary in any nascent industry to stand out from potential competitors and cement market share early whereas incrementation builds on prior existing apps but reutilises the functions and ideas into the Quick App format.

Market Analysis

The Quick App market is still in its infancy in Europe rendering market analysis of the industry to provide unsubstantial, however, Quick Apps are very popular in China sue to being hosted on the Super App WeChat which sees 1Bn users every month. Analysis of the Chinese Quick App market was undertaken to understand the market and can be found in Appendix II to provide additional context into Quick Apps.

The demand for green products has increased substantially over the years as information has become more accessible to the average consumer through technological progress. In 2023, survey data concluded that 72% of respondents were buying more environmentally sustainable products that they did five years prior (Martins, 2023). Based on this data, it is imperative to discover what background factors affect consumers consumption behaviour. By understanding the background and demographics of potential consumers, marketers can utilise Quick Apps

as tools to access new markets. Quantitative analysis undertaken on a select range of consumes about green marketing concluded that there were statistically significant attributes which defined green customers. The research discovered that education and income were the main variables attributed to green consumers (Rahman & Haque, 2011). Income is an understandable aspect due to the higher price of sustainable products and cannot be influenced, however education is a factor which Quick Apps could be useful in improving.

Market analysis of the European region reveals that as of 2021, 67.2% (Taylor, 2023) of the 474 million strong European mobile phone market were Android users equating to 318 million Android users (GSMA, 2022) and that 38% of Europeans take fashion brands' social and environmental impact into account when making purchasing decisions (van Elven, 2018). Further details located in Appendix III.

Quick Apps for the Fast Fashion Industry in Europe -

As previously stated, fast fashion plays a major degenerative ecological role by consuming substantial reserves of fabrics, water, and oil, and generating significant textile waste, wastewater pollutants, and microplastics each year. The business model for fast fashion is to supply the largest selection of products at the lowest price. However, many fast fashion brands have begun to take actions to mitigate the impact on the environment. Zara announced their plan to fully switch to 100-percent eco-friendly cotton, linen, and polyester fabrics for its clothing production from 2025.

Other fast fashion brands, such as H&M and Asos, have launched environmental protection policies and green initiatives, and developed sustainable product collections (Zhang, 2023). Quick Apps could help ease the ecological impact of the fast fashion industry in Europe. For example, a sustainable fashion Quick App that offers both ecommerce shopping and online social platform functions could bring fashion brands and consumers together to mitigate the environmental impact of the fast fashion industry. It could also provide fun shopping experiences like "group purchasing" and AR virtual try-on. Providing free and verified information on sustainability could also help promote sustainable shopping among consumers.

Ecommerce Marketplace

On this Quick App's e-commerce platform, fast fashion brands could enter and sell their sustainable clothing collections or series, targeting specific consumers who care about sustainability and shop for sustainable products. An online communication channel could be utilised by each fashion brand to engage with customers and answer customers' questions.

Fashion brands could share their sustainable practices, achievements, and goals, helping customers understand more about their progress in mitigating ecological impact. The Quick App allows users to fully customise the clothes they wish to purchase and allows them to develop a specific style for themselves whilst allowing them to connect with other users with similar styles. These styles can then be analysed by the brands to personalise that users experience.

Group Purchasing

"Group purchasing" refers to a group of online consumers buying the same products at the same time. A 'group purchasing' function enables customers to start their own purchasing groups online by clicking a button on the products information page. Customers get to choose the limits of the number of people needed at least to buy products at certain cheaper prices, usually, more people in one group means a cheaper price for one product. Once the limit is reached, all customers in that group can get that product at the previously set cheaper price. This function brings consumers together, creating economies of scale and lowering the price, which helps solve the "higher cost, higher price" issue facing sustainable fashion products.

