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Fashion e-commerce

A study of the elements determining the profitability of an online sale channel within the fashion industry

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Abstract

E-commerce has been the subject of a massive growth in the course of the last decade, with the fashion industry being one the the main beneficiary of this growth, being the largest B2C eCommerce market segment with a market size estimated at US$752.5 billion in 2020 and a growth compound rate of 9.1% per year.

In such a context, fashion e-commerce is easily identifiable as one of the most profitable sectors globally, but at the same time one of the most competitive as well. This thesis starts with a review of the history and the roots of the modern e-commerce website, goes on outlining a theoretical framework touching e-commerce definitions, e-commerce types, e-commerce main benefits compared to other sale channels. It then proceeds exposing a detailed practical framework of how an e-commerce is composed, what are the current main e-commerce platforms and their peculiarities, and what are the main fashion e-commerce trend strategies and best practises.

Finally, the aim of the thesis is to study empirically, through the somministration of online questionnaires, which are the leading key success factors for a profitable e-commerce in the fashion industry, with a particular focus on whether the most successful factors in generating purchase intention are related to the quality and the ease of use of the website or the marketing and communication activities that the brands carry out around their e-commerce websites. The investigation of which between the two sets of variables has the greatest impact on purchase intention is considered to be relevant for marketing strategies considerations in terms of the e-commerce platform chosen by the company to develop the e-commerce website on. Involvement with the product category is used as the moderator element influencing the studied correlations.

Introduction

E-commerce websites originally were born to satisfy the demand of business to business networks (see the Appendix for a brief literature review of the history of e-commerce). The potentialities of online commerce soon attracted interest and investments towards the business to customer sector, generating new and ever-evolving global market with consequently new and ever-evolving marketing strategies and tools, best practises and influencing factors modifying and complicating the competitive landscape and the identification of the key factors and strategies leading to the best performance of the e-commerce website as a sale channel. The advent of a new generation of e-commerce platforms made these considerations especially relevant since before their introduction the development and maintenance of an e-commerce website had a significant cost, representing an entry barrier for companies with a limited investment power. These platforms have made the creation, maintenance and management of e-commerce websites accessible to a much larger audience of companies, as well as attracting companies already having e-commerce websites running on traditional e-commerce platforms looking for cost optimization. With these platforms offering similar basement and functionalities of traditional ones at a much lower cost, brands have the chance to relocate their budget on the elements producing the best sales performance. This thesis propose the contrappositioning of two sets of elements that according to existing literature are all positively related to sales performance in e-commerce websites, the first one synthetically representing the investments that a company could destine to the website customisation - which would pull the company towards traditional platforms -, and the second one synthetically representing the investments that could be destined to marketing and communication initiatives involving the website, in order to assess which of the two has the best results.

I. E-commerce: definitions, benefits, platforms

1. 1 Introduction

Since the commercialisation of the Internet has had a huge impact in the way the Internet, its applications and its evolutions shaped its usage and its spread, it is evident how the birth of e-commerce is so intrinsically connected to the history of the Internet itself. It could be said that, without its commercialisation, the Internet would have never become the tool we all know today and a part so important in everyone's lives. The use of the Internet for commercial aims, not only dramatically increased its diffusion, but it also increased a lot the efforts for developments and innovation.

1. 2 Definition of e-commerce

E-commerce stands for electronic commerce and concerns the trading in goods and services through an electronic medium (Gupta, 2014). There are many and various definitions of e-commerce, all tracing down to the same fundamental elements. In the 1990s e-commerce was defined as any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact. This definition is arguably outdated, since e-commerce has evolved dramatically from when it could be circumscribed in the business field. A more modern definition would be

"E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organisations, and between organisations and individuals" (Gupta, 2014). E-commerce can apply to all three major form of business models: B2B[1], B2C[2] and C2C[3]. Other than these, minor types of e-commerce are the B2G[4] and G2B[5]. A separate mention is needed for m-commerce, meaning the e-commerce made from a mobile device. This type of e-commerce is different from the others being based not on the parties involved in the transaction, but the device through which the transaction is made, and it is transverse to all the previous types. All of them can have as object of the transaction a variety of goods, some of which are: physical products, virtual/non-tangible goods such as e-books or softwares, informational goods such as the access to a database, a service such as online teaching lessons, and even legal ones such as patents or licences.

1. 3 Types of e-commerce

E-commerce types can be classified as such according to various criteria. They can be categorised according to the products or services that they sell, the parties that they transact with, or even the platforms on which they operate. Being both the products or services sold and the platforms through which they are sold two very variable and in continuous evolution elements of the equation, the categorization based on the parties involved is surely the most stable one. Following this criteria, as just stated in the previous paragraph, e-commerce is divided into six types (Gupta, 2014), (Nemat, 2011). B2B: simply defined as e-commerce between companies, this is the type of e-commerce that deals with relationships between and among businesses. It consists of two

[1] Business to business
[2] Business to consumer
[3] Customer to consumer
[4] Business to government
[5] Government to business

components, the e-frastructure and the e-market. The first one is the set of: logistics transportation, warehousing and distribution (e.g. XPO Logistics); application service providers (e.g. Oracle); outsourcing of functions in the process of e-commerce, such as Web-hosting (e.g. GoDaddy), security (e.g. Iubenda) and customer care solutions (eg. SAP); content management software for the facilitation of Web site content management and delivery (e.g. LiveStory). The second one is the set of the websites where buyers and sellers interact with each other and conduct transactions. B2B websites can be of various types: websites of companies only working in the B2B sector; websites of companies working both in the B2B and B2C sectors: in this case the two channels can be separated one from the other, or they can be integrated in the same website with a dedicated access for the B2B area; last, websites that work both as B2B and B2C channels. Typical examples of these are asian marketplaces. The network of B2B e-commerce comprehends, for each firm, the network of its suppliers and its distributors, thus being an instrument to manage business both as incoming and outgoing.

B2C: is the e-commerce that occurs between companies or business entities and private customers. The main advantages of this type of e-commerce is, for the customer the fact that it reduces transactions costs, particularly search costs, by increasing consumer access to information and allowing consumers to find the most competitive price for a product or service, while for the companies the fact that it reduces market entry barriers, being a much cheaper sale channel than the traditional "brick-and-mortar" structure, and makes their product available at any time and location, breaking down the limits of physical stores. The extent of the importance of this advantage can be sensed observing how more and more there are companies which are born as online businesses and they exclusively sell their products through the internet.

G2B: The G2B e-commerce models happen when the government provides companies with goods and services. Government procurement, data centres, and e-learning are all examples of G2B e-commerce.

B2G: business-to-government e-commerce is generally defined as commerce between companies and the public sector. It refers to the use of the Internet for public

procurement, licensing procedures, and other government-related operations. The main difference between this type of e-commerce and the other ones, is that in this case it's the government to set all the rules for the transactions and the prices, instead of the demand-offer system. At the same time, it is the less developed one.

C2C: this type of e-commerce occurs when two private consumers interchange some goods in change of money or other forms of payments. C2C e-commerce also includes barter transactions. The main characteristic of this type of e-commerce is that more than all of the other types, it suits particularly in one kind of platform, which is social media platforms. Being naturally a network of people, it's intuitive the reason that made social media the favourite platforms for private consumers that wanted to sell something online. Among the most popular ones are Etsy, Pinterest, Instagram, and to name an all made-in-Italy one, Depop.

A minor subtype of C2C e-commerce is C2B. C2B e-commerce doesn't actually involve a transaction, but rather reverse auctions, which empower the consumer to drive the value of transactions. A practical example of this type of e-commerce is when airlines compete for the sale of a ticket to a customer, offering him/her the lowest price or dedicated offers.

M-commerce: despite not being an e-commerce type based on the parties involved as all the previous one, e-commerce carried out through mobile devices needs to be treated more in depth having become for many companies the biggest grossing one. M-commerce in turn has to be divided into two types, which are m-commerce carried out through the traditional platforms, websites, accessed by a mobile device, and m-commerce happening throughout apps. Apps can be of various nature: they can be social media apps that developed a marketplace within themselves (e.g. Facebook marketplace), they can be the apps of online marketplaces (e.g. Vestiaire Collective), they can be marketplaces born as apps and functioning exclusively as such (e.g. Depop), or they can be the app of a specific brand/company (e.g. Zara app). When a brand or service has both a website and an app, the relationship between the two platforms can be either of total integration or total separation. In the first case the strategy focuses on creating a seamless experience for the customer, that moving from one platform to the

other finds the exact same elements and features, contents, order history, wishlist etc. In the second case instead, the separation of the two platforms aims to enhance the innovations that come with the app, such as updated and faster payments methods, more intuitive interface, easier and integrated packages tracking section, app-exclusive products or services, and so on. Many fast fashion brands are taking this road, Zara and Uniqlo just to mention some, pushing their customers to download and purchase from the app instead of the website offering dedicated discounts, promotions and fidelity programs. The reason behind brands pushing customers towards the usage of the app instead of the website lies on engagement objectives and ease of reach. In fact, not only does the app represent a constant reminder of the brand for the customer, but it also speeds up the ease with which customers can access and browse the products.

M-commerce impacted a very large number of businesses, some of which completely changed since its big impact started with the spread of smartphones. One example of an industry that has been deeply impacted by m-commerce is the music industry. With users being able not only to listen to music on their mobile phones, but shop streaming services through them, a whole new panorama of apps and services flourished with it, the most popular one notoriously being Spotify. Music streaming services not only completely changed the way music is purchased, listened and marketed, but it also changed the way records and songs reach certifications and therefore artists' success gets recognized. Other industries that have been deeply affected by m-commerce are, only to mention some, food delivery and delivery services in general, transportations (see car sharing services and drivers services as Uber), financial services (see home banking apps), informational and press services, and so on.

1. 4 Main benefits of e-commerce

E-commerce has a number of benefits based on different elements and stages of the purchase journey. Some benefits are on the sellers side and some others on the

customers side, some of them are beneficial on both sides. The first main group of benefits are based on the cost element, therefore on the sellers side (Gupta, 2014). First of all, transaction costs are significantly reduced through the use of e-commerce instead of physical commerce. Within the set of transactional costs are the reduction of fixed costs, processing of transaction costs and logistics. The second benefit on the sellers side actually benefits the customers too: it is the disintermediation. Online goods are most of the time sold with less steps of intermediation between the producer and the customers, the distribution chain is sometimes made just of the producer himself/herself that sells his/her products directly online. A shorter distribution chain allows the seller to apply prices that he/she couldn't apply when selling on the B2B market, therefore he/she has a greater margin of profit, while the customer still gets a lower price in comparison with traditional retail channels. On the other hand, for consumers, several benefits come from choosing online shopping instead of the traditional shopping. The first and probably major advantage can be synthesised with the word transparency: whether it’s price transparency, information transparency, origin of the products transparency, overall the average customer is more likely to acquire complete and impartial information about a product when browsing the Internet than he/she would walking the aisles of a shop.

Taking the perspective of one of undiscussed e-commerce market leaders, Amazon, there are 11 major advantages of e-commerce (The Amazon Seller Blog, 2021):

1. Faster buying process
2. Greater information
3. Store and product listing creation
4. Cost reduction
5. Affordable advertising and marketing
6. Flexibility for customers
7. No reach limitations
8. Product and price comparison
9. Faster response to buyer/market demands
10. Several payment modes

11. Accuracy of analysis

Existing scientific literature corroborates the existence of these benefits provided by electronic commerce.

Faster buying process: although this statement could sound contradictory to some, being that physical shopping does not need for time delivery time which stretches the time needed to get the object shopped, it is actually true for some kinds of goods. It is the case of non-impulsive buying goods or goods that are not commodities. For commodities, which a classical example of is toilet paper, physical shopping remains the main choice for consumers. For other types of goods on the other hand, such as electronic devices, household appliances, clothing and fashion items in general, personal care products. When online, not only customers can find items that are available in physical stores far away from them or not found in their locality, but they also can easily browse through many items at a time and buy what they like (Abou-Shouk, Megicks &Mun Lim, 2012) (Piris, Fitzgerald & Serrano, 2004). At the very core of this advantage is, ultimately, a faster response to the fulfilment of a need.

Greater information: advantages of e-business include helping one to choose from a wide range of products. In fact, when searching for an item, the customer is provided with a greater amount of information in regard to the available options than he would shopping for them in a physical store (Abou-Shouk et al., 2012) (Piris et al., 2004) (Molla & Heeks, 2007). Examples of the types of information that are available only through online shopping are reviews from other customers that previously bought the same item, reviews and opinions from experts of the fields (e.g. skincare is great example of this advantage, being the kind of products for which there is an inevitable "sight unseen" aspect, with plenty of skincare specialist reachable online, the consumer is more likely to make a better choice online than he would going shopping in a department store).

Store and product listing creation: a product listing is what the customer sees when they search for an item. The main differences between a store listing and an e-store one, are first of all that physical stores are limited to one criteria of listing. It could be for brand, for type of device/item, solution needed. E-commerce on the other hand, has the

possibility not only to list products according to multiple criteria, but with the search bar function, nowadays incorporated into even the simpler e-commerce, the customer has the possibility to have a completely custom listing based on the type of search he or she made. Another advantage of e-commerce listing is that it has virtually no limit on the number of products that could be listed, just think of Amazon or Ebay infinite-looking assortment of products. Physical stores are obviously limited by space constraints. One more advantage of e-commerce listing is the ability to sort or filter products. This very basic feature allows the customer to arrange products according to his/her preferences, such as price-based or newest to oldest sorting, price range or sizing filtering, and so on.

Cost reduction: this advantage is very simple to explain, e-commerce is both cheaper to build/afford in the first place, and cheaper to maintain. This translates into a convenience also for the customers, that buying online are able to find lower prices than they would in physical stores (Abou-Shouk et al., 2012) (Piris et al., 2004) (Molla & Heeks, 2007).

Affordable advertising and marketing: sellers don't have to spend a lot of money to promote their items. The world of ecommerce has several affordable, quick ways to market online, such as paid results on browsers, paid features on related websites, sponsorships through social media, newsletters, etc. Of course online advertising falls into the umbrella of advertising per se, and online advertising can also have physical shopping as objective, but it is undeniable that when seeing a product or a service advertised online, it's easier for the customer to follow the path to the purchase staying in the same channel (Piris et al., 2004).

Flexibility for customers: this advantage plays very conveniently both for the customers and the sellers. On one hand in fact, the products and services are available 24x7, and on the other, customers are always present on ecommerce marketplaces. This makes e-commerce a virtually perpetual market (Abou-Shouk et al., 2012) (Piris et al., 2004).

Product and price comparison: in physical stores, the comparison among products can happen only through the information made available by the store or their employees. In e-commerce, customers can compare the products using tools on their own. These tools

are often offered by the e-commerce themselves, Apple's comparator for different Iphone models to name one, or they can be indepent websites which are specifically meant to compare characteristics or prices. These types of tools also have the benefit of being based on a much larger variety of options, making the comparison more accurate and complete (Piris et al., 2004) (Molla & Heeks, 2007).

No reach limitations: a seller with a physical store may only be able to reach a certain number of buyers. They can deliver to the customers' homes but there can be distance limitations. E-commerce can rely not only on potentially limitless shipping coverage, but several e-commerce marketplaces have their own logistics and delivery system on which the merchants can rely in order to have their products delivered all over the world.

Faster response to buyer/market demands: on the sellers side, every interaction is faster and more traceable when selling online. Picks of demand or lows in the stock of certain products are easily detectable through online platforms. A great example of this advantage is how e-commerce is able to detect the request of a certain out of stock product. When looking for an item in a physical store, the customer that is not able to find it either asks the sales staff, which is often not able to tell whether the item is coming back in stock and when, or he/she can simply renounce to find the item needed in that shop and go look for it somewhere else. Likely in both cases, the shop has lost a sale. E-commerce on the other hand, has the option to make the customer register for a notification when the item will be stocked again. This function is not only very useful and helpful in regard to the customer journey, but it also gives the seller precise information on what to stock, the popularity of the products or in case of products with variants, which colours or sizes are the most requested ones. Moreover, the registration for the notification is most times a registration for marketing communications as well, making it a function with three immediate and direct advantages in comparison with physical stores: it has benefits for the customer experience, it provides insights for the analysis of the demand and the resultant adaptation of the demand satisfaction, and collects precious information for marketing aims (Abou-Shouk et al., 2012) (Piris et al., 2004) (Molla & Heeks, 2007).

Several payment modes: physical stores are limited to cash payment and credit/debit cards. When paying in their online shipping, customers are provided with almost any existing payment methods: manual payments, such as COD and bank transfers, credit/debit cards with all the main circuits, third parties payment methods such as PayPal, Google Pay, Apple pay, Amazon Pay, and so on (Abou-Shouk et al., 2012).

Accuracy of analysis: although neuromarketing is a growing field that is more and more able to analyse customers' behaviour even in physical point of sales, the data that can be obtained by these analysis are based on complex and expensive tests which at this stage are able to be afforded by a very narrow portion of the totality of the companies. E-commerce analytics on the other hand, are not only very accurate and based on all the interactions that happen on the website, but are also a very cheap service to purchase for a seller. For example, basic Google Analytics are included in google free accounts, and Google Tag Manager, which is a tool that provides even more precise information on the conversion funnel, is free as well. Some e-commerce platforms like Shopify have their own internal analytics services which are included in the service fee. Some of the information and insights that can be acquired through analytics are: returning customer rate, conversion rate, average order value, top products, top visited page, onli store sessions by device type, sales by traffic source, sales by discount codes, and many many more. These analytics have several applications and benefits: they tell the merchants where it is best to invest in marketing, they then tell at least in part whether the marketing investments were successful, how successful and the results that they produced.

Tokar, Jensen and Williams further argue on the unseen benefits that e-commerce has on society, compared to the seen costs. They list a series of costs, or negative impacts, of e-commerce and identify elements that are unseen benefits behind these costs (Tokar, Jensen, Williams, 2021). They distinguish their analysis into the following areas:

1. Packaging and waste: the paper describes three main types of waste associated with packaging left over after the delivery: cardboard boxes, plastic air pillows and styrofoam peanuts. All of these materials are necessary in order to keep the logistics and delivery network of -commerce working, and all together are

causing a remarkable impact on waste production. On the other hand, the waste production needs to be considered against a critical unseen impact of e-commerce, namely the dramatic reduction of the usage of other types of materials traditionally employed in the brick-and-mortar commerce. Specifically shopping bags (both plastic and paper ones), register tape, in-store flyers and signage, paper products and bathroom supplies.

2. Traffic and emission: Another prominently visible negative effect of e-commerce is the increased vehicle and aircraft traffic required to make the deliveries. Both traffic types increase carbon dioxide (CO2) emissions, and delivery trucks produce aggravation and stress on crowded roads. The other side of this medal however shows a number of positive impacts on the traffic and emission footprint of e-commerce: fewer consumers driving to/from stores to make purchases reduces congestion, consumers save the time previously required to drive to all locations required to meet consumption needs, shoppers visiting brick-and-mortar locations save time as parking is more available and lines are shorter, fewer employees travelling to/from congested city centre retail locations; instead, going to/from more remote warehouse locations, reduction of trucks to retail stores as product flows directly to consumer from manufacturer or retail distribution centre.
3. Energy and resource consumption: trucks and aeroplanes mentioned in the previous part have not only the effect of causing traffic congestion and increasing pollution, but also of increasing fossil fuel consumption. The researchers find that this seen cost has however a number of unseen benefits, such as: fewer brick and mortar locations require less electricity for lights, registers, and HVAC systems, fewer brick and mortar locations require less water usage in bathrooms, landscaping, and fountains, less consumer traffic to/from stores reduces fuel consumption, reduction of fuel for trucks travelling to retail stores as product flows directly to consumer from manufacturer or retail distribution centres, increased useful life of materials and equipment in stores, increased time between store remodels, increased life of parking lots, reduced

need for cleaning chemicals and supplies, potentially allows for smaller store formats as reduced volumes and assortment held.

1. 5 Parts of which an e-commerce is composed

The composition of an e-commerce website can be analysed by three main points of view: first there is the architectural composition of an e-commerce, then there are the fundamental elements of which an e-commerce is made of, and lastly the types of pages of the e-commerce.