Social Shopping

Building a social platform that enables users to share sustainable shopping experiences, share their favourite eco-friendly products through tags and links, and facilitate conversations. It is important to create online sustainable fashion communities on this Quick App platform for like-minded consumers who are passionate about sustainable fashion and environmental protection. Combining social and shopping aspects on this Quick App platform could create better shopping experiences for users, which helps foster a sense of belonging, driving loyalty among users, and increasing customer retention.

AR (Augmented Reality) Virtual Try-On

AR virtual try-on could showcase sustainable fashion products in a unique and immersive way and enhance consumers' shopping experiences. On one hand, AR virtual try-on could create fun shopping experiences for customers, in turn, customers sharing virtual try-on pictures and posters could help promote sustainable products for fashion brands. On the other hand, AR virtual try-on could help reduce the number of product returns and save packaging and delivery cost.

Information & Education

As to consumers, an average person discards 11kg of textile a year in Europe. Low cost, mass production, and supply of fast fashion facilitate this behaviour of throwaway culture. Consumers may not prioritize sustainability when shopping. Therefore, it is important to raise awareness of environmental protection and sustainability among consumers. Access to free verified information on different fabrics and materials, manufacturing processes, and carbon footprints of various products on this sustainable fashion quick app could make consumers more aware of the environmental impact of the fast fashion industry and help users make more informed fashion choices.

There is a lack of consensus on the definition of sustainable fabrics, and sometimes fast fashion brands do "greenwashing" by declaring contributions to environmental protection but doing the opposite (Zhang, 2021). In this case, Quick Apps could work with experts from the fashion industry to organise webinars and workshops to help consumers understand fashion brands' green marketing strategies and identify "greenwashing" practices in the fast fashion industry.

Quick Apps can be an educational tool for creating awareness around the sustainable issues of the fashion industry. There are many methods which could be used to educate consumers such as creating an interactive experience which takes users through a gamified version of a supply chain and the users are rewarded with "points" or "scores" if they undertake sustainable choices along the way such as clicking on a waste bag and dragging it into a bin with a recyclable logo on it. This type of interactive experience could resonate with future consumers in the 12-15 range and could be built on further with VR (Virtual Reality) technology whereby the users can be placed into a virtual environment while being addressed about sustainability concerns within the virtual space.

Social Activism

Quick Apps can be used by consumers as a form of social activism or help to enable them to "vote with your wallet". Competitor analysis has discovered that previous apps have been made to appeal to green-conscious consumers. One such example is the app Buycott. Buycott was developed in 2013 to that scanned the barcodes of items and provided ethical information on the brand behind the brand including their environmental record and other objectionable practices the brand may engage in. Users signed up to the app, chose which campaigns they cared about such as boycotting brands that do not support LBGTQ rights or brands which burn excess fossil fuels in the supply chain, Buycott then used this data to inform consumers of the business practices of the brands by scanning the barcode. The app was last updated in 2016 and relies on users inputting data about brands (Shubber, 2013). As of 2023, the app has over 1

million downloads on the Google Play Store. The app has not been updates since 2016 and does not keep track of current ethical campaigns such as boycotting brands which use raw materials from Russia (Google, N.D.).

Marketing Strategies

Due to the cost-of-living crisis, people are always looking for ways to save money. Quick Apps can fulfil this need as they provide users with a fast and efficient means of accessing services on their mobile devices. As there exists a myriad of applications, it may be a challenge to attract the attention of the targeted demographic and differentiate from existing products (Hillyer, 2020).

Social Media

According to Permatasari & Lavdi, (2018), social media has developed into a crucial platform from which companies can effectively engage with their consumers. The successful implementation of social media advertising is a necessity in ensuring a younger demographic can be reached. The emergence of recognisable influencers as a means of advertising has grown to become a staple of community outreach (Reczek et al, 2016). Influencers with similar interests have the potential to increase brand awareness as a result of collaborative efforts (Wertz, 2022). Additionally, priority should be given to the development of an application that is appealing to the targeted demographic. Algorithms of social media platforms tend to push content which receives heightened engagement, be it likes, comments, or shares, (Barnhart, 2021), as a consequence of this, it is important that content not only be delivered to foster interaction but also highlight the distinctive characteristics of the application. For improved visibility and reach beyond organic techniques, companies should make use of paid social media advertising solutions, such as Facebook or Instagram Ads. The significance of which comes from the prevalence of online users within each platform, as seen in Fig.3.