The architectural composition of an e-commerce is the composition that can be easily seen in its development when building a new e-commerce from scratch or through an e-commerce platform. This composition is in fact reflected in the professional figures working at the making of an e-commerce website. The architectural composition is made of three elements: the code - together with the platform providing the coding language -, the design and the content. The code is, fundamentally, the concrete of which any website, even not e-commerce, is made. Everything that exists into an e-commerce website traces down to a piece of code, even copies, images and videos. The overall code of an e-commerce can be made out of a single coding language or different ones. For example, when building an e-commerce website using Shopify as the hosting platform, the code of the e-commerce will ultimately be a miscellaneous composition of: HTML, CSS, JavaScript, proprietary code of the platform and all the proprietary codes of the apps installed onto the website. The proprietary codes are part of codes that, although being part of the overall code of the website, are not accessible to external developers. In other words, the developers working on the making of the e-commerce don’t have access to it and cannot modify it. The second element of the architecture of an e-commerce is its design. The design stage of an e-commerce actually precedes the coding and developing stage, since without a design to follow and to code into a website would look like a very long page of textual elements listed one after the other on a white background. The design of an e-commerce can be considered also as

the user interface of it, a layer between the user and the code which makes the website accessible and usable for him/her. The designer of a website has to consider not only the aesthetic value of the design but also its function as the user interface. The very same way when one sits at the driver seat of a car, despite every car model having its own different layout, colours, materials, shapes and optional features, expects the steering wheel to be round and right in front of the seat, the gear lever and handbrake to be at the bottom right of it, to have indicators for the car speed and the gas level etc, an e-commerce user expects some recurring and functional elements to be always present when accessing an e-commerce. The designer has the delicate job of balancing the creativity aspect of a design that drives it to be different and unique, and the sets of standards of which the user interface is made of. The last of the architectural elements of an e-commerce is its content. When an e-commerce has been designed by the designer, developed and tested out by the developers, it's still an empty shell that has to be filled in with content. With content it is intended not only the ones obvious and visible to the user, such as media, copies, products, but also the e-commerce general settings such as inventory locations and inventory records, markets zone with their delivery options, checkout settings, analytics data, and so on. Ultimately the content is that part of the e-commerce that is managed and followed by the figure of the store manager or sometimes the e-commerce manager.

The second point of view from which the e-commerce can be divided into parts are its fundamental elements, those elements that can be found in every e-commerce back end. First of all, the catalogue. The catalogue of products that are sold on the website and that is in turn composed of various elements, such as the product information (title, description, sku code, ean code, price, cost, harmonised code, product attributes, variants, etc.), product inventory, product pictures gallery, product channels availability settings. The catalogue is then divided into clusters that have various names depending on the platform used (e.g. collections, categories, galleries) and that can be based either on automatic rules as the result of the combination of various product attributes, or can be a given list of products that must be enclosed into a cluster. Two examples of these options can be given by a generic product category "T-shirts" and a cluster of products

from a collaboration between the brand and an artist. In the first case the cluster of products will be likely based on an existing product attribute (e.g. product type: t-shirt) which will constitute the automatic rule of the cluster. In the case of a set of items part of a collaboration, which could be called capsule collection, the items would unlikely match with a set of rules based on product attributes. Therefore the cluster of products will be made out of a given list. The next fundamental element of an e-commerce is its customers database. Customer databases are built and acquired throughout the life of the e-commerce as per the products databases are characterised by attributes upon which it is possible to cluster them in order to target portions of the database for specific marketing campaigns or discounts campaigns. Directly linked to the customer database is the orders database. An orders database it's a precious source of information for any company because it gives an insight of the customer preferences, purchasing behaviour as well as abandoned carts behaviour, customer lifespan value, etc. Strictly related to both the orders and customers database are the transactional emails. Transactional emails are all those emails that are automatically sent out from the e-commerce to the user following the activation of a trigger. The most common transactional emails are: order confirmation, payment error, gift card created, delivery notification, account activation, password reset. Another element which is in some way connected both to the orders and the customers database is the set of promotions in place at a given time in an e-commerce. Promotions can be very various and complex as well as very simple, but they all trace back to three fundamental types: first there is the promotion applied directly on the catalogue, commonly known as sales; following are the coupons or discount codes, which when communicated to the customers via the e-commerce itself or via marketing campaigns (e.g. newsletter, social medias, flyers) can be inserted during the final stages of the purchase journey, the cart or the checkout, and will produce a discount on the totality of the shopping basket or on part of it, depending on the discount code conditions; lastly there are automatic promotions, which are visible, as per discount codes, only in the last stages of the purchase journey and that are automatically activated by the satisfaction of given criteria (e.g. the shopping basket gets discounted of a percentage when it reaches at least a number of items added, or

once the number is reached a free gift is added). Proceeding into the list of fundamental elements of an e-commerce comes the navigation. The navigation is the set of menus available within an e-commerce website, among which can always be found the main or header menu and the footer menu, respectively the menu that the user can find at the top of the website and the one at the bottom. Some e-commerce add to these to menus other service menus, such as a menu to browse through legal pages or customer care pages. Lastly on the list fundamental elements of an e-commerce website are the editorial pages. Editorial pages are all those pages that are not commercial, they are not functional to the sale but aim to communicate to the user information of various types, which will be explained more in detail by the next set of e-commerce parts point of view.

The fundamental elements of an e-commerce listed and explained up to this point can be also classified as the elements that can be seen, accessed to and modified by the back end of the e-commerce. Most of them are not visible to the customer which in fact, in most cases, is not aware of their existence. The last classification of parts of which an e-commerce is composed of is, on the other hand, a classification through the point of view of the user. Every e-commerce in its front end it's composed of a series of pages that fall into precise categorization. First of all, every e-commerce website has a homepage. The homepage is usually the first page on which the user lands when accessing an e-commerce. The homepage is divided into sections or modules that, arranged into the layout, form the totality of the homepage. The sections have multiple types but all come down to two functions: communicating either commercial information or non-commercial ones. Commercial objectives can be the communication of a new product or collection launch, the start of a promotion, etc. while non-commercial objectives can be the communication of the brand's values, latest events or initiatives, etc. The types of modules are virtually limitless but some of the most common are: hero banners, slideshows, videos, carousels, product direct launch, collections direct launch, textual banners, press banners, review banners, social media feeds. After the homepage the user is usually driven to browse to the products listing page or collection page. The products listing page is the other face of product clusters,

previously discussed, and it presents itself as a list of products that the user has accessed either from the main menu or from one of the sections of the homepage. Products listing pages can include, other than the product tiles, editorial tiles for commercial or non-commercial aims. They are usually provided with filters and sorting features that help the user navigate through the list more easily. Next in the navigation is the product details page. The product page is where the user can find all the information about the product and from which he/she can add it to the basket. The product page can be enriched with various additional features such as the wishlist, the size guide, carousel of suggested products, carousel of "complete the look" products, and editorial sections. When the product is added to the basket or cart, the user can access the cart page. The cart page is the page preceding the actual purchase moment, and has the function of recapping to the user of what he/she has added to it and show a partial total of the order, which does not include eventual discount codes and delivery costs. Sometimes the discount code application is inserted into the cart page as an incentive to complete the order. The cart page can also sometimes be skipped in favour of a direct link to the checkout page. This strategy, which falls into the as less clicks as possible from the homepage to the final purchase strategy, a strategy that has been pursued by many e-commerce websites following the establishment throughout the design and user experience community of the "three-click rule" that states that no page should take more than 3 clicks (or taps on a touchscreen) to access (Laubheimer, 2019). This principle has been proven wrong by the designers and UX experts themselves, who discovered that the rule has an inverse correlation with the complexity of the task that the user is trying to complete (Porter, 2003). Since when browsing through e-commerce websites the task to complete is the purchase of one or more items, the complexity of the task can be translated into the level of personal engagement that the user has with the item he/she is purchasing. The engagement towards the item can increase due to multiple factors of different nature, e.g. the cost of the item, the emotional value that the user attaches to the item, and the social value of the item. When the item is characterised by a low level of engagement, valid examples of this case would be commodities goods, the purchase task is simple, therefore the less click strategy can be

effective. When on the other hand the item has a high engagement for the customer, the task can be considered as complex and the number of clicks becomes nearly irrelevant. For clothing shopping in particular, recent research tested that the number of clicks necessary to complete a purchase task range from a minimum of 15 to a maximum of 25 (eCommerce Marketing, 2020). Right after the cart page, following the purchase journey, the user accesses the checkout page. This page is the actual place in which the user carries out the purchase filling information about delivery and billing address, payment method, eventual discount code, and finally places the order. Contrary to what has just been said about the number of clicks mattering when considering the efficiency of the customer journey through an e-commerce, when arriving at the checkout phase it is crucial that this phase is designed in order to bring the customer to the completion of the purchase as quickly as possible. In order to do so the checkout page has to avoid the presence of any element of distraction (e.g. suggested or related product, external links, editorial content), it should have a clean and clear organisation of the information, a simple layout where the steps required until the end of the process should be clearly displayed in a way that not only informs the user of how many steps he/she is required to complete, but it should also show the progress status of the overall checkout process. Another very relevant factor to be considered when designing a checkout process is the amount of personal information that the user is required to provide in order to complete the order. The very first moment that this consideration manifests its importance it's when the user has to decide either to checkout as a guest or create an account. It is highly suggested that this choice is left to the user, who should not be forced to create an account when trying to check out a cart. The obligation to create an account could lead to an abandonment of the cart for two main reasons: the first is the obligation to provide personal information for them to be saved into a database. Many e-commerce users, especially those who are not accustomed to online shopping, still tend to doubt the reliability of e-commerce platforms when it comes to protecting their sensitive data. The second reason that might lead to an abandonment of the cart is the requirement for the creation of a password. The "password fatigue" or "account fatigue" is an actual psychological phenomenon experienced by users that is explained as the feeling

experienced by many people who are required to remember an excessive number of passwords as part of their daily routine (H. Sanchez, Murray & D. Sanchez, 2016). Following the same principle, even when checking out as a guest, the user should not be required for information that is not strictly related to the purchase process, such as fiscal code, age, and even phone number. Finally, the last view of the checkout page should always display in an unmistakable way the confirmation of the completion of the order together with some brief information about the next step that will follow from the order confirmation to the order reception. All the pages analysed so far are the commercial pages of an e-commerce. But as stated earlier in the paragraph, there is another type of pages that are always incorporated into any e-commerce, the editorial pages. With the term editorial page is meant any page that does not contain elements that are directly related to the purchase process. Under the umbrella of editorial pages some very specific types of pages can be found in almost any e-commerce: the about page or pages, all those pages that have the aim of communicating the brand's history, values, commitments, production processes, and so on; the blog or blogs, an internal journal that can contain articles either about the brand's initiatives, events, launches, collaborations etc. or about news that is relevant to the brand because it matches its sphere of values; the customer care pages, all those pages containing information useful to the customer when browsing through an e-commerce (e.g. contact form page, FAQ page, delivery and returns page, returns form, etc.); legal pages, all those pages containing information with a legal relevance both for the e-commerce owners and the e-commerce users and that are required to be present in any e-commerce under most of the world's e-commerce regulation (terms and condition of sale, terms and condition of use, privacy policy, cookie policy). Lastly, a category of pages which does not fall either into the commercial nor the editorial types are the account pages. Account pages are all the pages included between the registration page and the personal account page. This includes login page, password reset page, personal information page, addresses page, order history, wishlist.

1. 6 E-commerce Platforms: introduction

All e-commerce websites are at their very core built out of coding. The coding, also referred to as development, can either be from scratch, from which are output the so-called custom websites, or, happening more frequently, built using a platform as basic infrastructure. E-commerce platforms are - almost, and in different degrees - ready-to-use foundations from which through customisation and the addition of custom elements a website is built. Using a platform as base instead of starting from scratch has some advantages as well as some drawbacks.

The main advantage of building a custom website from zero is the fact that there are no limitations other than those set by the existing available technology. A custom website is, as its definition suggests, completely customizable in its structure, its features, its patterns and customer journey. On the other hand, custom websites require a massive initial investment in terms of both money and time, since it takes a long time, sometimes years to develop a full-functioning e-commerce. Moreover, maintenance costs and updates of custom platforms can be very expensive, both in terms of technology and in terms of hosting servers.

On the other hand, when building an e-commerce website using a platform, such as Salesforce, the advantages are that the website can be developed much faster, protocols and developing patterns help developers by giving them solid paths, solving bugs, and the platform offers a support service. The platform is in most cases responsible for platforms updates and servers maintenance costs. The main drawback of using platforms as base for building an e-commerce is that the company is limited to the level of technology offered by the platform, therefore internal limitations of the platform can not be overcome.

Some of the most popular and most used platforms are Salesforce, WordPress, WooCommerce, Magento, etc., representing the traditional platforms on which most of the e-commerce websites of global brands are built on. Bringing a revolution in the way e-commerce websites are built, are a new generation of e-commerce platforms, in which

the most popular ones are Shopify, Wix e-commerce, Fiverr. These platforms, as will be treated more in details in the following paragraphs, although presenting a significantly higher number of limitations, offer a solid and flexible alternative to traditional platforms, at a much lower cost.

1. 7 Salesforce

As the Salesforce website defines itself, Salesforce is an entirely cloud-based CRM solution that allows firms to connect with their customers in a completely new way, across the entire customer lifecycle, in terms of marketing, sales, e-commerce and customer service interactions (Salesforce, 2020). Salesforce was founded in 1999 by Marc Benioff, former executive at Oracle Corporation, and by Parker Harris, Dave Moellenhoff and Frank Dominguez, former developers at Left Coast Software consulting. The company was founded since the very beginning as a Saas[6] one. As so, Salesforce software is licensed to its users on a subscription basis and it is centrally hosted in San Francisco, California. In the last two decades Salesforce partnered up with many other players of the informatic field, Facebook and Apple being the most important ones, to expand its services offer and improving apps for businesses. At present times Salesforce.com's customer relationship management service comprises several broad categories: Commerce Cloud, Sales Cloud, Service Cloud, Data Cloud, Marketing Cloud, Community Cloud, Analytics Cloud, App Cloud.

As stated by Salesforce itself and by many more field players, is the number one CRM system in the world (Atlantic Technologies, Noovle, 2020). Customer relationship management (CRM) is a technology for managing a company’s relationships and interactions with customers and potential customers. A CRM system helps companies stay connected to customers, streamline processes, and improve profitability. A CRM system benefits various departments of a firm, from sales, customer service, business

[6] Software as a Service

development, recruiting, marketing, a structured CRm gives a better way to manage the external interactions and relationships that drive success. In these kinds of systems the information about acquired customers and potential ones are made available to everyone who has access to the CRM back end, in a structured and organised in the best way possible for each type of user. CRM systems start by collecting a customer's website, email, telephone, and social media data, and more, across multiple sources and channels. It may also automatically pull in other information, such as recent news about the company's activity, and it can store personal details, such as a client's personal preferences on communications. The CRM tool then proceeds to organise this information to give a complete record of individuals and companies overall, for better understanding of the relationship over time. With a consolidated view of every prospect and customer, a CRM system is then used to manage day-to-day customer activities and interactions. From a marketing perspective, this means engaging prospects with the right message, at the right time, through targeted digital marketing campaigns and journeys. For sales, representatives can work faster and smarter with a clear view of their pipeline and accomplish more accurate forecasting. Commerce teams can quickly launch and scale e-commerce from online orders to curbside pickup, for their consumer shoppers (B2C commerce) and business buyers (B2B commerce). Customer service agents can respond to customer needs on any channel, from home, in the field, or in the office. A CRM platform can also connect to other business apps, such as document signing, accounting and billing, and surveys. The information flow of a CRM system works both incoming and outgoing, and evolves at every new touchpoint to make it the most insightful and useful as possible. Furthermore, a new generation of CRM goes one step further: built-in intelligence and AI automate administrative tasks, like data entry and lead or service case routing, even predicting how customers will feel and act so that the outreach can be prepared in advance.

According to Salesforce website, here are the ways a CRM system can improve a business:

1) Connect your business silos. Internal studies assessed that for the fifty-six percent of business leaders organisational silos negatively impact the quality of their customers’

and prospects' experiences (Brzezinska, 2019). Information silos are a huge problem for the correct pursuit of systemic efficiency, but a shared platform and process for managing customer relationships across functions can help. In fact, 80% of business leaders from the same study say they are increasingly using their company's CRM as a single source of truth about their customers across departments. With a shared CRM, employees have visibility into customer interactions from other departments, and therefore are empowered with the right tools and data to manage customer relationships more effectively across lines of business. They can more effectively and efficiently work together to enable connected customer experiences.

2) Make improvements to the bottom line. Among the real results that CRM systems can produce, direct improvements to the bottom line are included. Global customers across all business sizes have a proven track record of producing the following: for sales an increment of lead conversion by 30%, of deal size by 15%, of win rate by 22%; for marketing an increment of lead conversion by 24%, of qualified lead by 31%, of campaign effectiveness by 36%; for customer service an increment of customer retention by 27%, of customer satisfaction by 30%, of faster case resolution by 33%; ofr digital commerce an increment of online revenue by 15%, a reduction of time to execute new strategies by 28% and of customer attrition by 16%; for IT[7] and technology leaders a reduction of IT costs by 26%, and an increment of faster deployment by 45% and faster configuration by 49% (Salesforce, 2020).

3) Identify and categorise leads. A CRM system can help identify and add new leads easily and quickly, and categorise them accurately. By focusing on the right leads, sales can prioritise the opportunities that will close deals, and marketing can identify leads that need more nurturing and prime them to become quality leads. With complete, accurate, centrally held information about clients and prospects, sales and marketing can keep the ROI[8] higher.

4) Increase customer lifetime value. By understanding the customers better, cross-selling and upselling can both be increased, benefiting both the customers' satisfaction and the company profit. Moreover, with the improvement of the customer

[7] Information Technology
[8] Return on investment

service quality, the customers will be more satisfied with their overall buying experience and they will more likely engage with the brand.

5) Offer better customer support. The two keys of a good customer support experience are fast and personalised response. A CRM system can help provide the high-quality service, giving access to order history and the record of interactions.

6) Improve products and services. Gathering information from a large variety of sources across the business and beyond, a good CRM system gives unprecedented insights into how your customers feel and what they are saying about the organisation. With this type of all-round information, a CRM is really a customer-listening engine, through which both the products offer and the post purchase service can be improved.

7) Be ready for whatever is next. The kind and amount of information that a CRM system collects and organises for an organisation is the key to a fast response and flexibility when the organisation or the entire business model comes to a crisis. With the advent of Coronavirus for example, and the modality of working changing drastically in a matter of days, for the teams to be able to remain connected, within and among each other, on a shared platform and with shared information has been crucial for the business continuity.

8) Reduce costs. Being a cloud-based system, a CRM doesn't need an expensive installation process. With no hardwear inside the organisation, the IT costs are reduced both in terms of maintenance and updates schedule. Generally, cloud-based CRM systems are priced on the number of users who access the system and the kinds of features needed. This can be very cost-effective in terms of capital outlay, and is also extremely flexible, enabling the organisation to scale up and add more people as the business grows. Salesforce in particular is flexible in terms of functionality too, since each organisation is free to pick services and functionality that are useful for itself and not pay for the ones that are not.

The services that the Salesforce CRM offers comprehends:

Sales Clouds. Through a shared dashboard sellers have a complete overview of the business position and sales results at a certain time. Insights are provided for the sellers to be able to understand where to focus efforts and make decisions based on market

changes. To make some examples of information provided right away by the dashboard: closed business, sales pipeline, pipeline by territory, revenue mix, average opportunity. Each element presented in the dashboard is a link to a more detailed report. Right above the dashboard is a menu with all the tools and areas the platform is organised in. They are leads, accounts, contacts, opportunities, forecasts, reports, dashboards and territories. In territories for example, sales managers can visualise how the potential value is distributed over the markets, and rearrange the sales coverage to meet changing market demand, and then even immediately update sales processing to adapt the new flows needed by the sales reps. The reps on the other hand, have access to the customer 360, a dashboard through which they have access to every customer interaction from every touchpoint and in a single source of truth. The customer 360 is powered with an artificial intelligence that improves productivity and conversion rates. The platform allows the sales reps to have complete flexibility on the configuration of the deals to meet the customers' needs, in terms of pricing, terms and payment methods. The Sales Cloud is quickly scalable both in terms of adding internal staff, sales managers and reps, and in terms of integrating external partners.

The main pro of using Salesforce as the platform onto which developing an e-commerce is the extreme freedom of customization and action. Salesforce is currently the most powerful among all the available e-commerce platforms, practically offering no limitations in terms of possible integrations, catalogue structure, promotion complexity, automations, management of leads and opportunities. On the other hand the main con is the high cost of the platform and its maintenance. Although the costs being scalable according to the chosen plan, the extension of the catalogue, customers database etc., the cost of Salesforce is not limited to the platform cost, but comprehends additional fees of each of the other services offered by Salesforce, which can be categorised in sales management, marketing and customer service. Moreover, although being an extremely flexible and powerful platform, this power and flexibility can only be exploited with a deep knowledge of Apex, Salesforce's proprietary programming language with Java-like syntax, and an adequate development team. (Karatkevich, 2019). To summarise it all, Salesforce is the right platform for firms that are already

above the first phase of a business growth and, according to their increased necessities of customization and business management, are able to allocate a substantial budget onto their e-commerce channel.

1. 8 WordPress

WordPress is a website platform founded in 2003 by Matt Mullenweg and Mike Little. Originally built and thought to be a blog-type website builder, it is developed in PHP[9], an open source type of scripting language that makes it a platform able to extend its features through plugins of other programs. It is this characteristic that made it possible for WordPress websites to become e-commerce websites, adding up from the blog structure the necessary components. Depending on the theme and plugins that users decide to add, WordPress websites can be an ecommerce website, a business website, a forum, a membership portal and much more. WordPress website claims that 39% of the web is built with its website builder, including bloggers, small businesses and Fortune 500 companies. Among the companies having their websites built with WordPress are Spotify, UPS, The New York Time, CNN, Variety, and others.

It's important to know that there are two versions of WordPress available to you, a fully-hosted and self-hosted version. The first one is WordPress.com, the version that manages the hosting of the website in correspondence to a monthly fee. The second one is WordPress.org, a platform that at the price of giving up a certain ease of use gives on the other hand the ultimate control and flexibility over the websites created with it. The main downside of WordPress.com are the restrictions on the type of plugins that can be used on the websites built with it. Another downside is also the fact that choosing this fully-hosted option it is not possible to have control over the hosting specifications, which play a role in optimising the website speed and security.

[9] Hypertext Preprocessor, originally acronym of Personal Home Page, is an interpreted scripting language, which is a program that is able to run other programs from their own source codes

Whether you're starting from WordPress.com or WordPress.org the platform offers a pretty large selection of themes to which start from, both free and paid. Each theme is structured in templates for each kind of page, such as product page, product listing page, cart, etc. that are customizable from the CMS[10] to a certain extent and from the code for complete customisation, only for WordPress.org. The costs of using WordPress include the chosen plan as well. WordPress offers a free plan version of its basic software that does not include the possibility to expand features through plugins. The paid plans are Premium, Business and eCommerce, respectively costing eight, twenty five and forty five euros per month. As the cost of the plan increases, obviously the services included increase as well. The Premium plan is described as suited for bloggers who want to build a powerful website with the ability to accept payments, donations or subscriptions with PayPal and Payments. It also includes advanced design tools, lots of space for media files, and the ability to further monetize your site with ads; the Business plan is suited for small businesses that want to add an online store to their business website with the ability to sell and ship physical products. The plan includes installation of custom plugins and themes, real-time support with WordPress assistance team, Google Analytics integration, and 200 GB storage. Finally, the eCommerce plan, which is best for dedicated e-commerce websites, is the plan suited for selling products or services with a powerful, all-in-one online store experience, that includes premium integrations and it's extendable through plugins (WordPress, 2020). WordPress has then a VIP platform, dedicated to enterprises, functioning on different clouds, with a different support team, and dedicated tools. WordPress VIP is different from the other previously mentioned plans in its very essence, it actually consists in a partnership stipulated between a company and WordPress, playing the role of a web agency in guiding them through migration, launch, iteration, and performance monitoring and improving. WordPress VIP offers annual contracts and starts at two thousand dollar per month (noticeably the same price of Shopify Plus) and grows as services and consulting required grow. Factors that can influence the overall price includes monthly anticipated and then actual traffic, number of applications, customer success needs, service level

[10] Content Management System

agreement. WordPress VIP divides its services into three main groups: planning, deployment and operations, issues and monitoring. Services provided within planning are: Architecture and Design Consulting which the website sums up as “New features, new sites, SEO, integrations with new vendors, adapting existing plugins to fit business cases”; Training and Onsite which basically consists in WordPress going to the partner company to train internals on using the platform; Continuity, a service that Wordpress describes as “as resources change throughout your project, our team provides consistency in implementation as well as context for the past, present, and future”; Migration: this service is key for those enterprises that are moving their website from another platform onto Wordpress; WordPress Roadmap which consists in WordPress keeping their VIP partners always updated about upcoming new functionalities, updates, improvements and provide with all the guidance on how to adopt and use them; Third Party Collaboration, a service that to be fair is at the base of every e-commerce platform and consist in developing as many integration and new services possible with external platforms or plugins, varying from apps providers to giants of the digital sector such as Google and Facebook. Deployment and operations phase is the main one when it comes to building a new website from scratch. Services comprehends: Scan and Deploy Code consists in the analysis of internal existing code to make sure that are not errors and it meets quality standards; Best Practises provided to internal development teams; Continuous Integration with new releases; Application Management Training which consists in the scaling of applications originally thought as not scalable; Security Consultations asses the security level and needs of each specific company in order to build a compliant websites; Ops Assistance supports internal product operations teams on all aspects of running applications; Core Upgrades keeping the platform always updated to the most recent version, as well as maintenance windows, key plugins and security upgrades; New Features Rollouts ensure smooth rollouts of features and sites in step with the companys’ roadmap. Issues and Monitoring is the phase occurring just before the go-live and continuing throughout the lifetime span of the website. It includes: Expert Debugging; Urgent issue response; Performance Monitoring of internal and external problems in applications, pared with a

system of reporting to the company's internal development team; 24/7 Reliance for code errors; Proactive Fixes of bugs and problems; Traffic Analysis which analyses strange traffic patterns and other anomalies.

Drawing final conclusions on WordPress, as WebsiteBuilderExpert.com states, "WordPress is at its best when you can truly take advantage of all its power. It's definitely not the best choice of website builder if you want to make a simple website without learning at least basic coding skills. If you want to make an attractive website quickly and easily, then a drag-and-drop website builder is more than enough for the job. [...] Simply put, WordPress can work any way you want it to. It all comes down to your own coding skills, the theme you choose and plugins you install. You can add as much or as little functionality as you choose." From this quote it is easy to understand both the real advantages and disadvantages of WordPress. On one hand, a limited freedom and possibilities for all those users that are not technically skilled. On the other one limitless possibilities and creation freedom for those who have the technical skill to unlock them. According to aforementioned review website WordPress should be chosen only in the self-hosted option by users that match the following characteristics: it is not your first website, so you have gained previous skills and experience on how a website back end is structured in its main parts and logic; you need unlimited design freedom, so a drag and drop theme wouldn't suit your needs; you need specialised website features, for example integrate your website with an external CMS software; you have a lot of content and the CMS has to be fast and efficient; you don't need to create a website on a hurry or on a budget. As obvious as this last consideration may seem, a lot of brands and firms looking for a web agency to build their first website often don't realise the time consumed and consequent costs for the development of custom features. First-timers are especially unaware and risk being overwhelmed by the true cost of building a website.

1. 9 Wix

Wix is a development platform founded in 2006 by Avishai Abrahami, Nadav Abrahami and Giora Kaplan. Its central offices are in Tel Aviv, Israel. The core of Wix functioning is the drag and drop system, which allows users to move components within a web page. According to ecommerce-platforms.com, Wix ties with Shopify for best e-commerce platform in terms of overall evaluation (ecommerce platforms, 2021). As per Shopify, Wix is part of that revolution that aims to give back business owners the power and control over their selling channel, e-commerce, rather than having to rely on developers. "The freedom to create whatever you want" is the first payoff that visitors of Wix website see exploring it. Further reading in the homepage, it is said that regardless of what your business and your expertise in e-commerce are, you can create the website that you always wanted for free. The costs of putting online a website actually include, at the very least, the domain hosting and connection, which Wix offers with their basic plan for four and fifty euros. Wix offers a free domain option, a sub-domain of Wix's one, composed as follows: yourname.wix.com/nameofthewebsite. Wix's plans are divided into website and e-commerce, making it a platform suited for both blog-type websites and selling websites.

Wix functionalities are divided into tools, each one having a different set of features. First of all, Wix Editor is the visuals editing environment. Starting from a theme, the editor gives the merchant some freedom in personalisation, through the usage of sliding effects, media galleries, mobile optimisation, and app integration. Wix ADI[11] is a tool that, based on the answers that the merchant gives to an initial survey, and drawing from billions of possible combinations of layout, images, texts and fonts, modules and sections, designs a customised theme of start, which can be further customised through the Editor. Velo by Wix is an open development platform for the implementation of advanced applications, running on Wix's cloud servers, that offers both an online development environment, IDE[12], and a local environment. Velo is also the place from

[11] Artificial Design Intelligence
[12] Internal Development Environment

which, through its API[13], developers can expand and customise further their website connecting it with external tools and partners' applications.

Moving forward, a set of "professional features" are presented by Wix as part of its offer. The set includes already mentioned personalised domain name, professional mailbox, free hosting, analysis of the website/e-commerce performances, management of contacts and subscribers from one unique platform, password protected pages reserved for members of the staff, Wix Chat a direct communication channel between the merchant and the customers, connection with social media accounts with customizable icons, SSL certificate[14]. Wix Stores is presented as a functionality as well, with a set of features that include engaging product showcases, orders management, multiple payment methods, discounts and coupon codes, taxes and shipping settings. Wix Bookings is a functionality that allows merchants that sell services on an hourly basis, such as workshops, online classes, and even consulting. This functionality allows the merchants to take bookings and appointments, payments for the services, and hold the online services directly from the website. Wix Booking makes the management of the activities easier through integrations with Google Calendar, automatic email reminders, and the Wix Mobile app, which brings all management tools on a smartphone. Merging Wix Stores with Wix Bookings, a specific type of website was made for business in the restaurant industry, Wix Restaurants. These websites are a combination of editorial contents, reservations and online orders. Special features are added to make the customers able to request a specific delivery time and method. Wix Music is a tool designed for musicians who want to sell their music online through an owned platform. This tool allows musicians to showcase their music and organise it in album, playlist, chronology, etc., just as products are organised in categories and seasons. Streaming and sharing are also possible directly from the website, as well as analysis and statistics about the tracks. Finally, inside the set of functionality made for e-commerce, is Wix Events. With this functionality merchants have specific tools to

[13] Acronym for Application programming interface, it is a set of procedures, generally clustered into specific tools, with the function of being the connecting points of a software towards other softwares. The APIs are able to make the two or more softwares communicate and cooperate.
[14] Secure Socket Layer, it is a protocol for safe communication through internet

design and send out invitations, sell tickets, and keep track of the guests/participants list, managing and updating their details and segmenting them.

Wix Blog on the other side, is the functionality made for content creators that do not sell goods online, and puts focus on the management not only of the contents but the comments and overall interactions with the visitors. The blog is also scalable thanks to the possibility of adding authors and editors to the website staff. Wix goes even further in the functionality for blogs with Wix Photography, thought specifically for photographers to showcase their work, and complete of dedicated features such as media gallery, higher resolution and weight limits for the upload of the media, and even a system of copyright protection such as integrated password and watermarks. Wix Video is the specular tool designed for video creators, with very similar dedicated features. Both Wix Photography and Wix Video are convertible from blog websites to e-commerce. Framing all the mentioned functionalities, Wix offers a set of services aimed at promoting the website and assessing its performance. These include personalised SEO[15] plan, and related SEO analytics, email marketing campaigns management, analytics on visitors traffic and e-commerce conversion rate, social media driven traffic, and

As separate tools from both blog and e-commerce websites, Wix also offers an email marketing platform and a Logo Maker. With this tool merchants using Wix or also not using it, can design their brand logo through a process in which first, he/she answers some questions about the wanted subject and style of the logo, and then is presented with a set of options further customisable in colours, layout, style and content. The obtained logo is then downloadable in high quality formats and vectorial SVG[16]. The user is charged only at the end of the creation process, when he/she is fully satisfied with the result.

At the base of the pros of making a website using Wix are two of its characteristics: first, its freemium business model, which allows users to see and experiment the platform potential beyond Wix’s website's description of it, and then switch to a paid plan. Second, Wix offers more than a hundred free templates which are mobile

[15] Searching Engine Optimization
[16] Scalable vector Graphics

optimised and are designed for small businesses, restaurants, artists, musicians and photographers. Wix's editor, both for editorial websites and e-commerces, allows the merchant to modify the appearance of all the pages with a simple drag and drop system, making Wix one of the platforms that truly earns its spot in the democratisation of the code era. Of course wix comes with some cons as well, otherwise platforms like Salesforce wouldn't exist at this time, along with e-commerce web agencies. The first main con is one important limit: the navigation structure supports up to only two levels. This would be an unacceptable limit to compromise for most e-commerce websites, which usually keep a navigation structure on three or more levels, especially when it comes to fashion brands offering at least women and men lines, if not kids, accessories, home,etc. Just to bring some examples: Gucci website has a three level navigation; Tommy Hilfiger website has a three level navigation; Zara website has a four level navigation. The second very important limit is the performance of the CMS in correlation of the number of products of which the catalogue is made. According to WebsitesToolTester.com Wix, despite declaring to support a maximum of five thousands products, starts to slow down significantly when the catalogue grows over the number of fifty products. It's not hard to imagine how any firm that is not single person-owned would be highly hindered by such a low optimum point. The third con regards the customer support, which to many reviews is not delivering on its function. Reaching the support is not as easy as one may expect, since the merchant is able to contact it only after going through the FAQs section and answering a final question asking "did you question get an answer?" with a no. And even having reached that point, the support runs through emails and not live chats, making the responses on both sides slower and the whole process less effective. The lack of proper support has an especially negative impact on Wix's typical users, considering the fact that the platform is built to appeal to low web-experienced merchants. Among other cons are: the templates are hard to change and not flexible; the site loading speed is one of the lowest among all e-commerce platforms; there is a very limited range of e-commerce apps, making Wix's e-commerces not flexible and scalable.

As a final consideration, Wix is best for editorial websites and e-commerce run by very small firms.

1. 10 Shopify

Shopify is a Canadian e-commerce platform founded in 2006 by Tobias Lütke, Daniel Weinand and Scott Lake with the intent of creating an e-commerce platform for snowboard supplies. The platform was born with the declared intent of building a tool that could make it possible to do in twenty minutes what usually required two months of work (Donnely, 2019). Contrary to Wix or WordPress, Shopify was born as an e-commerce platform and it's not well suited to host a blog type website. Shopify website reports that more than one million businesses use Shopify for their online store, spreading throughout a hundred seventy five countries for a total of over two hundred billions of US dollars.

The strength points of Shopify are its scalable plans and options, its user friendly CMS and the impressive amount of apps available in the Shopify app store. Regular plans are Basic Shopify, Shopify, and Advanced Shopify, and they go from twentynine dollars per month to two hundred ninety nine dollars, and they vary in options of number of staff accounts (accounts that can access to the beck end and work on contents and set up), number of locations (physical warehouses owned by the merchant in which the stock is distributed and from which deliveries are sent out), analytics reports, shipping carriers integrations, commissions applied to transactions, and finally international price lists setting. Over the Advanced plan, Shopify also offers a Shopify Plus plan, which costs two thousands dollars per month and comes with some substantial advantages for those businesses that have surpassed their growth phase and they are already established in more than one market with different positioning strategies. The first main difference between normal Shopify and Plus is the functioning of the subscription. With normal Shopify each online shop has a different subscription plan. Regarding the reasons why a merchant would want to subscribe for more than one store are logics of differentiation

within different markets, they might be about catalogue differentiation or price list differentiation, discounts differentiation or even front end content differentiation. With normal Shopify, each one of these differentiation needs would require a different store and consequently another subscription plan. With Shopify Plus the merchant has included in the same monthly plan up to ten stores without getting additional charges. Other advantages of the Plus plan include complimentary Plus apps such as Shopify Scripts and Shopify Flow, two apps that extend Shopify potential of building custom scripts and automatic work flows with almost no limitations; the possibility to edit the checkout code which is locked for normal Shopify users; the assistance of a Shopify expert available by call 24/7; the assistance of a Launch Manager which will follow and assist the merchant with any type of needs during the design and set up phase until the stores launches; infinite number of staff accounts. Among the most known and successful brands using Shopify Plus are Kylie Skin and Kylie Cosmetics, Yeezee, Heinz, Rebecca Minkoff, Alessi, Lindt, Tesla.

Another strong point in Shopify's USP[17] is its omnichannel offer system. Throughout the years and a series of additional services Shopify has widened its offer in order to turn itself into an all-round online services provider. These services comprehend: Shopify Payments, a partnership with one the main online payments providers, Stripe, through which Shopify is able to offer to its merchants a fully integrated payment solution that comprehends all major online payments circuits (Mastercard, Visa, American express, Apple Pay, Google Pay, Amazon Pay, and more); full integration with Facebook Shop and Instagram Business, Messenger, Shopify Chat, Buy Button that can be inserted in any web page (even on different platforms), Google Shopping, Amazon Merchant, and just recently TikTok; Shopify POS[18], the plugin that allows online retailers to sell even in physical shops using Shopify's platform thanks to the installation of iPads inside the store, and above all, using the same products stock, customer database and order database. Just recently another service has been added to Shopify's offer, Shopify Emails. Although being still a raw tool, Shopify Emails could in future represent a great solution for all those merchants using Shopify that carry on

[17] unique selling proposition
[18] point of sale

an email marketing activity, which right now have to choose from external providers such as Mailchimp, Klaviyo, Omnisend, just to name a few. The withdrawals of using an external email marketing provider are mostly related to the integration between the two platforms. Most integration flows work only one way, making the stream of information sterile. Also to consider is the integration with other plugins used on Shopify's backend, such as discounts management apps, front end fidelity apps, quiz apps, and so on. Shopify also offers in-platform plugins for Google Analytics and Tag manager, Facebook Pixel and Apple wallet.

Also to consider when choosing Shopify over other platforms are Shopify's resources when it comes to assistance and support. For all its merchants Shopify offers a 24/7 live chat service in English for any type of required assistance, as well as an email support system in the merchant's native language. Merchants are also able to consult the help centre website at any time, a website that gathers documentation on almost any topic regarding Shopify back end and front end management. Moreover, Shopify offers to its merchants an open forum in which they can either ask the community questions that they are not able to answer from the Help Center, or look for similar questions, topics or problems to see other's answers on how they managed or solved the problem. The community is made both of all the merchants and of Shopify Experts, which periodically scan it in order to answer the greatest possible number of questions. Closing the circle of the system with which Shopify supports its merchants it's Shopify's blog. The Blog is the tool with which Shopify informs its merchants on the releases of new features, publishes case studies, gives advices on how to improve your online store, and even gives guides on how to face events that may impact sales trends, such as Black Friday, holiday season, and even Covid pandemic.

Shopify then adds to its offer a number of free services for merchants who are at the very first stages of their business creation and planification. Among them are a logo creator, a "name for your business" generator, a generator of QR codes, a generator of commercial slogans, a creator of business cards, layouts for Shopify's gift cards, a generator of layout for returns shipping labels, a generator of barcodes, a software for images resizing in order to optimise the website performances, an automatic calculator

for commercial loans that given the loans conditions will tell all the tranches, a calculator to find the optimal product price given a desired profit margin, the “exchange marketplace” a marketplace for business in which merchants can sell their business or buy someone else’s one, and finally a generator of commercial signs for physical points of sale.