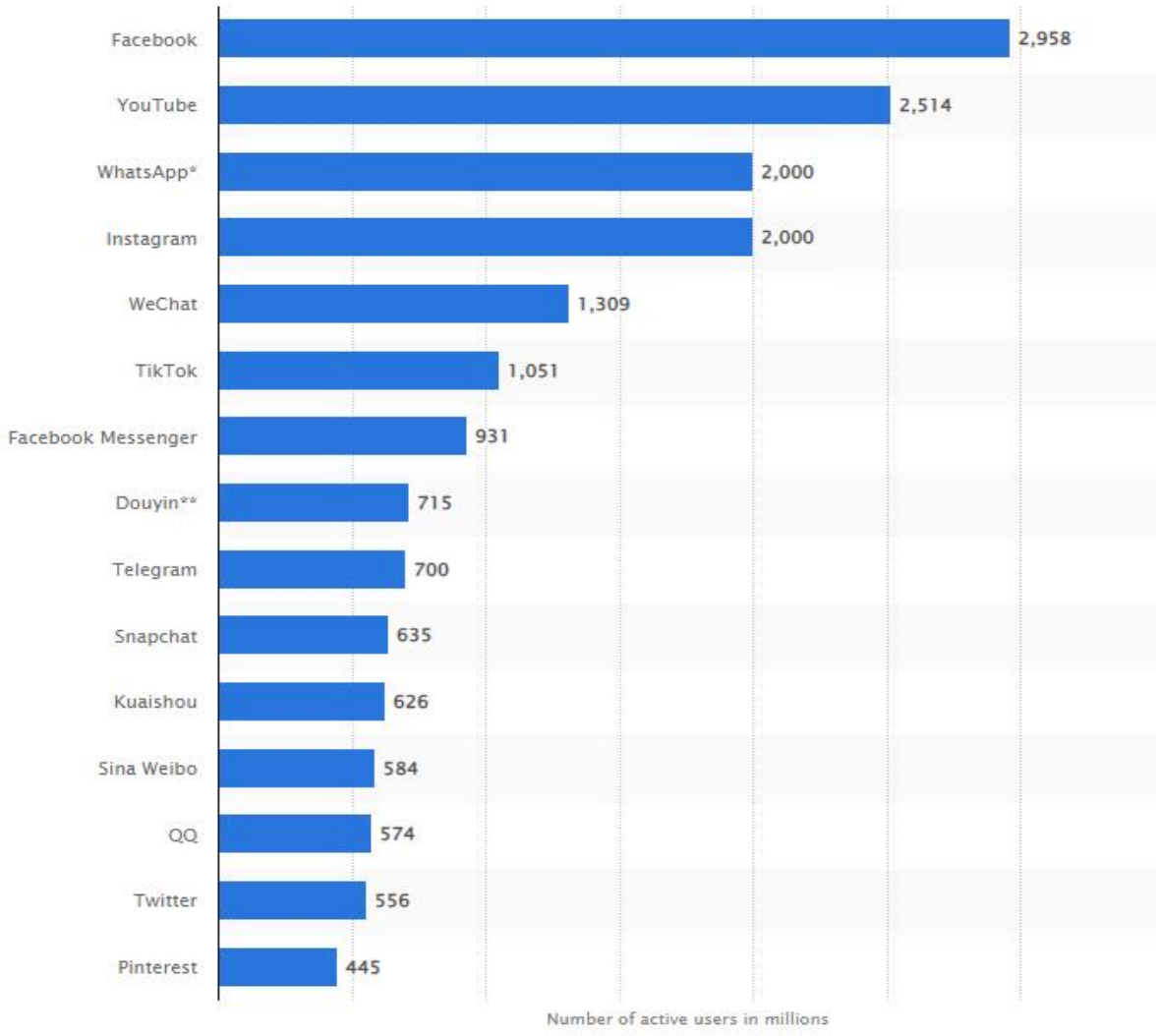

Figure 3 Most popular social network platforms 2023, (Source: Dixon, 2023)