Having listed all Shopify’s offer elements which can be considered as the pros, it is also important to know that Shopify comes with some technical limitations as well. First of all, contrary to a lot of its competitors' platforms, Shopify doesn’t have a real staging environment. A staging environment is like a draft of the website, having it means being able to see the final result of the modification of a certain element or the addition of it, without having to publish it live. Although Shopify’s front end editor is something similar to it, there is no way in Shopify to have a look and navigate the whole website with a certain modification before publishing the modification live. This limit is particularly felt by merchants which migrate their website from another platform to Shopify. The second very important limit in Shopify is the complete separation between different instances. Other platforms, such as Salesforce, have a system thanks to which an action can be performed once and be effective in different instances, so let’s say the European instance and the ROW[19] one. As it is easy to understand, this system simplifies and shortens the websites management and update of a lot, compared to Shopify in which each action, it could be an update of the stock quantities, the activation of promotions, or the refresh of the homepage contents, has to be done as many times as are the merchant’s instances. Another important factor to consider about this limit is the fact that a lot of Shopify’s merchants, being at the beginning of their e-commerce journey, don’t have a structured flow of automatizations but run their websites mainly by manual actions. When repeating the same manual action for the instances the probability of incurring in human errors increases dramatically. Other limitations fall into the technical side: the impossibility to modify the checkout process or structure; the fact that urls are for their major part not customizable and the part that

[19] Acronym for Rest Of the World

it is, the handle[20], can not be translated into the websites languages if there are more than one; the impossibility to differentiate the catalogue, the price lists, the promotions and the front end contents on the basis of the country or region from which the user is navigating; the fact that Shopify doesn't manage returns outside United States and Canada territory; the fact that on a product, collection, page and blog level no custom fields can be added to Shopify available inputs and the addition of them requires an app that can be managed and integrated with the theme only by working on the code; the fact that not all the back end elements, for example collections and navigation menus, can be exported and imported in order to import them into other instances; the fact that Shopify is not able to generate random and unique discount codes for its customer; the fact that automatic discounts (those that are automatically activated in the checkout phase by the compliance of determined conditions) can not coexists more than one at once.

To wrap Shopify analysis final considerations have to be drawn. Shopify is the optimal platform for all those merchants that either have never had an e-commerce and therefore technical experience; for those merchants that are on similar platforms, such as Wix, but their business has outgrown Wix's expansions potentialities; for those brands that built their website when platforms such as Shopify and Wix didn't exist and they have become obsolete, such as Magento. With its Shopify Plus plan, the platform might also be the best solution for brands which although having a very large amount of orders, have a quite contained catalogue with a simple segmentation, as it is for already mentioned brands, Kylie Skin and Kylie Cosmetics. For these types of business, which build their marketing strategy around the so called "drops", where a date and an hour is given to the customer for a group of products to be launched on the website, and a consequent very large number of orders incoming in a very short period of time, Shopify, running completely on cloud, might actually be a better solution than other platforms with which the server running the website and therefore the orders must be owned by the company. Shopify on the other side, doesn't leave complete freedom to the merchant, making it a non well-suited platform for those brands and companies that

[20] The handle is the terminal part of the url, the last part after the last / and the part that ultimately defines the name of the page being visualised for the web

manage a very large amount of orders on a large and structured catalogue, not to mention different price lists for each country. When the complexity increases that much, the management of the e-commerce needs to be able to set custom rules, flows, segmentations and sales logic. With Shopify's technical limits this is often impossible to deliver, and that's the reason the world's top valuable brands do not run the generation of platforms which Shopify falls into.

II. The Fashion e-commerce

2. 1 Introduction

Among all the trends that are reshaping the worldwide fashion industry, e-commerce is surely among those having the biggest impact. Geographically, each region has been affected differently, according to wealth and digitalization levels, but in general, e-commerce has always been a factor that prompted industry expansion. To give a measure of this expansion, the e-commerce fashion industry had a global market value of US$480,912 millions in 2018 and an expected annual growth rate (CAGR[21] 2018-2022) of 10.3% resulting in an expected market volume of US$712,517 millions in 2022 (TLG Commerce, 2020). The drivers of this growth are traditionally the following first four, and just recently the fifth of the list:

1) Global markets expanding towards the East: eatstern countries, especially China, are leading the market growth with a growth rate that doubles Europe and US markets (TLG Commerce, 2020).
2) Increasing online access and smartphone penetration: these two elements are on a growth path globally, but they are especially picking in fast growing countries and countries with a low average age of the population. In particular smartphones have become the major drivers of traffic towards e-commerce websites.
3) Emerging worldwide middle-classes with disposable income: in Maslow's hierarchy of needs, right after belonging and love needs are esteem needs. Fashion purchases fall right in this category and, having satisfied physiological

[21] Compound Annual Growth Rate

and safety needs with the first part of their income, societies from growing countries spend increasing amounts of wealth into the fashion industry.

4) innovating technologies to create experiential e-commerce: the fashion industry was not the fastest one to jump onto the technological innovation bandwagon, but since the Covid pandemic hit fashion houses and brands have reached out to the tech sector in order to provide their customer with the best online experience. Lower digital barriers, such as the platforms discussed in the previous paragraphs, are an example of how a large number of clothing and apparel brands were able to land the e-commerce market in the last years.
5) Covid pandemic: although fashion being at the same time one of industries that has been hit the hardest in terms of revenues by coronavirus, especially in the first three months (Ilchi, 2020), it has also been observed and documented that the pandemic has been one of the biggest driver towards e-commerce of the last decade. The global fashion ecommerce industry was expected to decline from $531.25 billion in 2019 to $485.62 billion in 2020. The negative compound annual growth rate (CAGR) of -8.59% is largely due to the coronavirus pandemic (The Business Research Company, 2020). Despite this, fashion online retailers have soared. Brands like Zalando reported a 32%–34% growth in GMV during the second quarter of 2020. UK retailer Boohoo claimed a 45% increase in revenue across all of its (primarily online) fashion brands during the same period (Orendorff, 2021). In the US alone, the ecommerce fashion industry accounted for 29.5% of fashion retail sales in 2020 (Sabanoglu, 2021).

At the same time, as there are drivers to growth, new threats have emerged in consequences of the evolving market:

1) The death of brand loyalty due to market fragmentation: market fragmentation is the result of the combination of two factors: first the flourishing and raising of small/local brands due to low cost production sites provided by Chinese's manufacturer, and second the spread of new channels (eg. Instagram) with

which small brands can easily get access to a large and globally-spread potential market. The result is lower digital and production barriers to entry the market and new opportunities for all clothing merchants to market, sell, and fulfil orders globally and automatically

2) Online return rates as high as 50%: free returns policy is one of the new standards of the fashion industry, boosted even further by Covid Pandemic because of physical stores being closed and online stores being the only available channel. With the landing on digital channels of users not being used to buying online, return rates have sky-rocked resulting in increased management costs of logistics departments. The apparel sector is the second after the auto parts one for highest returning rate, with a probability of 12.2% chances of a purchase being returned (National Retail Federation, 2020). In the U.S. alone, Statista estimates return deliveries will cost $550 billion by 2020, 75.2% more than four years prior (Statista, 2019).
3) Fast fashion's ability to create and release styles on demand: fast fashion brands' essence and objective is to bring to the middle a lower class high fashion inspired items at a very affordable price point. With incredibly efficient and fast production models brands such as Zara, H&M, Mango and so on are able to bring an item from the very design stage to a store shelf in 10 to 15 days (Petro, 2012).
4) Pressure from consumers to use ethically sourced and green manufacturing materials: the trending and growing demand for sustainable fashion was born when streaming-available documentaries, eg. "The true cost", available on Netflix, shed light on the hidden environmental and social negative impacts of the fashion industry. Since then the cause of sustainable fashion has been taken at heart by emerging brands, social media influencers, petition websites and many more, spreading the awareness and the urge for a change of direction to the large public.

Clothing and apparel, as fashion's largest and most representative sector, acts as the locomotive of the whole fashion industry. Naturally this applies to e-commerce too. Footwear comes in second in the ranking of the biggest fashion industry segments, with an absolute market size of 403 billion dollars in 2020, followed by bags and accessories as third with worldwide revenues for 85 billions in 2020 (TLG magazine, 2020).

But why do customers choose e-commerce rather than physical shopping, especially for the type of purchase that a fashion item is, the type of item that in order to be purchased for many needs to be seen in person, tried on, even just touched. According to Sinesy Innovation report, the first main reason for which consumers are drove towards e-commerce is the "everywhere and everytime" concept: customers can buy wherever they are and at any time in the day, especially exploiting those "micro moments"[22] in which, in between two activities or in the waiting for something people are no longer used to just doing nothing, so they go directly to their smartphone to fill those empty moments. The second reason that leads consumers to choose online shopping rather than physical one (64% of Italian consumers according to Sinesy) is the possibility of purchasing from the comfort of their houses (Covre, 2020). And again, even when being at home, likely with the chance of navigating from a laptop, smartphones are the first devices among all for usage when it comes to online shopping. The third reason is the fact that online stores offer a way larger assortment of products compared to physical stores. This advantage is declined into two cases: the first is the case of the single-brand e-commerce, for example, Zara. For anyone who has been inside a Zara store, even the biggest ones, and has also navigated Zara website, it is very clear that there is no comparison to the extension of the online catalogue compared to the one available in the physical store. This applies both to fast fashion brands and luxury ones, which are even more constrained is their physical points of sale in terms of items to be displayed in order to maintain one the holy grail rules of luxury, the principle of scarcity. The second case in which the vastness of a well-assorted catalogue comes as an advantage for consumers is the case of multi-brand stores, such as Zalando, Yoox, Asos, Net a Porter,

[22] Micro moments are defined as those short spans of time in which a person uses his/her mobile device to look something up online. Micro moments are of four types: I-want-to-know moment, I-want-to-go moment, I-want-to-do moment and I-want-to-buy moment. (Bove, 2016)

just to name a few. Multi-brand online stores are particularly convenient for when a customer is in need of a specific item, for example, a white shirt. Rather than navigating dozens of single-brand websites, she or he has the option of going to one of these multi-brands online stores, which could be compared to malls in physical shopping, but instead of having to look for white shirts in each brand store, just filtering for the item that they're looking for knowing that likely hundreds of option will be shown as the search result. This is not only a secure way of reaching a much larger assortment of options, but also a fast and convenient way of comparing them all at once from one unique touch point. Another relevant reason for which people choose to buy online is the ability of confronting prices and looking for special sales. Websites are Trovaprezzi.it were born specifically for the first mentioned reason, comparing prices, as well as for many online stores and apps born around the opportunity of special sales, such as Zalando Privè, Veepee, Privalia, and so on.

When overviewing fashion e-commerce in particular, as per fashion in general, there are few factors to consider that differ in this sector compared to the others and that apply and impact both to the e-commerce channel as per the physical one. First of all, the customer experience. Depending on the the target, customer experience in fashion has to consider factors as the emotional element of shopping, the sense of belonging that the customer has with the brand, the feel of exclusivity or at the opposite, the sense of feeling part of a group, the need for the customer to feel like the brand represents her/his values and social identity. The way a fashion e-commerce is built must reflect all these points and, ultimately, it has to reflect the brand core identity. Secondly, but as important, representation of the products. Contrary to the purchase of an electronic device, a book or furniture piece, a fashion item purchase is driven less by the technical or practical details and more by the visual details. As it will be discussed further in detail in following paragraphs, the fashion e-commerce has to be above all focused on its visuals, especially when it comes to the item page, where not only the product gallery has to show the item from every point of view, but it also has to be portrayed with a catching styling and setting.

2. 2 Trending strategies in Fashion e-commerce

The fashion e-commerce has evolved and changed dramatically in the ten years, adapting to new technologies and to evolving customers preferences. This evolution brought new best practises, which will be discussed in following paragraphs, as well as new trends and strategies which are helping brands improve customers' experience and therefore increase customers' retention. These strategies are in a way the application of the already discussed growth drivers and the response to the industry threats.

2. 2. 1. Personalization

Personalisation refers to the customisation of a product according to the customer's preferences and requests. Personalisation can be represented by the application of custom lavorations on the product (e.g. embroidery), by the choice of colours, prints, fabrics or textures from the customer, until the very production of unique pieces. Personalization is a game changer because it places the power in the customers' hands. According to Wang, Wu, Lin and Shafiee (2018), customization has increasingly augmented the conversion rates of e-commerce websites, with an additional substantial value both for customers' satisfaction, enterprises' profits (Wang, Wu, Lin & Shafiee, 2019) (Kwon, Ha & Kowal, 2017) and even the manufacturers (Fan, Wang & Wang, 2022). According to Nosto, a platform which offer e-commerce personalization, personalization is a leading factor in eCommerce at large: 43% of all e-commerce purchases are influenced by personalised recommendations or promotions; 75% of consumers prefer which personalise messaging, offers and experiences; 94% of companies see personalization as critical to current and future success (Nosto, 2020). The biggest challenges for companies offering customised products concern the efficiency and optimisation in terms of the supply chain sustaining the production of the products (Galizia, ElMaraghy, Bortolini & Mora, 2019), especially when considering the response of the supply chain when returns of customised products are accepted from the brand (Choi & Guo, 2017). In the first case Galizia et al. found that the most crucial

factor in order to optimise the production supply chain is the design and selection from the brands of product platforms, while in the second Choi and Guo found that a quick response supply is helpful in reducing the environmental cost under the fashion mass customisation system with consumer returns, resulting in positive externalities for the company. Personalisation can refer to personalised experiences too. The very most basic type of personalization that a fashion e-commerce can offer is the "recommended for you" section. When browsing through an item page, it is very often found at the bottom of it a carousel of products which can function on either one of these logics: since the customer is looking at a t-shirt, other t-shirts are shown to him/her (up-selling); since the customer is looking at an item with a particular style or colour, other items with similar styles or colours are shown to him/her (cross-selling). For both these logics most e-commerce platforms offer built-in algorithms which analyse the customers' browsing history to calculate recommendation preferences. Recommendation logics can go even further by the personalization not only of the items shown, but of the visuals as well. The pioneer of the development of this behaviour is Netflix. Netflix discovered that it could increase its users retention by presenting the same recommended movie or show with different aesthetics to different users. So for example, the same movie is presented with a preview image of a couple engaging in a romantic moment if the user has been clicking on movies with similar settings in their previews, and to another user which seem to be attracted by leading male actor will be presented with the preview image portraying the male protagonist alone. This model has been taken on by fashion e-commerces, which personalise their storefronts to reflect either onsite behaviour or buying history. An example of how that could work is the following: the brand shoots the same item in different settings, different models, different styling, and creates as many copies of that item as the possible visuals are. When navigating through the website, according to what the user clicks the most, the same item will be presented to her/him with the different chosen visual which is more likely to attract the click.

Bringing personalization even further is item personalization. Although being very expensive to develop on the back end side (basic configurators start at eighty thousand euros), the personalization of the item is the very turning point in terms of customer

engagement. Item personalization can be a chosen embroidered word or sentences (see Chitè Milano), the composition of different fabrics/pieces to create the final product (see Molteni), the choice of a custom diamond cut and carat for a ring (see AlessandraCamilla Milano), to even a whole own-created shoes design which will be produced on-demand (see Carmina shoes). Even fast fashion brands are jumping on the personalisation trend en mass, with brands developing and offering to their clients new experiences through customisation labs (i.e. DNM LAB by Bershka), in which the customer can create his/hers very own final product by choosing among different models, fits, colours/patterns, up to the very details such as the buttons' shape and materials. Other examples of fast fashion brands offering personalisations on their products can be found at Pull&Bear, Mango, H&M. The creation of a custom product has the power of creating a deep connection between the customer and the brand, making customization a true winner when it comes to the competition for customers loyalty and revenues at large. Brands that create personalised experiences, by integrating advanced digital technologies with customers data, are seeing revenue increase by 6% to 10%, according to BCG (Boston Consulting Group) two to three times faster than those that don't.

2. 2. 2. Social media and influencers marketing

Social media are a great tool to promote fashion brands and products, due to their broad use and reach. The ways in which a brand can benefit from social media are multiple: first, the brand's social media account can be used as a leverage to drive traffic into the online store. Second, social media are the perfect channels for the brand to interact with their customer and gather information and insight which could be very expensive and difficult to obtain in the traditional ways such as surveys or interviews. Social media users are naturally keen to sharing their opinions or suggestion on the platforms, and they do it in many ways: commenting the brand's posts or temporary contents (eg. Instagram stories), answering to preference poles, tagging or mentioning the brand in their own contents. According to Yang, Zhang and Kannan one of these actions take by a social media user can be considered as the start of a customer journey, and that the

motivations behind the users interacting with a brand's social media page or profile are mostly showing a positive attitude towards the brand, and they identify these motivations in supporting a brand they like, to get a coupon or discount, receiving updates from the brand, participating in contests, sharing personal experiences, sharing their interests/lifestyles with others, researching brands, imitating a friend who likes the brand, and so on (Yang, Zhang & Kannan, 2021), as well as showing their connection to a brand's image and popularity and their inclusion in the social group that uses the brand (Muntinga, Moorman & Smit, 2011). Hewei and Youngsook have studied the effect of social media interactions on continuous purchase intention of fashion products, demonstrating that social media interactivity can positively influence perceived value and immersive experience by enhancing them, and continuous purchase intention as a direct consequence of these enhancements (Hewei & Youngsook, 2021).

One specific important opportunity provided by social media for brands to exploit is represented by user generated content (UGC). User generated content is a valuable resource both for big and established brands and for small ones. Many researchers have studied how UGC affects the purchase decision of other viewers (Grewal & Stephen, 2019)(Meek, Wilk, & Lambert, 2021) and product sales (Tang, Fang, & Wang, 2014). Xu, Dang and Wang studied the users characteristics in order to assess the true economic value of this content for companies. Their study uses a weighted RFM (Recency - Frequency - Monetary) model to prove that UGC, especially social media posts, has a direct correlation with purchase intention and with purchase preference for a brand rather than its competitors (Xu, Dang & Wang, 2022). Platforms such as LiveStory were born with the intent of making the gathering of this content automated and convenient. Set some initial parameters, such as posts which have the brand's page tag, posts mentioning the brand in the caption, or posts featuring one of the brand's hashtags, are collected in a dedicated section of the LiveStory brand's account, from which the social media manager can select them and automatically comment them with a request for the permission to use them for communication purposes. The user gives his/her consent by just linking the comment, and as result the brand has new, almost free content which can be used by any of the brand's channels. Smaller brands approach

the gathering of user generated content manually, by checking the posts they were tagged in and commenting them manually. The true value of user generated content is the fact that it's more relatable and more believable than brands generated one. Mayrhofer et. all have demonstrated that UGC is more effective in creating purchase intention in peer users than brand paid content and content coming from the brand itself, since the coping mechanisms that users employ to resist persuasive intent are not triggered if the displayed source of the persuasive content is a fellow user (Mayrhofer, Matthes Einwiller & Nardered, 2019). A brand's customers are ultimately the brand's best ambassadors. Some of them may even go further by offering some of their customers free items in exchange for a post in which they show themselves wearing them. This very concept is then at the base of influencer marketing.

Influencer marketing is a phenomenon that arose around the second half of the 2010s years, when Facebook and Instagram had spread enough and reached a worldwide penetration level of the 30% (Iqbal, 2021), and that in 2017 accounted already for an estimated value of 1,07 billion dollars (Statista, 2021), with the 74% of companies declaring that they intend to plan marketing strategies using the communication power of influencers (Inside Marketing, 2018). According to Insider Intelligence, annual business investment in influencer marketing will reach $15 billion by 2022 (Schomer, 2019). At the very base of the theory of influencer marketing is a classic communication concept, theorised in 1948 by Lazarsfeld in "The People's Choice: How the Voter Makes Up His Mind in a Presidential Campaign", and further analysed by Katz in 1957, in which they describe why and how the majority of people are influenced by others' opinions or opinion leaders. Influencer marketing can be defined as the capability of influencing, of generating a strategic wordmouth which affects in a significant way the visibility and engagement of a brand, in a way that can also be called "social influencing" (Zhou, Barnes, McCormick & Blazquez Cano, 2021).