A potential means of distribution via these aforementioned social media platforms, such as Facebook or Discord, would be to create a group including pre-existing and potential new clientele, and sharing the link for the Quick App.

In addition, these interactions enable the engagement of both provider and consumer, answering any developing queries and sustaining the development of a dedicated client base. These platforms may act as a means of providing pertinent information regarding the emergence of Quick Apps, such as user stories and relevant case studies, (Mews, 2020). Those companies searching for a specific demographic could utilise these platforms as a means of direct advertising, this can greatly increase the number of potential customers.

By holding frequent competitions or giveaways, such as those regularly occurring on Facebook or Instagram, are efficient means of spreading awareness. User-Generated Content (USG), is

encouraged via such activities, bringing a degree of identity to any Quick Application, this will foster a feeling of community within users, (Oladipo, 2022). It is important that the awards be relevant to the interests of the target audience while simultaneously highlighting the one-of-a-kind qualities of the software.

Partnerships with Well-known Mobile Brands

One of the most effective strategies for marketing quick apps to a target audience, is to collaborate with well-known mobile brands. The efficiency of this strategy has been demonstrated over the course of the past number of years, most notably with the expansion of the Huawei Appstore. By forming strategic alliances with major smartphone manufacturers companies are able to gain access to their loyal customer bases and take use of the vast user bases that they have already established. It is vital, for the sake of a successful collaboration, to make certain that both parties benefit in some way from the partnership. According to Karagkiozidou et al., (2019), Huawei have shown aspirations to host Quick Apps on their hardware. Another option is to develop co-branded features or applications that are tailored to the requirements and inclinations of the audience (Julian, 2020).

Guerrilla Marketing

As for physical marketing, a guerrilla approach should be undertaken whereby QR codes should be placed in city centres and prominent green spaces in major cities and locations around Europe that lead users to the Quick App platform. The guerrilla approach of displaying QR codes is cheap and has widespread reach to potential consumers. Europe is the target market for this platform and will be seen as one homogenous region for marketing practices, with the marketing strategy implemented to take the global approach as described by Levitt (1983) as being one single market with one product that is unchanged between regions.

Utilisation of Quick Apps for Brands

Ecological concerns, however, do not solely belong to the remit of consumer activism and sustainable choices, utilising quick apps can help instil an onus on brands as well to address sustainability concerns.

The goal of Quick Apps for brands is to Promote Sustainability and Create Accountability.

Promoting Sustainability

There are many possible implementations of Quick Apps which could help promote sustainability in the corporate practices of brands. A Quick App could be developed which ranks and rates brands on their sustainable practices ranging on a scale from 1 to 10 whereby 1 represents brands that are not sustainable i.e., waste excessive amounts of plastic, supplier

factories are heavy pollutants etc., whereas the higher up the scale, the more engaged the brand is with sustainable practices. A high score on this rating system could be utilised by brands as a vital part of their marketing strategy if they wish to impart onto potential consumers their dedication to addressing ecological concerns.

There are many reasons why brands would be incentivised to enter green markets in the first place. Socially and environmentally conscious consumers tend to be less price sensitive when it comes to consumption behaviours. Analytical research into consumer behaviour and the price elasticity of green products indicated that consumers were willing to pay a premium for green brands until the price point hit a price ceiling at which point, the demand for green products became price elastic (Rahman & Haque, 2011). Green products are attractive for businesses as they offer higher market returns and show resilience in economic downturns. Sustainable brands are also less likely to be negatively impacted by any changing regulations with regards to sustainability by world governments or trade organisations, limiting the risk to economic sanctions and fines (Murphy, 2023). Therefore, Quick Apps promoting sustainability should attract to businesses especially if they can utilise the technology to market their products as sustainable, enabling higher returns.