Influencer marketing is not new in marketing. In traditional media, famous celebrities were the primary influencers of consumer behaviour long before the social media frenzy. Celebrity marketing has existed since celebrities did, and it consists of a celebrity representing or endorsing a product or a brand (Erdogan, 1999). This type of

marketing strategy works on the aspirational desires of the public, that would buy or desire that product or brand to feel closer or similar to the celebrity endorsing it. Influencer marketing, although having an aspirational dimension to it as well, works on a more reliable and effective mechanism, based on trust and emotional involvement. Influencer and celebrity marketing also differ in the way the connection between the public figures and the users is created, with celebrities being able to build a only one-way flow of communication, while influencers have the capability to create a two-ways flow of information through social media comments and likes (Masuda, et al., 2022). Social media influencers are considered opinion leaders for their followers in the social networks in which they perform (De Veirman et al., 2017). They are seen by consumers as disseminating information based on their personal sensitivities and interests. Therefore, they are considered sources of information with credibility, expertise, and authenticity (Masuda et al, 2022). The reasons that bring social media users to feel personally connected is explained in many studies, for example by Masuda et al. using the theory of persuasion applied to social media influencers, as follows: "the followers' characterization of the influencer (e.g., trustworthiness) affects their behavioural intentions (i.e., purchase intentions). Followers buy more when they perceive the influencer as trustworthy. This characterization of trustworthiness is formed in the followers' minds based on the observations of the influencer's personal attributes" . The study also investigates a mainstream concept utilised in many other similar studies, which is the concept of parasocial relationships (PSR). The process of forming PSR has characteristics similar to those of a bond formed through direct social interactions over time, similar to friendship (Masuda et al., 2022). Influencers share a very large part of their lives on social media, both the good and the bad part, they talk a lot directly to the camera, making their followers feel like they are also part of it and that the influencer is something similar to a friend. Lou and Kim studied the relationship between influencers' content and purchase intention in adolescents' parasocial relationship, finding that the two influencers' characteristics influencing the relationship positively the most are the influencer content attractiveness and his/her similarity to the user (Lou & Kim, 2019). In other words, influencer marketing is as

effective in creating purchase intention as more the user feels attracted and similar to the influencer. It must be underlined, in this regard, that the probability for an influencer to be perceived as such by his/her followers is much higher than any other type of ambassador (excluding UGC) since, contrary to paid advertising to which the user is most of the time exposed by the brand's choice, and not the user, social media influencers are likely to be followed especially by people who find them attractive and that relate to them and their lives. This implies a very convenient aspect of influencer marketing, which is the fact that brands paying the influencers for the content benefit from a natural segmentation that comes from the choice of social media users whether to follow an influencer rather than not following him/her. The user will choose to follow only the influencers which reflect and represent his/her own beliefs and lifestyle, making the audience of each influencer a consistent segment of people which identify with similar beliefs and lifestyle.

Another very important factor in understanding influencers marketing power is the sharing factor. Compared to celebrity marketing, which at best is able to produce a wordmouth among the user's friend circle, influencer marketing works by definition on social media platforms, which in turn work by definition with the sharing of content. The ability to share contents makes influencer marketing an even more powerful tool thanks to the spreading potential of the paid contents.

The risks of influencer marketing are those related to the influencer reputation and the relationship between the brand and the influencer. The first risk is very straightforward to understand although on the other hand almost impossible to predict and to assess its damage. The second risk can be managed by the brand and avoided by a careful choice of the influencer to associate with and a clever construction of the perceived relationship between the brand and the influencer. A common mistake for marketers is to let only the engagement rates or the number of followers lead the choice of the influencer to associate with. As Masuda et al. explain, companies must consider not only existing criteria (i.e., sales, profits, growth rate, customer satisfaction, and loyalty) but also new marketing strategies and value propositions for customers. The choice has to consider also which type of audience the influencer has, which has to be consistent

with the brand's desidered target, together with the type of communication that the influencer daily performs. For example, if the product that the brand desires to advertise is a clothing line, a TikTok influencer like Charlie d'Amelio - the most followed person on the platform and the trend setter for the short dances trend - would probably a good choice if the style of the clothing vibe matches Charlie's personality and style, and she would only have to wear the clothes while performing her dances. On the other hand, if the product to be sponsored would be an electronic device which requires speech and technical details in order to be rightfully presented and explained, Charlie would probably be a bad choice since her followers are not used to this type of communication from her and the result could be a sense of falseness and dissociation. The same could happen with a clothing line that doesn't match her own style at all. In these examples the result of the sponsored content would be the exact opposite of the desired one and even lead to a dislike of the sponsored item or brand. Not to forget when choosing the influencer is the type of communication that suits better the marketing objective. For example, for the launch of a new product the communication objective should be oriented at generating buzz and interest, which could mean that an influencer with a large audience and a teasing communication style might be the best choice. If the marketing objective is raising awareness around a new initiative of a brand, the best results could be achieved by partnering with a group of smaller influencers that built their audience on a specific competence or field of knowledge, therefore have a higher attention span and engagement rate on determined thematics. Some of the basic elements that are always to consider when building an influencer marketing campaign, and therefore choosing one or more influencers are:

- Reach: corresponds to the number of followers that the influencer has on the platform or platforms on which he/she is present. The reach of the influencer, for the brand's purpose, has to be considered only for those channels that are suitable for the type of communication planned.
- Relevance: it's the importance that a determined brand or a determined influencer can aspire at on a determined audience.

Resonance: it's the capability of evoking feelings, emotions or values which are shared by the influencer and its audience. Resonance is linked to relevance: a relevant influencer is the one which is capable of obtaining a good resonance with his/her audience, at the point of influencing the audience behaviour.

- ➢ Relationship: it's meant as the one built between the brand and its influencers, which can be of endorsement, advocacy, partnership, ambassador.

2. 2. 3. Flash Sales and Raffles

Flash sales refer to a type of business model in which firms, mainly through their e-commerce or other internet based channels, offer one or more products/services at a substantial discount for a limited period of time (Shi & Chen, 2015). Flash sales turned from being a simplistic method of unloading out-of-season inventory to being one of the major trends in fashion e-commerce in the latest years (Zhang, Zhang, Cheng & Hua, 2018). From fast fashion to high-end brands, both monobrand e-commerce and multibrands ones are using flash sales to generate interest and engagement. A whole category of e-commerce websites arose around the concept of flash sales, namely Veepee, Zalando Privè, Saldi Privati, and many more. VeePee, formerly Vente-Privee, in 2016 already had more than 20 million registered members and generated a profit of more than 2 billion (Zhang et al., 2018). When combined with exclusivity and anticipation they can lead to very profitable results without affecting the brand's reputation or perception. Flash sales are in fact mainly of two types, one leveraging on the anticipation and the other one on exclusivity. The flash sales leveraging anticipation examples are the Black Friday and Singles Day (11/11) in China. These sales are characterised by a sense of competition among customers which normally leads to a much greater flow of incoming orders. The flash sales leveraging exclusivity are those based on a "members-only" segment, velvet rope experiences for selected groups of customers. Flash sales are not just about promotions on the current or past collections, they can also be used for the exact same occasion, the drop of a new product (Zhang et al., 2018). Brands like Talbots, Sephora, Evy's Tree, and Kylie Cosmetics regularly use

this strategy through exclusive collections and early access to social media fans and loyalty program members. The purpose of selling new products at discounted prices is to create word-of-mouth (WOM) in order to accelerate new product diffusion and attract more consumers. Exclusive sales are usually communicated by newsletter or direct message, and they may be carried on private pages of the public e-commerce websites or even parallel websites built specifically for the purpose. Given that flash sales target customers are mainly niche customer or price-sensitive customers, and that flash sales leverage impulse buying behaviours in their target (Liu, Zhou, Ge & Jiang, 2021) (Berezina, Semrad, Stepchenkova & Cobanoglu, 2016), flash sales also have some risks that must be taken into consideration. First of all their usage must be limited to a reasonable amount in order not to make the less price-sensitive customer base feel left out of the brand's marketing strategy. The risks of occuring in this situation might result in a consistent profitability loss, since less price-sensitive customers usually form a larger base than price-sensitive ones (Liu et al., 2021). Secondly, the brand must always make sure that when flash sales strategies are based upon market niche, these niches are always up to date in terms of the segment's needs and interest in the products being sold. Niches of very specific products might extinguish themselves naturally when the niche's participants shift in needs or desires, therefore the demand sustaining the profitability might turn into very volatile and not long-term sustainable (Liu et al., 2021). Lastly, a specific concern adds itself to the list when flash sales are considered for branded and luxury products, with the consideration that for this type of products the frequent usage of flash sales might turn into a loss of consideration and perceived value from the customer base, and that the interests and satisfaction of consumers who purchase their products at higher prices can be harmed (Piccoli & Chekitan, 2012).

Raffles are a phenomenon that arose at first around sneakers drops and are still mainly used only in this sector. A raffle is a sale with a limited number of participants that compete for the purchase of a small number of pieces, usually created for a limited edition collection. This marketing strategy leverages both the anticipation factor and the scarcity principle. It targets the most affectionate fans of a brand and has as objective not as much the profit but the acquisition of a sense of exclusivity. Items purchased in

raffles are often pieces cherished by collectors and they can be sold on the market at a much higher price than they were purchased at. The high re-selling prices also contribute to increasing the perceived value of the brand. The raffle is held exclusively online and works as follows: the duration of the raffle is usually very short, participants have limited time to try purchasing the items and they don't actually purchase them directly, they have to fill an application that states that they are interested in that item - the application is normally also a newsletter subscription; applications are then drawn randomly and the extracted participants are contacted by email as the winners of the raffle. Winners can be immediately charged if the application form contains payment details or can be asked to pay in a second moment (E-Business Consulting, 2019). Raffles have a much larger resonance than just that produced among the participants. Resonance is first of all dramatically increased when the purchased items land the secondary markets, but even before that, it is augmented by the fact that raffles are treated by social media pages and users as actual events as an exclusive small-audience concert or a preview private screening of a movie. Raffles can also be a powerful tool for brands whose objectives are the acquisition of strategic profiling data about its most affectionate customers. A successful example of this strategy put in practice through a raffle is Nike's drop of its The Ten sneakers collection, in collaboration with the luxury streetwear brand Off-White. In order to participate in the raffle users had to create a NikePlus account, which already contains the user's payment information. As a result, whether the user had won the raffle or not, Nike had obtained data and subscriptions that not only could be used for marketing profiling scopes but also could increase the quality of the customer's regular purchasing experience by making it smoother.

2. 2. 4. Sustainability

Sustainability in the fashion industry has been a trend and a topic of discussion, since the end of the 2010s. The concept of sustainability, when applied to the fashion industry, must be considered and analysed from multiple angles and thematics. First of all, there is environmental sustainability, which in turn must be considered throughout the whole life cycle of a fashion item, from its production, to its transportation, its sale, its usage

and finally its dismission. The journey that a fashion item makes throughout these stages, and the degree of sustainability that holds throughout them, determines its environmental footprint. On the other hand, sustainability must also be considered in its social and economic sense, again throughout the whole life cycle of a fashion item, from production to purchase (Kim, Kang & Lee 2020). The overall social and economic impact of the life cycle of a fashion item can be called its socio-economic footprint.

Fast fashion and its rapid growth since the first 2000s' has been enhancing dramatically the environmental impact of the overall fashion industry, since fast fashion brands introduce new styles at more frequent intervals, focusing less on durable quality, and more on low costs and up to the minute designs, one consequence of fast fashion has been an explosion in consumption accompanied by increased waste. Product durability is especially relevant when considering the overall sustainability of a luxury item. According to Sun et al. (2021), product durability is especially worth mentioning in a luxury item sustainability study, since the durability of these items partly influence their purchase as well as their life cycles, by also giving them others owners through the second hand market (Sun, Bellezza & Paharia, 2021). Durability and repetitive usage have both dramatically dropped, with more than half of fast-fashion products being worn for less than a year, which is being calculated to impact the average number of times an item is worn, decreasing it by 36% compared with 15 years ago (Sun et al., 2021). And due to the large quantity of products manufactured, used, and disposed of, fast fashion leaves a greater pollution footprint, with each step of the clothing life cycle generating potential environmental and occupational hazards (Mukherjee, 2015). The importance of the environmental and socio-economic prints of the fashion industry has come into the spot of public interested in the past when events characterized by salience would occur, such as environmental disasters or the discovery of production sites employing child labour. The advent of Covid pandemic accelerated and enhanced the role of sustainability in the fashion sector. While the world was facing a global sanitary and economic crisis, sustainability became the centre of the discussion surrounding fashion brands, especially fast fashion ones. Information about the industry's greenhouse-gas emissions every year, how many litres of water are necessary to

produce a pair of blue jeans, or the working condition of fashion workers in China, spread throughout the public and raised awareness around the importance of a sustainable industry. To understand the various negative impacts of the fashion industry, here is a list of data:

- The equivalent of one garbage truck full of clothes is burned or dumped in a landfill every second (UNEP, 2021)
- Approximately 60% of all materials used by the fashion industry, namely polyester, are made from plastic (UNEP, 2019)
- 500,000 tons of microfibers are released into the ocean each year from washing clothes - the equivalent of 50 billion plastic bottles (Ellen MacArthur Foundation, 2017)
- The fashion industry is responsible for 8-10% of humanity's carbon emissions – more than all international flights and maritime shipping combined (UNEP, 2018). If the fashion sector continues on its current trajectory, that share of the carbon budget could jump to 26% by 2050 (Ellen MacArthur Foundation, 2017)
- Some 93 billion cubic metres of water – enough to meet the needs of five million people – is used by the fashion industry annually, contributing significantly to water scarcity in some regions (UNCTAD, 2020)
- Around 20% of industrial wastewater pollution worldwide originates from the fashion industry (WRI, 2017)
- Textile workers, primarily women in developing countries, are often paid derisory wages and forced to work long hours in appalling conditions (UNEP, 2018)(WRI, 2019). In many places, these conditions create infringements on human rights (Human Rights Watch, 2021).

The public opinion moved fast by taking the side of embracing, even advocating, for a sustainable fashion industry, therefore forcing the brand to take actions to make themselves more sustainable. According to Vogue, in the past year fashion consumers have been increasingly educating themselves on the matter, especially focusing around the following themes and trends: buy less and buy better, invest in sustainable fashion brands, shop second hand and vintage, clothes renting, the meaning and how to avoid

greenwashing, materials and sites of production, harmful chemicals and microplastics pollution, water footprint, and vegan fashion (Chan, 2021). As Karl-Hendrik Magnus, senior partner of McKinsey & Company explains, “This industry is about emotional attachment, loyalty and excitement for brands” (Magnus, 2020), and in order to retain customers’ loyalty they have to be able to relate to the brand's values and ethics. This trend in consumers’ purchasing choices is also supported by existing literature (Bartels & Onwezen, 2013) (Battaglia, Testa, Bianchi, Iraldo & Frey, 2014) (Du & Bhattacharya, 2010) (Kim, Kang & Lee 2020).

The ways the fashion industry adapted to this push are various, but the main part of investments have been done towards sustainable fabrics production and circular fashion. In terms of fabrics production, many fast fashion brands acceded the “Join Life” standard for part of their collection. The Join Life certification assures that the item has been produced with sustainable raw materials and/or with best technologies in at least one manufacturing process (Inditex, 2021). This standard follows the Higg Index approach, an index developed by the Sustainable Apparel Coalition to evaluate the environmental and social impact of the textile sector. The evaluation is carried out by an A-B assessment of environmental attributes, which are classified in 3 different categories: Care for Fiber, products that contains a sustainable raw material; Care for Water, products manufactured with a technology that reduces water consumption in at least one manufacturing process; Care for Planet, products manufactured with renewable energy in at least one manufacturing process or with leather tanned in tanneries rated Gold by the Leather Working Group protocol. Among the brands that adopted the Join Life standard are Zara, Bershka, Pull&Bear, Oysho, Stradivarius. Other brands, mainly brands that position themselves somewhere in between fast fashion and luxury, such as Levi’s - Off the Cuff[23] - and Reformation, have been launching sustainable collections declaring how many less gallons of water are used to produce a sustainable item compared to a regular one and producing sustainability reports concerning their production[24]. Falling into the sustainable fabric production umbrella of initiatives is also fabric recycling. Many brands, from fast fashion to small

[23] https://www.levi.com/US/en_US/blog/article/world-water-day-2019
[24] https://www.thereformation.com/pages/sustainability-report-q1-2021

production brands, excluding luxury, have launched collections made with part of the fabrics produced with recycled fabrics or recycled raw materials. Examples of these collections are Conscious[25] from H&M, Recycled line from & Other Stories[26], the Recycled Wool line from Patagonia[27]. If sustainable and recycled fabrics are mostly an attempt of the fast fashion industry to keep up with sustainability requirements, the luxury fashion industry, which for identity reasons could not use recycled fabrics and is supposed to be already sustainable in terms of production ethics, has chosen to invest in the circular fashion market. The second hand fashion market has been flourishing through the dedicated websites and apps, with a growth forecast of 21% in 2021, of 27% nel 2023*, and by 2025 it should pass 60 billion dollars of value (Kering, 2021). The second hand market is especially appealing to millenials and Gen Z consumers, as Miriam Lobis, partner at McKinsey&Company, explains in "The future of sustainable fashion" report, and as well as Kering in the official note explaining the group's choice to invest in this sector (Lobis, 2020)(Kering, 2021). Among the luxury industry investments in circular fashion, the one with the greatest public resonance has been Kering acquiring the 5% of the ownership of Vestiaire Collective, the e-commerce leader for the second hand luxury market. François-Henri Pinault, president and CEO of Kering, which has recently closed a deal with the platform for a second round of investment for 216 million dollars, has commented on the acquisition declaring that the choice has been driven by a search for a more innovative and sustainable future of the group that at the same time is taking a chance in order to get closer to a younger audience (Kering, 2021). Second-hand investments have actually a multitude of benefits for luxury brands: first of all they are able to better control the resale of their own pieces, secondly, considering the growth forecasts, it promises to be a very profitable business which will be complementary to the luxury one, and of course it has an added value when considered under the commitment for sustainability (Lobis, Magnus & Granskog, 2020). Top luxury brands are not the only ones investing in circular fashion,

[25] https://www2.hm.com/it_it/donna/acquista-per-concetto/conscious.html
[26] https://www.stories.com/en_eur/search.html?q=recycled
[27] https://www.patagonia.com/our-footprint/recycled-wool.html

multibrands platforms are going in that direction too. Among them are Yoox with its "Pre-loved" line, Farfetch "Pre-owned", and Zalando Second-hand.

2. 2. 5. Technological innovation

Augmented reality, virtual reality, wearable tech, and connected fitting rooms are only some of the technological innovations making big waves in online fashion. Some of them, such as online sizing and online search are already well established across all the e-commerce of the sector, others are rising mainly from luxury brands.

- Online sizing: finding the right size to purchase when shopping online is not only a good for the customer in the optics of the customer experience and customer's satisfaction with the purchased items, but it is also good for the brand which will have less returns and therefore less logistics costs, either in the case of a free returns policy - in this case the impact of costs would be very significant - or in the case of return fees being charged to the customer - in this case the brand would still have to bare the costs of restocking the item, not to mention the cost caused by the potential loss of the customer. All these reasons are at the base of the development of new and evolved online sizing softwares that are able to dynamically calculate and suggest the right size to the customer. Dynamic suggestions can be based on different inputs depending on the used by the website. Gucci for example uses a suggestion software called Fit Predictor that asks the customer to enter the desired fit through a comparison with other luxury brands. When shopping for shoes for example, the customer can tell the software that the perfect fit for her/him is the size 39 of Balenciaga pumps. The software elaborates the fits comparison even for different shoe models and gives back the suggested fit. Another example of online sizing software is the one used by Zara. The software comes with a white label and it is not given to know if it's an in-house built software or a licensed one, but it's presented in the product page as a call to action that asks "What's My Size?". After clicking on it the customer is asked to insert information about her/his height, weight, and fit

preferences (tight, loose, or perfect), to then inform the customer what size customers who fall into similar size categories have purchased, by percentage. The feature appears on every item's page, and after entering the information once, the website saves it and automatically applies it to other items's pages (Hirsh, 2017). After Zara introduced its sizing software many other fast fashion brands such as Mango and Pull&Bear, adopted this solution for their e-commerce website using a licensed software that goes even further by asking information about the physicity type: what kind of abdomen and hips the customer has, in case of a woman's apparel item torso and cup sizes, and even age - the software has even a pop up explaining why it asks for the age, because aged impacts the way weight is distributed throughout the body. H&M offers a software that combines both the Gucci comparison with other brands methods with physicity information inputs. The results of these software can be seen in practice through standard analytics reports. When Rhone Apparel for example implemented FitsMe's "Fit Origin" sizing system it raised their conversion rates from 3.7% to 9.8% within the first month. Those numbers held even after the solution had been in place for over a year and analytics show that Fit Origin has delivered an impressive +20.4% in incremental revenue to Rhone's website (TLG Magazine, 2020).