Creating Accountability

Accountability can be created in the supply chain by using Quick Apps. McKinsey Consultancy Group estimates that over 80% of all GHG (greenhouse gas) emissions for consumer companies originate within the supply chain (Bové & Swartz, 2016). Quick Apps can be used to ensure that digital signatures are used for every step taken within the supply chain. Quick Apps could then be used to help encrypt this data ensuring that only those with access to the network can view the detailed logs whilst also ensuring it cannot be proactively changed or erased and is persistently existent for inspection. This ensures that the decision makers in the supply chain are held accountable whilst also reducing the need for paper waste along the supply chain, pertinent for large multinational companies with excess paper documentation.

Another possibility to increase accountability is to have traceable tags on products. By scanning the tags of these products using Quick Apps, the journey of the product can be traced from supply chain to store front, showing where the item originated from and what raw materials were used in its development. This can be used to prevent brands from greenwashing.

Digital Communities

Quick Apps can be used to create and foster digital communities of likeminded users, engaged with fashion and sustainability. A platform to use as an inspiration for this is Patagonia and their user blogs. Patagonia is a clothing brand that promotes sustainability and encourages the

use of circularity in its supply chain. The brand encourages customers to buy high-quality pieces of their clothing, wear it for as long as possible, and then return them so the materials can be refurbished and resold (White et al., 2019).

Patagonia also has a blog which inspires consumers to write about their user stories with Patagonia. These blogs help Patagonia users connect with each other as they give each other tips on restoring their clothing rather than simply throwing it away and how the Patagonia brand appeals to them (Michel et al., 2019). This is an example of how a digital community can be created around clothing and sustainability and should serve as an inspiration for Quick Apps into this market. The nature of Quick Apps can expand on this service as it can serve as an easier to access platform than a blog which encourages users to share and collaborate ideas, whilst making recommendations to likeminded users on how to increase their sustainability when it comes to clothing to organising clothes swaps with each other.

Monetisation

One way for a sustainable fashion Quick App to generate revenue is through charging fashion brands entry fees. However, the realisation of this business model first needs this Quick App to gain a substantial number of users and generate a large amount of monthly active customer traffic, which is a hard goal to achieve.

Advertising is another way to generate income, for example, this Quick App could charge fashion brands for advertising posts on its social platform section, or charging fees if fashion brands want to put their products on the front and obvious places on the marketplace section.

Brands can further use Quick Apps to develop social commerce platforms for a wide variety of purposes. The lightweight nature of Quick Apps allows all of the functions of various Quick Apps to be consolidated into one “hub” area that can act as the social commerce platform. This platform can then benefit both brands and consumers in a myriad of ways.

As a platform holder, monetisation could be recouped through a cut of the revenue from social commerce platforms. The result in Epic Games v. Apple case in 2021 ruled that Apple were anti-competitive in their policies and allowed developers of apps to link to alternative payments methods outside of the App Store, this increases the scope of possibilities for app developers in monetising their apps and is of great relevance to monetisation strategies (Robertson, 2021).

Conclusion

To conclude this report, the current state of the fashion industry and its ecological impact has stressed the need for disruptive and innovative technology to be used to help address this concerning issue. It is evident that if the industry at large persists at the rate at which it currently finds it in, regardless of sustainable interventions the negative consequences, specifically with regards to Fast Fashion Practices. Quick Apps, although not directly capable of altering the growth trajectory itself, when utilised in tandem with sustainable practices have the potential to aid in the betterment of sustainability concerns. Issues were identified and solutions were presented in how the platform of Quick Apps can be utilised to help address these concerns through consumers and suppliers both.