- Online search: Perhaps the simplest form of artificial intelligence and machine learning revolves around onsite search. A predictive autocomplete system based on algorithms that change the result as a function of what the customer already searched for or purchased, not only saves shoppers time, it also helps to frontload those products every specific customer likes the most, increasing the probability of a conversion. Dynamic and predictive search is offered as a built-in option in most new generation platforms, but it can also be added as app or plug-in in order to make it more customizable: Shopify for example offers plenty of online search dedicated apps in its app store, and even free development tutorials on how to implement customised features on the standard search. The results of a well implemented online search can impact different

aspects not only of the customer experience, but also of the conversion rate of the e-commerce website. According to Syte, a proprietary visual-AI engine that provides augmented site search[28] trusted by Prada, Farfetch, Tommy Hilfiger and many more brands of the fashion industry, augmented search provides an average increment of the average order value (AOV) by 9.8% and conversion rates incremented by 177% (Syte, 2021).

- Live chats: live chats are a new standard not only for fashion e-commerce, but for all e-commerce sectors and even websites that are not e-commerce. They were trending strongly even before Covid advent, and since the pandemic hit their usage skyrocketed. Live chats usually appear on websites as little windows or icons in one the the bottom corners of the web page. They can either be already open and showing a standard message such as "May I help you with anything?" or they can be icons that open a window chat when clicked on. Some of the most evolved chats can even appear only after a certain behaviour of the visitor is detected, one that might mean the visitor can't find what he/she is looking for or is confused about something, such as going back and forth on the same pages, being still on the same page for more than a determined time span, and even used the website search to look up some given key words. They are usually provided by external services as plug-ins and integrated in the e-commerce platform. Software houses offering live chat applications are countless, but worth mentioning is the live chat implemented and offered by Whatsapp. Whatsapp live chat plug-in for e-commerce is particularly convenient and appreciated by customers because they can chat with the customer service operator directly from their Whatsapp app on their smartphones, assuring a seamless experience. Live chats can either be a direct window to real customer service operators, artificial intelligence or bots that detect determined keywords in order to guide the customer to pages or areas of the website that might contain the answers the customer is looking for. Bots and AIs, although being less

[28] Syte's augmented site search is based on a proprietary visual-AI engine that adds dozens of meta-tags and synonyms to every product, advanced NLP, and a sophisticated rule-engine to ensure an intuitive and lucrative shopping experience

expensive than real customer service operators, can also represent a risk of the quality of customer experience if the automatic answers are not those the customer is looking for, leading to an unsatisfactory state and even the customer leaving the website. On the other hand, when the customer engages in a positive interaction with the live chat the conversion rate can increase up to 20% compared to the same session without the live chat interaction (Pioggiosi, accessed 2021). Live chats have been proven to be especially significant in improving customer satisfaction with the purchase journey, as well as engagement and positive impression towards customer service when they are placed into luxury e-commerce websites (Chung, Ko, Joung & Kim, 2020). According to Domidia, customers engaging with a live chat fall into either one of these two categories: those looking for some information or looking for a confirmation/clarification about them, and those evaluating a product and are potentially interested to purchase. The most frequent topics discussed through live chats are: available payment methods, average delivery times after placing an order, how can the customer know when a certain style/product or size will be available again, returns policy and conditions. The advantages of live chats are not limited only to customers' satisfaction and conversion rate, but can go beyond when they are employed as an analysis tool. The chats' interaction can be used and analysed in order to detect weak points in the customer journey and improve them.

- 3D, augmented reality and virtual clothes: fashion brands have always been avant-garde in embracing new technologies and new formats of retail business models. The rapid development in 3D digital technologies, including 3D scanning, 3D modelling and 3D web rendering, has brought many new opportunities to the fashion industry, especially in shaping fashion e-commerce of the future. The traditional 2D user interface and 2D media content have limited ability of displaying every detail of a product in full 360 degree, and the colour accuracy of products in pictures is also a common problem. 3D models are able to enhance the brand identity and reduce return rates at the same time

(Zhou, 2018). Photogrammetry 3D scanning and Physically-Based Rendering (PBR) technology has been widely used in video game and film industry in recent years to achieve impressive and unforgettable user experience (Ratcliffe & Simons, 2017). The same technology can be applied to the fashion industry as well. Real fashion products can be reconstructed into photorealistic 3D models and textures after 3D scanned and manually retouched by a 3D artist. Among luxury fashion brands Gucci has made of 3D models a strategic tool of its digital channels, starting with the release of its Spring Summer 2018 - Hallucination Collection[29] on a dedicated all-3D website, and following this release strategy for many other iconic items of the fashion house. Here just some of them: Gucci Marmont Bag Collection[30], Gucci 1955 Horsebit Bag[31], Gucci Zumi[32]. Due to the fact that the 3D products are virtual, and the interface will still be on a 2D screen, limitations do exist, for example it's hard to get physical feedback from products. However, other fundamental interaction designs can be included, in order for the customers to really get to explore and experience the design details and the surface texture materials. They should be able to play with the product to check each corner of it. This is very well declined and applied in one of the cited Gucci website, the one dedicated to the launch of the reinvented classic Horsebit Bag: when browsing through the 3D experience, the customer has the possibility of changing the style of the item or even just part of the style, like some colours or details, in order to have a a precise representation of the exact desired product combination. Moreover, customers are also able to take a very close look at the product, virtually “floating” around it, so that they can look at every detail from every possible point of view. An even further step is taken by augmented reality. First of all, what is augmented reality? Augmented reality means a reality existing only through cameras and screens, in which the physical reality mixes with digital elements that dynamically interact with each other. As

[29] http://springsummer.gucci.com/
[30] https://marmont.gucci.com/
[31] https://1955horsebit.gucci.com/#/handbags
[32] https://zumi.gucci.com/

science-fiction that may sound, augmented reality is something that in 2021 the majority of the world's population is very familiar with and uses every day. The very first mass-impacting introduction to AR was made in 2016 by the social media platform Snapchat. Soon followed by Instagram, Snapchat realised AR filters that were able to transform its users' faces into a dog, or a mermaid, put a flower crown or shining stars on their heads, and so on. Carolina Arguelles, Global Product Marketing AR of Snapchat, explains how this "silly and fun" way of introducing AR into people's life was really effective because it masqueraded a very sophisticated technology into a new and fun way of communicating, and very importantly, it lowered people's inhibitions towards AR, teaching them how to use it and to incorporate it in their everyday life. In 2021, the 75% of Snapchat users - almost a hundred seventy millions people - interact with AR every day (Arguelles, 2021). Augmented reality can be used and declined in several different features and with several different objectives when applied to e-commerce: it can mean virtually projecting 3D items into space through smartphone or laptops cameras, it can mean being able to try on accessories or make up, and even transform the reality on smartphone screens. Examples of the usage of augmented reality can be found not only in the fashion industry but also in the eyewear sector, see as examples Moscot[33] and Nowave[34], the design and furniture sector, see Ikea Studio app[35] and Wayfair[36], the makeup industry, see Mac[37] and Maybelline[38], and many more. The current literature existing on AR reports benefits of its usage throughout different areas, mostly related to customer journey (Hilken, T., Heller, J., Chylinski, M., Keeling, D. I., Mahr, D. & de Ruyte, K., 2018), attention and effectiveness of advertising (Yang, Clarcson & Chen, 2020) (Javornik, 2016). Consistently with the benefits reported by the literature, augmented reality in the fashion industry is used with

[33] https://it.moscot.com/products
[34] https://www.nowaveofficial.com/
[35] https://www.wired.co.uk/article/ikea-studio-ar-app
[36] https://www.aboutwayfair.com/2020/09/augmented-reality-with-a-purpose/
[37] https://www.maccosmetics.it/virtual-try-on
[38] https://www.maybelline.co.in/virtual-try-on

diverse aims. One of them and probably the main one for which fashion brands have invested in AR technology is to help customers make better and more informed product decisions. Gucci was one of the first luxury brands to do so, adding an AR feature to its app - and later on to the social media platform Snapchat - to let users 'try on' sneakers. This is a highly functional example of AR for retail: by giving customers a visual representation of how a product will look in real life, the brand increases the customer satisfaction on one hand, and reduces the probability of a return on the other (Vogue Business for Snap webinar, 2020). Gucci went even further than that in exploiting augmented reality by taking inspiration from the gaming world and its own gaming marketing strategy - which will be discussed more in detail in the next section of this paragraph - and realising a pair of virtual sneakers, which are designed to only be worn and shared online. The 'digital-only' trainers, created in collaboration with AR fashion platform Wanna[39], are called Gucci Virtual 25 and can be bought via the Gucci app for a very affordable price, ranging between 20 and 13 euros (Pierattini, 2021). A similar example is the one provided by Adidas, which in November 2019, just few months prior to the hit of pandemic, added the virtual "try-on" feature to its iOS app, helping shoppers to decide on a purchase without ever entering a store – with a very lucky timing seen that physical shopping would have become unavoidable for all consumers in a very short time. Created in partnership with computer vision platform, Vyking, the AR feature tracks the foot movements, enabling users to see how sneakers look on their feet in real-time, with or without shoes (Gilliland, 2021). Another of the aims for which fashion brands invest in augmented reality is enriching and enhancing customer experience. For example, Burberry is re-imagining AR experiences in order to bring customers back to stores post-pandemic, by launching a pop-up AR experience in Harrods to coincide with the launch of its new Olympia bag. Using a QR code found in-store, customers are able to watch the Elphis statue walk around in their surroundings,

[39] https://wanna.fashion/

as well as take a photo or video to share with friends. According to Burberry "the experience is the latest in a series of activations exploring the relationship between physical and digital experiences to create exciting new concepts for our community and enhance the luxury experience." (Burberry, 2021).

➢ Digital fashion and NTFs: digital fashion is a very broad-spectrum meaning concept: from AR - previously discussed - to purchasable digital fashion items - see Gucci's Virtual 25 also mentioned above - to virtual stores, the term digital fashion is used for a very large spectrum of cases and meanings. This paragraph explores some of them. Virtual stores and virtual-mixed purchasing experiences are one of the main emerging trends characterising the luxury landscape. A range of brands including Charlotte Tilbury, Clarins, Tommy Hilfiger, Farfetch, Intermix and American Eagle are all testing some form of virtual store technology. One practical example of the application of the virtual store concept comes from Gucci, which is using one-on-one texting and video shopping appointments with store associates in substitutions to the traditional in-boutique shopping experience. Some virtual stores go even further, by enabling customers to navigate a 3D digital space as if they were browsing via "street view" in Google Maps. An example is the virtual store Tommy Hilfiger introduced during the holidays season. With three colour-coded, themed rooms that look and sound like a store during the holidays, customers could even browse through a "snow room" with snow falling and piling up on the floor. Also, in the virtual store the browsing customer was the only customer in the store, making the experience even more personal and peculiar. Especially since the pandemic hit, virtual stores and virtual shopping experiences have been at the centre of the focus for retail fashion and luxury brands suffering a deep crisis due to boutiques being forced to close across the globe. In this context the digital experience has become a significantly more important tool for interaction between brands and consumers. This has prompted brands to fundamentally rethink their online presences beyond the purely functional. Instead of repetitively emphasising speed and convenience of online shopping, they're

adding elements of surprise and delight that can be summarised in the concept of experiential e-commerce. Experiential e-commerce brings an added value to the customer compared to regular e-commerce, but also compared to physical one, by mixing imaginary elements to real ones. The experiential e-commerce software provider Obsess, which collaborated to the realisation of virtual e-commerce experiences for Ralph Lauren, Coach, Christian Dior, Tommy Hilfiger, Marni just to name a few, reports that inbound interest in virtual stores has increased by 400% (Mcdowell, 2020) and according to the report "Digital fashion surges in a sales downturn" by Vogue Business, apps providing the chance to digitally interact with clothes increased their users by over 50% (Mcdowell, 2020). The increased customer value is witnessed by Obsess reports according to which not only customers spend almost as much time on one virtual store page as they do on all the pages in the rest of an e-commerce site combined, but also conversion rates increased up to 50 per cent when compared to shopping the same collection via e-commerce.

Falling into the umbrella of digital fashion are also digital fashion items. An example of them being Gucci Virtual 25, digital fashion items go way further than the accessories department. The very first digital-only collection was launched by the Swedish brand Carling, which introduced in november 2018 a line of 19 digital jackets, titled "Neo-ex", ranging from a price of 9 to 30 pounds. The idea of launching a digital collection rose from the reports of influencers buying one-off outfits solely for Instagram. The digital-only collection was available for the purchase on their e-commerce website, but after purchasing the jacket, customers were requested to send a picture of themself onto which a group of 3D designers would digitally fit the jacket to then send it back. Kicki Perrson, the brand manager at Carlings Sweden, declared that the response after the launch of the collection had been overwhelmingly positive and the company proceeded to launch a second digital collection in 2019. As per the reasons behind this success, it looks like a mix of the environmentally-friendly nature of these clothes, together with the fact that they

are perceived not only as digital fashion but also as digital art, and the fact that they are way cheaper than the same actual object would be.

Figure 1. Digital clothing examples

As the concept might seem outlandish, the fashion industry is actually a recently added player to the world of digital fashion items. Gamers have been spending real money on digital items for years, as Matthew Drinkwater, head of the Fashion Innovation Agency at London College of Fashion points out. Fortnite fans for example spend millions of dollars on skins for their avatars. Drinkwater says that “The money being spent on virtual content in the gaming industry is huge, and the fashion industry is only just beginning to realise that there might be an opportunity there.” (Semic, 2019). Luxury brands were not far behind from joining the trend, in fact. Kerry Murphy, founder of The Fabricant - an Amsterdam-based ‘digital fashion house’ that creates hyper-real virtual clothing for fashion brands and retailers - says he is already in talks with luxury brands for the creation of digital-only collections. The fabricant produced the world’s first piece of digital couture, designed by Amber Jae Slooten, which sold at a charity auction for 9500 dollars (picture below).

Figure 2. Digital haute couture clothing

Tribute, a “high-end digital fashion brand leading the way in contactless and cyber fashion” (Tribute, 2021), makes digital clothing that sells around seven hundred dollars per piece. The primary inspiration for the brand is the Sims, Grand Theft Auto, and other video games. “You have these characters and clothing shops where you can dress them up. That was always the most exciting part of the game for me,” says Gala Marija Vrbanic, the founder and creative director of Tribute (Allaire, 2020). Behind the founder's idea of creating Tribute

was the research for a zero-waste fashion production as well as the possibility of expanding creativity at the maximum. Digital clothing lets her create pieces that "are impossible in the real world, like new materials—things that just couldn't function in the real word due to the laws of physics". An important matter to consider for digital fashion brands is the stock of their digital clothing, a stock that of course does not exist. When the stock for an item does not exist, that item could virtually be sold an infinite amount of times. But if this was the case, the fundamental principle at the base of the concept of luxe, the principle of scarcity, would not hold. Therefore, digital fashion brands which position themselves in the luxury sector, are careful not to sell too many pieces of the same digital item. Tribute, for example, lists on its website how many pieces of a certain design will be created and sold, and even adjusts the available pieces of an item according to its price. So one hundred people can buy a black, shiny coat with green trim for $29, while only three can purchase a top that resembles green lace and black latex for $699.

But what about exclusivity? In the scale of exclusivity, higher than luxury fashion, higher than the concept of luxe based on scarcity, is haute couture, based on the concept of exclusivity. Haute couture pieces are usually made and produced for a one-time use, and they are not available for sale. And as digital fashion evolves, it had to guarantee that haute couture and exclusivity were still holding. In order to do it, the fashion industry has entered into yet another digital world, the world of NFTs. NFT stands for "non-fungible token" which pharapharased, could be expressed as an interchangeable item. NFT are a way for buyers of digital items to certify themselves as the only and sole owners of them. The way a digital item is turned into a NFT is through a process that is called minting. Minting is a coding technique that, simply put, impresses information in the blockchain of a digital item certifying its authenticity (Sergeenkov, 2021). An NFT can really have as subject anything that exists

exclusively in the digital dimension, a GIF[40][41], an NBA highlight-reel video[42], and even a tweet (Petrarca, 2021). It is very singular in fact, the case of the sale of Jack Dorsey's - Twitter CEO - first tweet "just setting up my twttr", which sold at an NFT auction for 2,915,835.47 dollars (Lyons, 2021). Originally conceived and developed for the digital art industry, NFTs are quickly gaining interest and adoption by other industries, fashion and luxury being one of them. Not only digital fashion items can be minted and transformed into NFTs, and according to Vogue Business fashion brands have been "studying the wild, wacky world of blockchain and all its creative and business possibilities" and are now "poised to jump in" (Tong, 2021), but fashion icons are exploiting the trend too. The top model Kate Moss for example has partnered with MITNFT for the creation of three videos filming her in everyday life as NFTs, which were then sold on a platform called Foundation[43] (Petrarca, 2021). With the recent shift to digital format of many red carpet-worthy events, such as awards and fashion shows, NFTs could soon become a more sustainable and practical way of producing those fashion pieces that are by definition created to be worn only once, and that are anyway most of the time landed to the celebrity or model to wear them for the occasion, just to be returned after the event is over.

- Gaming: high fashion and cosmetics brands are increasingly incorporating interactive gaming into their product experience, whether that's in the form of collectible board games, or in-store experiences. The adoption of interactive play by brands typically associated with sophistication and sensibility makes them more relatable (Trend Hunter, 2020). The gaming market is one of the fastest growing one, with gaming platforms as Twitch having over 25 million daily visitors in 2020 (TwitchTracker, 2021), and a value of 159.3 billion dollars of the overall esports and gaming market, which was expected to have reached 2.7 billion players by the end of 2020 (Sharbatian, 2021). Erin Wayne, head of

[40] Graphics Interchange Format
[41] https://www.nytimes.com/2021/02/22/business/nft-nba-top-shot-crypto.html
[42] https://www.cnbc.com/2021/02/28/230-million-dollars-spent-on-nba-top-shot.html
[43] https://foundation.app/mitnft

community and creator marketing at Twitch, says that "Fashion working with gaming is kind of the next obvious step in the evolution of fashion.", while Adam Harris, global head of brand partnership studio at Twitch, comments on the success of the platform and on the reason that this success has brought in luxury brands as partners “Gen Zers are digital natives. They don't want content pushed at them. On Twitch, you can find anything from cats sleeping to ASMR to gaming to chatting. Instead they'll seek it out, per Fortnite's Travis Scott spectacular in April: 12 million players logged into the concert. Meanwhile, Lil Nas X's recent stint on gaming platform Roblox drew 33 million views. [...] The varied interest of our highly engaged community has long made Twitch the perfect place for the luxury sector.” (Bumpus, 2020). So the reasons fashion brands are investing in the gaming industry and in gaming experiences are mainly two: the first is a strategic marketing reason, namely the approach to Gen Z consumers, the second is merely economical, with the gaming industry being a potential cash cow for fashion brands.

Some of the most worth-mention gaming strategies are those from the Kering group's brands, with Balenciaga for example launching its Fall 2021 collection by video a video game called “Afterworld: The Age of Tomorrow”, and Gucci unveiling a series of new app features including the Arcade App, inviting customers to play with popular house motifs and characters, plus AR technology that allows them to virtually "try on" sneakers and watches. Last year, the Italian brand launched a collaboration with The Sims and a tennis-themed outfit game, Tennis Clash. Kering is not the only luxury group exploring the gaming world, with LVMH and independent luxury brands chipping in as well. Last year Louis Vuitton launched its League of Legends capsule collection in partnership with Riot Games; meanwhile, Burberry teamed up with Snapchat to create Animal Kingdom, an in-store gamified experience in which Snapcodes transport shoppers to a Burberry world. And Ralph Lauren, too, collaborated with the social media platform, to create virtual clothing for personal Bitmojis.Christian Louboutin comments on such an acceleration of the gaming trend saying “With

confinement, we started the year 2020 to wake up into 2025 [...] I'm not a gamer myself - I can barely switch on the TV - but I've observed in the last few years more and more people, especially at the airport or in planes, playing on their phones." In October, the footwear designer showcased his Spring 2021 collection via the app Zepeto, enabling users to create personal avatars and discover new-season shoes (Bumpus, 2021).