Appendix I – Further Information Regarding Ecological Concerns of Fast Fashion

According to Hawthorn (N.D.), 70 million barrels of oil are utilised in the pre-production of synthetic fibres, such as acrylic, nylon and polyester, all of whom are utilised predominantly in the production of fast fashion garments. It is due to these processes that polyester T-shirts result in 262% more greenhouse gas emissions than that of a standard cotton shirt. It can therefore be seen that the standard process of fast fashion contributes both aerial and oceanic pollutants and as such can be seen to be a major contributor to the current socioeconomic climate. Fast fashion as a result can be seen to have a two-pronged ecological effect on sustainability concerns, the first of which and most pressingly, comes from the immediate consequences of production. For instance, cotton is the most frequently utilised naturing occurring resource, accounting for a significant proportion, (Drew & Yehounme, 2017) estimates it contributes 33% of all fibres utilised in production, this has led to the global mass production of the plant. However, given the immense amounts of water input necessary to bring the plant to harvest, i.e., 250Bn tonnes (TheWorldCounts, N.D.), severe ecological concerns have resulted. Due to this (Whalen, 2022) approximates that the Aral Sea, located in central Asia, has lost approximately 20% of its total volume, as a result of its misuse in cotton production. (Vivek, 2022) Would similarly note additional water requirements in that of the dying process, wherein 28Bn kilograms of textiles are dyed each year utilising over 5Tn litres of water. The mass production of the cotton plant can directly alter the structural integrity of the land from which it is born, the plant is a crop heavily reliant upon pesticide intervention, being the most pesticidal intensive crop in current use (Chester, 2018). It requires 4.7% of global pesticide reserves and 10% of insecticides, waste waters that would result from these interventive measures would pose significant hinderances to the lands survivability, with each respective device owing to a reductive capability in soil fertility and biodiversity integrity, with (Bailey et al., 2022) determining these practices result in 20% of global wastewater productions. All that is to say the immediate effects of clothing production are of serious hinderance to the ecological stability of our planet.

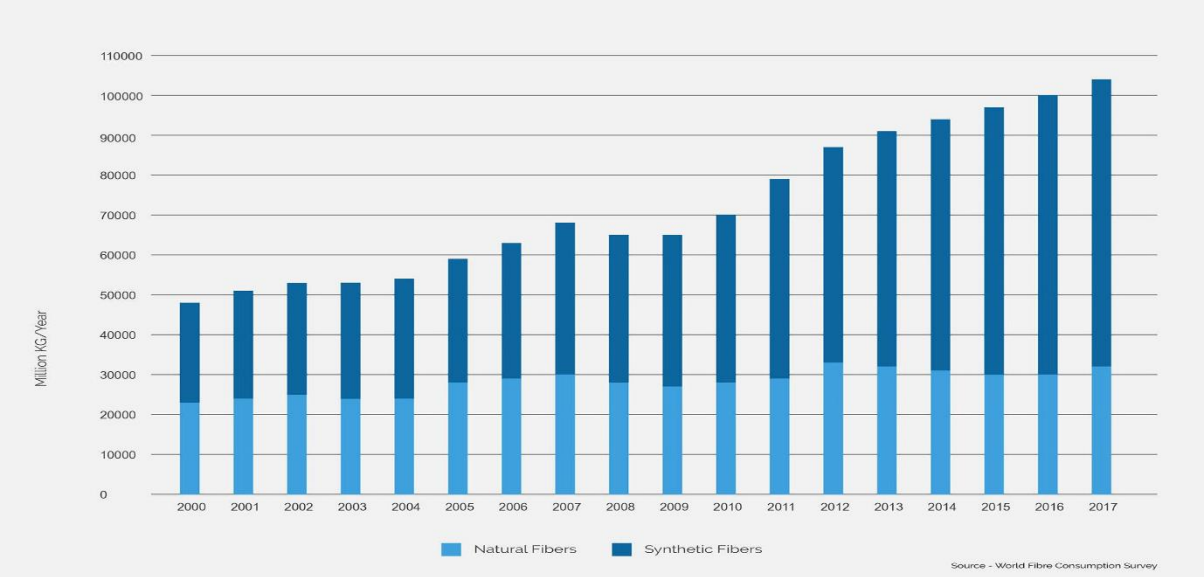

Figure 4 Share of Natural to Synthetic Fibres Utilised (Source: Hawthorn, N.D.)

The second, and more long-term implication of this practice comes in the form of the composition of clothing items, while wastewater and aerial pollutants pose a significant threat, the implications of utilising synthetic fibres within productive processes too holds consequences. The aforementioned materials polyester, acrylic and nylon all hold a defining trait, in that of their inability to naturally degrade, being non-biodegradable in nature. As such when these articles of clothes are washed, via a washing machine, these fibres will often detach from the clothing an enter into the resulting wastewater, 35% of all microplastics found within our marine environments are the direct result of these fast fashioned products (Henry et al., 2019). This in and of itself is a startling statistic given there is an estimated 5.25Tn particles present within said waters (OceanCare, N.D.). (Abreu & Pedrotti, 2019) Estimates that those fragments, which would otherwise avoid washing up on the coastline, have the ability to retain within our seas for anywhere between one-hundred and one-thousand years. Their sheer survivability has the long-term implication of posing a significant ecological threat to the marine life inhabiting within, (Machado et al., 2018) states that microplastics have a direct behavioural effect on marine life, and that is emerging presence has poses significant threat to the terrestrial ecosystems.

Appendix II- Development of Quick Apps in the Chinese Market.

Quick Apps have been developing rapidly in recent years in China, WeChat and Alipay are two of the main-stream Quick App[1] platforms, WeChat is leading the development of Quick Apps with over 800 million cumulative users on its social platform, more than Alipay's 650

million (FiveStones, 2020). WeChat launched "WeChat Quick Apps Ecosystem" on 9 January 2017 (Table 1). One year later, the number of Quick Apps went from 200 in January 2017 to 580,000 in January 2018 (Jisu App, 2018). By 2021, the number of Quick Apps on WeChat went over 3 million (Asset Information Network, 2022). As of January 2023, monthly active users of WeChat reached 1.045 billion, which provides a large user base and traffic to its "Quick Apps Eco-system" (Quest Mobile, 2023). Quick Apps in turn bring user traffic to WeChat, Quick Apps' monthly active users reached 681 million in 2019 (FiveStones, 2020).

Figure 5 Mini programme launching dates by main Super App platforms in China (Source: Five Stone, 2023)

[1] Quick App is called (Xiao ChengXu) mini programmes in China.

Characteristics of Quick Apps in the Chinese Market

Embedded in "Super Apps", Quick Apps in the Chinese market provide users with easy access and instant connection. Users could access Quick Apps by scanning QR codes, opening links, searching on Super Apps, etc. Quick Apps could be integrated with physical stores, using big data to analyse customers' shopping habits, undertake conversion, and improve customer shopping experiences. For major service providers, the framework of "a main Quick App + satellite Quick Apps" better fits into their business structure. For example, JD.com offers "JD Shopping" as its core Quick App platform on WeChat, with "JD Express" and "JD Special Offer" as satellite quick apps to offer better online shopping experiences to customers (Quest Mobile, 2023). Quick apps are able to succeed in China due to them being hosted on one superapp called WeChat. WeChat is owned by Tencent and has significant backing from the Chinese government. The Chinese government has blocked and restricted access to potential competitors such as Messenger or Whatsapp, persuading more users to stay on WeChat. Such

moves would be unable to be implemented in Western economies which are based on liberal open-markets and competition.