2. 2. 6. Delayed payments options

The past decades have witnessed a rapid development of new payment methods on the wave of technological advances. In addition to the classic payment methods, su as cash, consumers extensively use debit or credit cards and mobile payments in both online and offline settings. Since the outbreak of the covid pandemic the use of mobile payments has significantly increased (Shearman, 2020). Some experts and analysts even believe that the current COVID-19 crisis may accelerate the advent of a cashless age (Huet & Murray, 2020).

Payment is the very last phase of the purchase journey. Although being at the very end of the conversion funnel, payment is still a critical obstacle to overcome in order to convert the purchase intention into an actual purchase. The available payment methods on the sales channel - regardless of it being an online or offline one - might be crucial in order for the customer to conclude the purchase. The most common payment methods are: cash, debit card, credit card, digital payments (e.g. PaypAl), digital wallets (e.g. Apple Pay, Shop Pay) and mobile payments (e.g. Amazon Pay). The characteristics of each one of the listed payment methods could determine the success of the transaction as well as its failure. The reason behind the payment moment being such a delicate one relies on the effect that the act of the payment has on the human brain. This effect has been extensively studied by psychology researchers to be connected to the brain’s center of pain, so much that psychologist Zellermayer coined in 1996 the term “pain of paying” to refer to the emotion that consumers experience in parting with their money (Zellermayer, 1996). Following studies investigated as different payment methods have

different impacts on possibly easing this pain. Soman analized checks, credit card, debit card, store value card and autopay in their transparency compared to payment in cash. In the research transparency is defined as follows “We define payment transparency of a payment mechanism as the relative salience of the payment, both in terms of physical form and the amount, relative to paying by cash. In some sense, the payment transparency refers to the perceptual similarity between cash and a given payment mechanism. Cash is the most transparent form of payment – when one pays by cash, one sees exactly what they are paying. Other forms of payment may not be as transparent as cash. At the opposite extreme, a completely opaque (non-transparent) form of payment might be a payroll deduction that one is not even aware of” (Soman, 2003). As found in this research autopay (direct debit from bank account) results to be the least transparent among all the payment methods analysed. Digital payments fall inside this categorization, as well as mobile payments which have been proven to reduce the aversion to payment by a number of other studies (Pal, Herath, De, & Raghav Rao, 2021)(Ma et al., 2021).

Apart from the payment method used, another instrument used widely in almost any sector to relieve the pain of payment is credit. Credit has been observed not only to facilitate the formation in the customer of willingness to buy, but also to increase basket value (Soman, 2003)(Liu & Dewitte, 2021)(Boden, Maier & Wilken, 2020). Credit, being a form of delayment of the payment, reduces the perception of pain and loss at the moment of the purchase, postponing it to a future moment and therefore diminishing the awareness of the payment, that we previously connected to transparency.

With all these premises being done, this paragraph wants to examine the functioning and the benefits of digital delayed payment methods. These payment getaways place themselves as intermediaries between the customer and the firm, offering delayed payment options as well as payments in instalments. The sector’s leaders are currently Scalapay, Afterpay and Klarna, overall serving over 250.000 businesses among which can be found some very significant names of the fashion industry such as Mr Porter, Michael Kors, Furla, La Perla, Pollini (Scalapay, 2021)(Klarna, 2021). These services are especially convenient for firms wanting to integrate them into their e-commerce

because they already hold partnerships with all the main e-commerce platforms (e.g. Magento, Saleforce, SAP, Shopify, Woocommerce). Depending on the platform and its technology, merchants are able to add the service through plug-ins or apps into their back end and front end.

About the impact of the offer of delayed payments on the conversion rate, the marketing and communication agency Wunderman Thompson, with over 200 offices in 90 markets and clients of the calibre of Audi, Rolex, Samsung and many more, reports that "Deferred payment services enable retailers to offer customers more flexibility and choice in the way they pay for items. In return, retailers are rewarded with conversion rate and average order value (AOV) increases due to customers disconnecting the purchase commitment and payment elements of the sale. In our experience of implementing deferred payment models, one of our clients saw a significant increase in AOV by using spread payment financing; nearly 60% higher order values were placed when using deferred payment in comparison to more traditional card purchases." (Wunderman Thompson, 2021). On the other hand, brands should also be careful about the risks of offering this service, especially when selling low to medium price items as "Deferred payments do, however, enable and promote a 'try then buy' mentality where customers will order multiple products with the intention of returning many of them. This creates a return rate increase and produces a cost burden that directly hits the bottom line for retailers, especially if they offer free delivery and free returns." (Wunderman Thompson, 2021). Although having potential risks in terms of return rates, these payment methods, summing both the positive impact on willingness to buy of credit and digital payments, could represent a turning point in terms of reducing furthermore the "pain of paying" and therefore improve online sales performances.

2. 3 Fashion e-commerce best practises: Customer Experience

The definition of customer experience finds its roots in the early theorization of the discipline of marketing. Abbott and Alderson defined it as the broad-spectrum notion that "what people really desire are not products but satisfying experiences" (Abbott, 1955)(Alderson, 1957). Following this conception, experimental theorists in the 1980s weighed on the importance of the emotional aspects of decision making in the shopping experience. Pine and Gilmore conceptualised the idea of experiences as distinct products from physical goods and services, describing the purchase of an experience as a "memorable event that a company stages to engage him in an inherently personal way" (Hill, Pine & Gilmore, 2001). The customer experience is a concept and a reality that goes way beyond the mere purchase process. Customer experience consists of the cognitive, emotional, physical, sensorial, and social elements that mark the customer's direct or indirect interaction with a set of market actors (De Keyser, Lemon, Klaus & Keiningham, 2015). Forrester Research finds that customer experience is the current number one priority of executives worldwide, and considered to be a key determinant of long-term success (McCarthy & Schadler 2014). Several international brands, including Apple, Audi, Hilton, and McDonald's explicitly aim to deliver superior customer experience strategies, incorporating this goal in their mission and value statements. The reasons why customer experience has become so central to many companies' strategies relies in the fact that successful CX management strategies have been associated with the creation of fruitful performance outcomes such as superior financial performance, enhanced brand image, customer loyalty, positive word of mouth and customer satisfaction (Bilgihan, Okumus, Nusair & Bujisic, 2014). A broad spectrum of research provides a solid foundation for the idea that customer experience is created through the purchase journey (Puccinelli, Goodstein, Grewal, Price, Raghubir, & Steward, 2009),(Verhoef, Lemon, Parasuraman, Roggeveen, Tsiros & Schlesinger, 2009). The managerial contributions of this stream of literature emphasise the importance of different touch points in the customer journey and the observed increasing complexity of managing the customer experience across all these touch points, as the final outcome

result of the customer experience results from a multidimensional construct focusing on a customer's cognitive, emotional, behavioural, sensorial, and social responses to a firm's offerings during the customer's entire purchase journey (Lemon & Verhoef, 2016).

Customer experience can be mapped over phases of the customer journey. These three phases, namely pre-purchase, purchase, and post-purchase (Neslin, Grewal, Leghorn, Shankar, Teerling, Thomas & Verhoef, 2006). The first stage comprehends all aspects of the customer's interaction with the brand, category, and environment before the actual purchase, therefore the traditional marketing concepts of need recognition, search, and consideration (Pieters, Baumgartner & Allen, 1995). The second stage covers all customer interactions with the brand and the e-commerce environment during the purchase moment itself, such as choice, ordering, and payment. The third and last phase regards all customer's interactions with the brand and its environment following the actual purchase. This stage includes behaviours such as logistics efficiency, order reception and unpacking, usage and consumption, post purchase engagement, and service requests. Practically speaking, this stage covers aspects of the customer's experience after purchase that actually relate in some way to the brand, where the product itself becomes a critical touch point in this stage.

Customer's journey phases are not the only elements that should be considered when designing a customer experience model. Another crucial role is played by the types of touch points that intervene throughout it. Touch points are categorised according to which is the owner of the touch point: brand owned touch points, partner-owned touch points, customer-owned touch points, social or external touch points. The first type comprises all those interactions between the brand and the customer that are designed and managed by the brand and under the brand's control. They include all brand-owned media (e.g. advertising, websites, loyalty programs) and any brand-controlled elements of the marketing mix (e.g. attributes of product, packaging, service, price, convenience, sales force). The second type of touch points are those designed, managed or controlled by the brand's external partners, such as web and marketing agencies, communication agencies, distribution partners, multi-brand online and offline stores. The third type,

customer-owned touch points, are all those interactions on which the brand and the brand's partners do not have control on. An example would be customers thinking about their own needs or desires in the pre-purchase phase, or, in many cases, thinking about previous experiences with the brand. During purchase, the customer's choice of payment method is primarily a customer-owned touch point, although partners may also play a role. Customer-owned touch points are most critical and prevalent postpurchase, when individual consumption and usage take centre stage. The last type of touch points, the social and external ones, are all those interactions that the customer has with a brand, its products or services, and its environment more broadly, that are not owned or in control by the customer nor the brand or the brand's partners. Among these are other customers, independent information sources, opinion leaders, not sponsored influencers, online experts, social media users generated content, and many more. Other customers in particular have a strong influence in the customer journey to the purchase, both when they are in some form related to them (e.g. friends, family, colleagues, etc.) and when they are not (mostly online reviews). In both cases, although because of different psychological mechanisms and triggers, it has been proven that the customer tends to trust his/hers peers' reviews and let them influence him/her more than most of the brand owned touch points. (Chevalier & Mayzlin, 2006). This is especially true for the consumers segment below forty of age (Mangold & Smith, 2012).

Different types of touch points have different weights and importance in different phases of the customer's journey. For example, in the pre-purchase phase, after the need recognition moment, when the customer is undergoing the search and consideration stages, both external/social and brand-owned touch points play a major role in forming the customer's brand preferences and brand attitude, leading the customer to the purchase moment. During the purchase phase the main importance is situated in the brand-owned touch points, among which are the sales channels themselves. Considering the e-commerce website, it is crucial that it matches the customer's expectation with the image and the opinion that the customer has formed of the brand in the pre-purchase phase, as a mismatch of the expectations could lead to the abandonment of the purchase. In order to avoid this from happening the brand should align its sales channels with all

those owned touch points that play a role in the pre-purchase phase. This means making the sale channels consistent with the image or the concept that the brand communicates through its social media channels and sponsorships, marketing and communication campaigns. Not only the sales channel chosen by the customer must be consistent with the other brand-owned and partner-owned touch points, but it should also be consistent with the brand's other sale channels (Patrício, Fisk, Falcão & Cunha, 2008). It is not rare in fact that customers explore and browse different sales channels before actually buying, considering both multi-brand online stores, brand-owned e-commerce websites through mobile devices and PCs, and brand-owned apps if available (this approach is easily placeable into the multichannel and omnichannel theories). Synergies and consistency among the whole of the sales channels have been proven to produce stronger sales growth (Cao, Lanlan, Li & Li, 2015) and, overall, seamless experience across channels through channel integration will create a stronger customer experience (Lemon & Verhoef, 2016). Moreover, during the purchase phase the brand has to have a deep understanding of its target customer needs and guide him/her throughout this phase. In the fashion e-commerce this means being aware of what are the crucial elements and features that the customer expects and uses in order to make the final purchase decision. These elements and features are more broadly discussed in the two following paragraphs. During the last phase of the customer journey, it is clearly, as already previously mentioned, that the customer-owned touch points have the biggest role. The product/service consumption prevails upon any other type of touch points as the customer takes this phase to form his/her own opinion and feelings towards the purchased item and therefore the brand. Unfortunately for the brand, which does not have control over this phase, this is the most critical out of all the phases of the customer satisfaction and customer loyalty developing process. As will furtherly explain in the following paragraphs, customer loyalty is formed through a consistent pattern of customer satisfaction moments. Customer satisfaction in turn is formed when the evaluation of the delivered performance (the combination of both the purchased product/service and purchasing journey) is positive when compared to the customer's previous expectations. As subjective, personal and emotional this dimension is, it is

clear that for the brand it is almost impossible to control all the variables that lead to the development of either satisfaction or dissatisfaction. What the brand should do is carefully take into consideration all the elements of the customer journey and customer experience, confront and match them with a deep analysis of the brand's target customer, and finally design and manage all the touch points that it has control on in order to make them as close as possible to the customer's positive expectations.

2. 4 Fashion e-commerce best practises: Customer Service

One important factor to mention in order to understand why fashion e-commerce has grown so much in the last years is the improvement of customer service. The quality of the delivered customer service by an e-commerce website has observed positive benefits on customer satisfaction and trust towards the brand (Uzir et al., 2021). Customer service impacts the customer journey throughout all its phases. First of all, in the searching phase. While navigating through an online store is fundamental for customers to be able to find key information such as countries of shipping, deliveries times and costs, returns policy. The practice of inserting an FAQs page has become the most basic best practice for all online stores. Among the most frequent FAQs topics are; how to purchase on the website, what happens when I place an order, how can I follow my order, how to return one or more items, how the refund works, how do I know what personal data the website keeps of me, how to subscribe to the newsletter, how to unsubscribe from the newsletter. Many luxury brands go beyond the FAQs format and offer live chat from which it's possible to receive live assistance from a shop assistant, just as in the boutiques, as the presence of chats in particular demonstrated to be connected with higher level of customer satisfaction, engagement and positive opinion towards customer service (Chung, Ko, Joung & Kim, 2020). When the brand offers a live chat, the crucial success factors are mainly two: the response time and the response accuracy. Both these elements must be optimised in order for a live chat to increase the acquisition rate rather than lowering it. When the live chat is efficient in terms of these

two factors it can increase the e-commerce performances and conversion in many ways. According to WebsiteBuilder.org report “The Top 10 Key Live Chat Statistics for 2021”, improvements in the performances touch all the following KPIs: sales, with 51% of customers are more likely to purchase, and 29% of consumers are more likely to make a purchase with the option of live chat even if they don't use it; retention, with 48% of customers are more likely to return to the website; brand reputation, with 41% of online shoppers trust the brand when they see a live chat; customer experience, with 21% of customers claim that chat helps them to shop while working (WebsiteBuilder, 2021). On the other hand, if live chats are not fast and efficient in answering the customer’s needs or doubts, the conversion rate can be highly affected (Song, Xing, Duan, Cohen & Mou, 2022), with the 53% of customers abandoning a purchase if the live support is not quick to answer. Here are some key statistics to provide an overview of the characteristics of an efficient live chat and reasons for companies to implement it (WebsiteBuilder, 2021):

1. Live chat has an average response time of 2 minutes.
2. The average time that an operator spends on a live chat interaction, from start to end, is 8 minutes.
3. On average, a chat representative can solve a customer’s concern in 40 seconds.
4. From 2015 to 2018 live chats integrated in e-commerce websites grew by about 400%.
5. Live chat costs businesses 15% to 33% less than implementing phone support.
6. 71% of consumers are willing to use messaging to get customer support.
7. The target audience for live chats are people aged between 18 and 24, with 42% of this target using the tool frequently, while 50% of the people aged above 55 have never used a live chat.
8. Of the users who prefer chat support, 79% do so because they can get help immediately.
9. More than half of customers are more likely to make a purchase when a website has live chat available.

10. 38% of customers actually end up making a purchase because of a live chat encounter.
11. The global live chat market size is projected to reach $839.2 million by 2026.
12. The most diffused live chat softwares by number of users are: LivePerson, JivoSite, LiveChat, Olark, Intercom, Zendesk, Pure Chat, Comm100, SnapEngage, Freshdesk.

The second phase of the customer journey and when customer service really reaches its peak of importance is the after-purchase phase. In this phase it's crucial for the customer to receive a series of feedback from the brand, such as a confirmation of her/his order, a confirmation of shipping preferably with the option to track the delivery, and get fast and precise answers in case of contact with the customer care (Jones, Taylor, 2018). Finally, once the item or items arrive to the customer, a very critical difference is made by the return process. The return process, costs, and modalities are critical for a very simple reason: when buying online the customer takes on a number of risks, for example: there is no guarantee of the size to be right one, the colour to be true to the product gallery, the fit of the item to be matching with the customer body type, and overall, to be satisfied with the purchase. Therefore a seamless, preferably free return process is key when it comes to overcome the barrier of not being able to experience in person and try on the items. The cruciality of the return policy and quality of the return process in terms of final customer satisfaction is documented extensively in the literature, with the formulation of the return policy influencing various responses in the customer's behaviours (Chang & Yang, 2022), influencing the customer's decision making by reducing perceived purchase risk and increasing store image and patronage intention (Rokonuzzaman, Iyer & Harun, 2021), and incentivizing the formation of purchase intention in in the context of cross-border e-commerce (Shao, Cheng, Wan & Yue, 2021). The elements to take into consideration when structuring the return process are the following: first of all how the customer is able to ask for the order to be returned. The preferred ways are always those in which the effort required from the customer is the least, therefore a simple "three clicks" process from a "my orders" area; following by is the option of filling of a return form in which the customer will have to

manually insert her/his personal data, data about the order such as the order number, and details about the reason for the return; and the least favourite way which sees the customer contacting directly the customer care email to ask for the information in order to do the return. Secondly, the way in which the customer can return the item or items plays a crucial role as well. Options are a service that will pick up the package directly at the customer's house or preferred point; the possibility to drop the package at a drop point or a locker from which the carrier will pick it up; and lastly the post office, to which the customer has to go in order to have the package shipped. These options are listed from the most preferred one to the least preferred, since the effort required increases at each option. The last element and probably the most important in terms of the customer's satisfaction is the shipping label for the return and its cost. The shipping label is the label that needs to be attached to the package before giving it to the carrier. The shipping label can be already included inside the delivered package or needed to be printed. In both the cases, the shipping label can either be pre-paid or to be paid. Paying for the return delivery impacts in a very significant way the customer experience and customers' satisfaction. According to Returnlogic.com 62% of customers declare that they don't like to pay for returns, the 66% of users reviews the store returns policy before shipping and the 50% says that the return policy and the free return offer in particular is crucial when they are choosing where to shop (Berman, 2015). Among the reasons not to buy from a retailer, Narvar found that the 69% of the interviewed mentioned having to pay for return shipping and the 33% point to the difficulty in finding the return or exchange policy on the website (Narvar, 2018). In terms of customer acquisition, having a free returns policy could in fact increase the conversion rate up to 357% (Popkin, 2012) and customer loyalty, with 96% of people saying that they would shop again with a retailer based on a good returns experience (Narvar, 2018). The reason for this increase is purely psychological: "We're always looking for reassurance in the decisions we make, especially when it comes to parting ways with our hard-earned cash." (Sobotta, 2021). Although it is the norm for luxury online store brands to offer free returns on every order, it was not so long ago that this practice became frequent among lower end brands and retailers. The very first promoter of the

free return with a large margin of time span for the customer to decide was introduced and pushed through a powerful advertising campaign by Zalando around 2010. Zalando was created in Germany by two entrepreneurs, and it was at first specialised in the sale of shoes. The business model was inspired by the American model for the online sale of shoes, which had understood that very few people were willing to buy a pair of shoes without having tried them on, therefore with no guarantee to be buying the right size, without being able to return them for free and have them refunded. Zalando built its business model and marketing strategy around this very point and so far, not only it turned it into a multi-brand online store grossing closely 2 billion euros, but also to expand the range of its catalogue from shoes to apparel, from accessories to skincare, from Mango to Versace. Zalando, with a fierce advertising campaign that lasted for over a year for each country which it was expanding to, pushed the concept of the free return into the minds and routines of consumers. As per the current state of free returns spread in online retails, according to the 2020 Consumer Returns in the Retail Industry, the National Retail Federation states that 59% of retailers currently offer free return shipping. It is important to underline how this percentage is high enough to make free returns policy a standard, and therefore, a best practice. Being a standard it's particularly crucial for online shops to ponder whether they're able to offer free returns, because not offering it means being left outside the group of those which will be preferred by online shoppers. On the other hand, returns, especially when offered for free, can be a real disease for e-commerce, aggressively attacking profit margins, gutting conversion rates, and ultimately threatening the financial stability of brands. To give an idea of the size of the value of returns markets, Statista estimates that return deliveries operation have costed $550 billion in 2020, 75.2% more than four years prior (Statista, 2021) and that number doesn't include restocking expenses nor inventory losses. According to data from B-Stock Solutions, a liquidation platform, around 11% to 13% of holiday purchases are returned with closer to 30% of online purchases being sent back. By their estimates, between $90 billion to $95 billion in holiday gifts were returned in 2018. On the B-Stock platform, inventory generally rises 60% in Q1 vs. Q4 with February and March seeing the highest volumes. By category, books, music and

movies have the highest holiday returns (up 125% in Q1), while health and beauty (50%) and toys and kids items (40%) also spike after the holidays (Garcia, 2018). Narvar Customer Report 2018 reports that 41% of consumers buy variations of a product with the intent of returning, 42% have returned an online purchase in the previous six months and 89% have returned an online purchase in the previous three years. Given this frame, it is also very important to underline that the apparel sector makes up the majority of returns, compared to other sectors such as electronics, home products and furniture, footwear and accessories. It is also important to mention though that this margin is shrinking year by year, with the percentage of returns in the apparel sector passing from 43% in 2017 to 29% in 2018. This data is a clear indication and proof of the fact that improving communication about the products, through better images, size guides guidance, information about fit and model sizes, does actually improve a better understanding and choice of customers, therefore returning less purchases. According to Returnlogic.com, the best way of implementing an optimal return logic is to make it fluid and tailored to products and customers segments (Returnlogic, 2016). For example throughout the whole catalogue shoes and accessories could have a different return policy than the one applied at clothing. This would be because for accessories and shoes, a detailed product description and/or size chart, indicating the centimetres and inches of the item, makes it much easier for the customer to make an informed and precise choice. With clothing on the other hand, one size does not fit all people with similar height and weight, since the distribution of the weights varies very much both for women and men. Another example of a fluid return policy is the final sale one, that sees products discounted by a very high percentage, which obviously make it more likely for the customer to buy without reflecting on its choice as much as he/she would at full price. The final sale policy provides for a no return policy. The items bought in a final sale cannot be returned.