Monetization of quick apps on WeChat

Quick Apps have three main monetization models on WeChat. The first one is through advertising, Quick Apps could generate revenue from banner ads, video ads, interstitial ads, etc. The second one is through value-added service. The third one is through e-commerce. For example, JD.com generates sales revenue from cooperation with WeChat, the "Scan and Scan" function on WeChat enables users to identify and purchase products directly from the JD.com product page, realizing one-click purchase (Quest Mobile, 2023).

Appendix III – Mobile Market Penetration

Market analysis of the European region reveals that as of 2021, 67.2% (Taylor, 2023) of the 474 million strong European mobile phone market were Android users equating to 318 million Android users (GSMA, 2022). Achieving 0.1% of this market would result in over 300,000 users while attempting to reach 1% would reach a market of over 3 million users. The lightweight nature of Quick Apps is designed to accommodate scalability ensuring there is no danger of encountering critical mass and slowdowns. Further market research indicates that 38% of Europeans take fashion brands' social and environmental impact into account when making purchasing decisions (van Elven, 2018). On average, users spend 3 hours and 15 minutes per day on their phone (Howarth, 2023). Mobile phones can be used as a marketing platform.

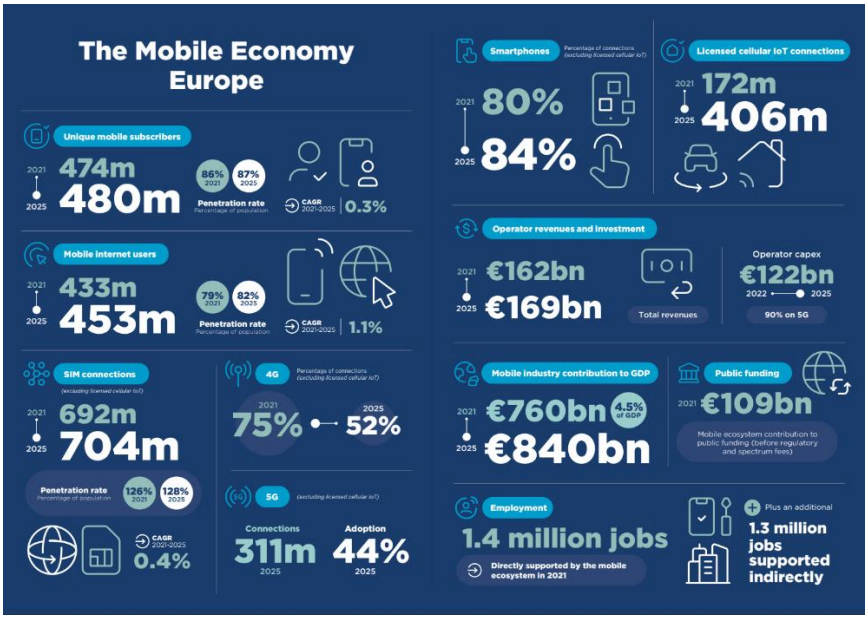

Figure 6 Mobile Market in Europe

In order for the app to be implemented successfully and to ensure that it creates enough value for the customer. Focus groups will be conducted to ensure that the app is user friendly, approachable and easy to understand. The users must gain something from using the app they would not otherwise. The focus group should encompass a diverse array of potential customers, not just young people who are fashion conscious. The data collected from these sessions is vital to the initial and prolonged success of using Quick Apps for fashion purposes which can lead to the reduction of ecological waste generated by the production of garments worldwide.

The best way to ensure that customers become repeated customers for an app is to ensure that there is sufficient value creation. Therefore, the app needs to have quality, convenience, accessibility and longevity.

Appendix IV – Limitations of the Research

Limitations on this report include:

- Lack of financing resulted in limited access to market reports and white papers into relevant industries and markets.
- Lack of software development knowledge amongst group members.
- Inability to carry out primary market research data.

Appendix V – Acknowledgements

DISCLAIMER: The re-use of product & service images within these presentations are for illustrative purposes only. They do not imply the endorsement of these products & services by the Quick App Initiative, nor its participants. All 3rd party imagery remains the property of respective copyright holders.

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