2. 5 Fashion e-commerce best practises: Design Practises

The way an e-commerce website is designed should have three main objectives: the most straightforward and the easiest to understand is the creation of an aesthetic identity and aesthetic satisfaction in the website's visitors (Zhou, Suleiman & Yaqub, 2021). The other two objectives are less obvious but as important as the first one: the design should be accessible and easily usable by any user (Lee & Kozar, 2012), (Majid, Kamaruddin & Mansor, 2015), and the design should communicate trustworthiness (Egger, 2000).

The first objective, the creation of an aesthetic, although being connected to customer satisfaction and willingness to recommend (David, Senn, Peak, Prybutok, & Blankson, 2021)(Nia & Shokouhyar, 2020), will not be treated in detail in this paragraph as the creation and development of an aesthetic is something that does not follow strict guidelines or best practice sets of rules. According to one's personal taste and the designer's creativity the outcome could and should always be different and it will always be valid as long as the stakeholders of the environment of reference identify or relate with it. The only values that a designer should bear in mind when creating an aesthetic are, indeed, are the quality of the design to be relatable and appealing to the e-commerce's target visitor and for it to be customised and perceived as unique compared to competitors (Adaji & Vassileva, 2017).

Usability has been extensively studied in the human–computer interaction (HCI) field (Shneiderman et al., 2016). To give a definition, usability refers to "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (International Organization for Standardization, 1998). The reason usability should be among the main goals of an e-commerce website design is the emphasis that the successful and quality interaction between a human and a computer has been proven to have in determining consumers' repurchase intention (Zhou, Lu & Wang 2009)(Lee & Lin, 2005). Usability can be declined to adapt to various aspects of an e-commerce website. As Lee and Kozar (2012) report, usability should be considered in the following dimensions:

- ➢ Effectiveness: it represents the accuracy and completeness with which online users achieve goals (e.g., purchase, information gathering) while visiting a website. For example, when a website has easy to use and clear navigation features, vivid and interactive images, and content with relevant depth and scope, visitors achieve their goals with fewer errors. (Lee & Kozar, 2012)
- ➢ Efficiency: it represents the resources expended in relation to achieving goals while visiting a website. In order to increase efficiency and therefore impact positively the customer experience and the probability of purchase the website's design should reduce cognitive effort as much as possible. (Lee & Kozar, 2012)
- ➢ Satisfaction: it is defined as the comfort and acceptability of a website to its users. When a website provides a variety of options to support the users (e.g. FAQ pages, real-time chats) and reliable, secure, and privacy-guaranteed services, satisfaction can increase. (Lee & Kozar, 2012)

In order for the design of an e-commerce website to be usable the overall result should follow the following principles:

- ➢ Balance: Balance refers to the first impression one gets when accessing a web site in regards to the ensemble of all the elements composing it. "It is the arrangement of the objects in a given design as it relates to their visual weight within a composition" (McGlurg-Genevese, 2005). Balance affects all the elements of a page, text, images and video, typography.
- ➢ Contrast: when landing on a web page, visitors don't necessarily read, but scan it quickly in search of something catching their attention. Most of the time the element used for catching the visitor's attention are images and video, but for those pages that necessarily can't be packed with moving and catchy elements, as they would distract the visitor from the main brand's objective of the sale, the designer should create typographic contrast and flow by emphasising certain text using different fonts as well as different font size and font types, colour, paragraphing, line layout etc. (La, 2007).
- ➢ Structure: Structure refers to the "connection, interaction and interference" (Turner, 1999) of a web page and affects the interface and navigation. The

navigation through a website, usually delivered through a header and a footer menu, should be clear and easy to understand. The menus should be organised through levels: first level menu voices should be links to very broad categories (e.g. man, woman or clothing, shoes, accessories). Moving to second and third level voices the links should bring the visitor to gradually narrower categories (e.g. from woman to clothing and then to t-shirts). Navigation menus should as well not go further than a number of 3/4 levels in order to not have the opposite effect, and become confusing rather than helpful. Other effective elements to help the visitor orientate him/herself through navigation are the breadcrumbs. Breadcrumbs are usually found at the top left area of a page right below the header menu. Their function is to indicate to visitors the pattern that he/she followed in order to arrive at the page that they are currently viewing.

- Dominance: the principle that "determines the visual weight of a composition, establishes space and perspective, and often resolves where the eye goes first when looking at a design" (McGlurg-Genevese, 2005). When designing a page, especially the type of page that because of its objectives' nature is filled with many different types of content, namely, the homepage, the designer should establish a hierarchy among all the elements and organise them in order for them to result as relevant. When designing the dominance of the elements the designer might consider to integrate in the design neuroscience researches made on the way human eye-sight scans a web page. The Nielsen Norman Group, among the world leaders in research-based user experience, has conducted a study on this topic, using eye-tracking devices and analysing the resulting heatmaps. They discovered that people scan web pages and phone screens in various patterns, but the main one being the shape of the letter F (Pernice, 2017). The F-shaped scanning pattern is characterised by many fixations concentrated at the top and the left side of the page, specifically: users first read in a horizontal movement, usually across the upper part of the content area (this initial element forms the F's top bar). Next, users move down the page a bit and then read across in a second horizontal movement that typically covers a shorter

area than the previous movement (this additional element forms the F's lower bar). Finally, users scan the content's left side in a vertical movement. The implications of this pattern are: first lines of text on a page receive more gazes than subsequent lines of text on the same page, as well as first few words on the left of each line of text receive more fixations than subsequent words on the same line (Pernice, 2017).

- Unity: unity refers to the "relationship between individual parts and the whole" (McGlurg-Genevese, 2005). Many web design principles guides explain the importance of not cluttering a web page but rather using the white space to separate and organise the different elements of the page (Friedman, 2008). Effective use of white space helps guide visitor's eyes to the important elements of a web page (Mfundisi Consulting, 2011).
- Consistency: it has already been discussed previously in this thesis how consistency is a crucial element for the overall success of the communication of the brand image. Consistency should be kept throughout the whole brand system, from the communication and marketing strategy, to the sales channels, even down to the very products themselves. The principle of consistency is therefore especially valid and important when it is applied to the design of a single element of the brand system, such as the e-commerce website. Consistency should be kept not only inside each page but also among all the different page types (see. paragraph 2. 5).
- Responsiveness: responsiveness is a relatively newly-introduced concept and principle in web design, arisen in correspondence with the possibility of browsing through the internet from mobile devices. Mobile responsiveness refers to whether a website is optimised to be functional and aesthetically pleasing on devices of different sizes: a responsive website is one with a layout that adjusts to the screen based on the device it's viewed from, and the content on the page automatically changes to fit the difference in screen size. (Growhackscale.com, 2021). The reason mobile responsiveness is so important is easily comprehensible when looking at the percentage of online traffic,

especially the traffic on fashion e-commerce: out of a sample of fourteen fashion e-commerce websites the average percentage of traffic from mobile sources is 71,63% of the total traffic (see Table 15 at the Appendix). The mobile design of an e-commerce should therefore adapt and fit ideally with any mobile screen resolution, and respect the following identified criteria: learnability: an interface should be easy to use from the first time the user interacts with it; efficiency: the number of steps it takes for a user to complete a task should be as optimised as possible; memorability: interface should be easier to use each time the user interacts with it; error recovery: users should not be allowed to make a mistake; simplicity: avoid unnecessary functionality and keep the visual design and layout uncluttered; mapping: users get exactly what they expect to happen when they interact with the interface; visibility: important information should be more visible than less important information; consistency: UI elements should always be displayed and act the same way across the application (Paskevicius & Damasevicius, 2016). Luckily for nowadays ecommerce designers and developers, most e-commerce platforms have already built-in responsiveness softwares that, according to the desktop design, creates a mobile design already adapted and that follows proportions and positions.

The third principle of e-commerce design best practice is trustworthiness. Egger, who examined the theme in over three studies, explains “Whether a web site is an extension of a familiar off-line company, or whether it is the only touch point with an unknown company, consumers must be confident that they have significantly more to gain than to lose when entering a transaction” (Egger, 2001). Eggers go on explaining that consumers trust is one of the main concept of the UX[44] discipline, as it encapsulates the notions of uncertainty, vulnerability and risk, characteristic of transactional relationships, and that its importance in UX derives from its value in commercial relationships. Keeping consumer trust as the final goal of an e-commerce, and analysing the matter from a psychological and marketing point of view, he developed a “model of

[44] User Experience

trust for electronic commerce (MoTEC)" (Egger, 1998). According to the model, a design worth of trust from a visitor responds to the following criteria: knows the target customers and understands their levels of proficiency with IT, the Internet and e-commerce; examines the target customers attitudes towards the industry and towards the company's brand position with respect to its competitors; takes advantage of sources of information trusted by the target customers; takes advantage of familiar brand experiences; creates an interactive brand experience; conveys a professional image; provide easy access (usability); it's customer centric in its structure and learns/anticipates customers' preferences (Egger, 2001).

As a final consideration, when designing a fashion e-commerce, even more than other sectors e-commerce websites, a particular attention has to be put in the design of the item/product page visual content. As previously mentioned, the purchase of a fashion item is a process that, much more than other types of purchase (e.g. makeup, skincare, technology, books, sports gear, etc.) is related to the customer's ego, self perception, self opinion, self tastes, vanity, and other psychological factors rather than functionality, technical characteristics, convenience, performances. Fashion items purchases collocate themselves very close to the concept of hedonic value and far from the utilitarian one, increasingly so when one considers luxury fashion items (De Angelis, 2020). In other words, the purchase of a fashion item is an emotional purchase rather than a rational one (Brownless, 2021). This should not mean that technical details of a clothing item (e.g. fabric composition, place of production, size and fitting, etc.) are not important or should not be displayed, but a special importance should be given to the product images and videos and their quality. There is a proven direct relationship between increasing image importance and increasing emotional value of the purchase, for example for the case of apparel related categories (Di, Sundaresan, Piramuthu & Bhardwaj, 2014). "The picture effect", meant as the positive effect that images have on the purchase intention, gets stronger when images/videos galleries respect these guidelines: have good quality, are shown in an area that corresponds to at least ⅓ of the page view, the product images are at least three (Di et al., , 2014), the item is worn by a human body (Bagatini, Rech & Wagner, 2019). Ideally a clothing item picture gallery should contain: a still life (photo

of the item hanging or laying on a surface), a worn front view, a worn back view, a detailed picture in which the fabric/colour/pattern can be seen more easily than from the other pictures. The lack of the adequate space, quality or quantity of the product images/videos could lead to an abandonment of the purchase by the customer, or even worse, to the activation of a return procedure.

To sum up the literature review done in the second chapter of the thesis before the introduction to the research, a table featuring the most representative scientific articles is proposed below.

Table 1. Significative articles for the study of E-commerce studies

Authors	Title	Sample size	Industry	Research Objectives	Conclusions
Hewei, T., Youngsook, L.	Factors Affecting Continuous Purchase Intention of Fashion Products on Social E-commerce: SOR Model and the Mediating Effect	850 respondents, 776 valid questionnaires	Fashion products	The paper proposes a study on the impact of social e-commerce fashion products on continuous purchase intention, and explores the relationship between social media interactivity, perceived value, immersion experience and continuous purchase intention.	Findings show how purchase intention is increased by the enhancing positive effect of social media interactions on the immersive experience (especially in women) and perceived product value (especially in men).
Jingjing L., Ahmed A., Amar C., Linda B. A.	Path to Purpose? How Online Customer Journeys Differ for Hedonic Versus Utilitarian Purchases	data from 40 online retailers	20 hedonic and utilitarian product categories	The study aims to investigate which and how online channels are used by customers throughout the purchase journey of hedonic versus utilitarian products	The usage of all the considered channels (search, social, reviews, product page, competitor product page, deals websites) increases towards the end of purchase journey, with the most important one being the product page
Sun J. J., Bellezza S., Paharia N.	Buy Less, Buy Luxury: Understanding and Overcoming Product Durability Neglect for Sustainable Consumption	Data from over 4,600 new and secondhand shoes and handbags scraped from online stores		The article carries on 6 different studies all aiming to produce relevant evidences and strategies for marketers of luxury fashion brands to enhance and make sustainability marketing relevant	All of the six studies provide empirical demonstrations that luxury goods are more sustainable than low-end products
Xu, Z.,	Potential buyer	2492 users	Honda Civic	The paper aims to	Users generating

Dang, Y., Wang, Q.	identification and purchase likelihood quantification by mining user-generated content on social media		market in China	investigate the effect of user generated content (UGC) on purchase intention	brand-related content are more likely to be buyers of the brand and to prefer the brand over its competitors
Zhang, M., Zhang, J., Cheng, T. C. E., Hua, G.	Why and how do brands sell new products on flash sale platforms?	-	Flash sales platforms in China	The paper studies the effect of flash sales on the launch of a new product in terms of WOM and price discrimination	Conditions under which a merchant should choose to sell a new product in FS before normal sales vary in respect of the FS platform, product characteristics, desired type of WOM effect
Grewal, L., Stephen, A.T.,	In Mobile We Trust: The Effects of Mobile Versus Nonmobile Reviews on Consumer Purchase Intentions	Data publicly available on TripAdvisor.com from February 2012 to September 2015	Hotels and restaurants	The article addresses the correlation between user generated content and word of mouth when the information are being shared through mobile devices	Mobile devices create biases in the generation and fruition of UGC because of the perceived physical effort required to produce it. Because of these biases, reviews written from a mobile device are considered more credible than others by readers
Zollo, L., Filieri, R., Rialti, R., Yoon, S.	Unpacking the relationship between social media marketing and brand equity: The mediating role of consumers' benefits and experience	326 followers of luxury fashion brands on social media	Luxury Fashion	The paper investigates the benefits that millennials consumers derive from the participation in social media brand communities as well as the benefit that this participation brings to the brands in terms of customer-based brand equity	The analysis focuses on millenials and assesses the existence of a mediating effect between SMM and CBBE represented by the characteristics of the brand experience. The correlation seems to be positive only when digital consumers' experience with the brand's SMM brings cognitive, social and personal benefits.
Kim, H., Xu, Y., Gupta, S.	Which is more important in Internet shopping, perceived price or trust?	513 responses, 161 potential customers and 352 repeat customers	Online books store	The paper examines the relative influence of perceived price and perceived trust on purchase intention	The analysis considers both potential customers and returning customers. Findings show how perceived trust influences positively purchase intention more strongly than perceived price. However, perceive price increments its importance when considering returning customer while perceived trust is even strongly related to purchase

					intention for potential customers
Jung, J., Kim, S.J., Kim, K.H.	Sustainable marketing activities of traditional fashion market and brand loyalty	272 questionnaires targeting consumers of traditional fashion markets	Traditional fashion markets	The paper studies the effect of traditional fashion market's sustainable activities on the brands' performance	The study demonstrates a positive correlation between CSR activities and brand image, customer satisfaction and customer loyalty, with the only exclusion of environmental ones. Furthermore, all these elements are found to participate in the formation of a consistent brand attitude
Soman, D.	The Effect of Payment Transparency on Consumption: Quasi-Experiments from the Field	Empirical experiments were carried out on different fields. First study: 24 participants Second study: 232 respondents Third study: 275 receipts	University research assistant (first study) Laundry services (second study) Grocery supermarkets (third study)	The paper studies the effect of the degree of transparency of different payment mechanisms on the pain of paying, consumption and spending behaviour	All three experiments showed a strong influence exerted by the payment mechanism on the level of consumption.
Galizia, F. G., ElMaraghy, H., Bortolini, M., Mora, C.	Product platforms design, selection and customisation in high-variety manufacturing	Case study of a large family consumption habits	Plastic Valves	The paper investigates whether the choice and design of the product platform used by manufacturers has an impact on their capacity to cope with the dynamic market demand represented by the customised products market	The research establishes that significant production and inventory efficiencies and cost savings can be obtained by the reduction of platforms variety of 60% while simultaneously increasing platforms' customisation tasks by 20%.
Wang, Y., Wu, J., Lin, L., Shafiee, S.	An Online Community-based Dynamic Customisation Model: The Trade-off Between Customer Satisfaction and Enterprise Profit	-	Online community-based customisation in menswear	The focus of the paper is to propose a mathematical online community-based dynamic customisation model, explain its practical mechanism and solve its dynamic trade-off challenge, represented by customer satisfaction and enterprise profit	Starting from a fixed level of offered customisation scenario, the best result in terms of optimisation of the trade-off is reached when the customisation is performed through subtractive customisation, which is a production system that reduces waste material
Yang, Y.,	Identifying Market	Facebook	Facebook	The paper focus on the	The results of the analysis

Zhang, K., Kannan, P.K.	Structure: A Deep Network Representation Learning of Social Engagement	public fan About Socialbakers, such as Brands, Celebrities, Community, Entertainment, Media, Place, Society, and Sport + Case studies: Amazon and Tesla	public fan pages of various brands in different industries (see sample)	analysis on user to brand links in social media platforms in order to assess latent relationships among different brands in order to assess potentially overlapping product-market boundaries, through the construction of a deep network representation learning algorithm	conducted by the paper show that mapping markets structure through social media engagement can bring to light unknown connections and overlaps among different brands of the same industry, especially after big events or announcements. This is particularly useful, according to the authors, when assessing the positioning of the brand compared to its competitors over time
Tang, T., Fang, E., Wang, F.	Is Neutral Really Neutral? The Effects of Neutral User-Generated Content on Product Sales	Text-based UGC: First study - Facebook and YouTube Second study: numerical movie ratings from Yahoo Movies	First study: automobile industry Second study: movies	The article aims to specify the performance implications of user-generated content (UGC) by differentiating it in mixed-neutral UGC, containing an equal amount of positive and negative claims, from indifferent-neutral UGC, including neither positive nor negative claims.	The results show that the two types of UGC, despite not seeming to be connected either with a strong nor negative impact on sales performance, they still exert a general positive effect on them thanks to their informative effects.
Xu, Z., Dang, Y., Wang, Q.	Potential buyer identification and purchase likelihood quantification by mining user-generated content on social media	10,229 users in the Honda Civic community	Automobile (Honda) in China	The identification of potential buyers is conducted by the usage of a weighted adaptation of the traditional Recency, Focus, and Sentiment (WRFS) model on UGC.	The results of the analysis indicate the weight of “Focus” to purchase likelihood being the highest, followed by the weight of “Recency.” The weight of “Sentiment” is the one having the littlest impact on purchase likelihood.
Masuda, H., Spring, H. H., Jungwoo, L.	Impacts of influencer attributes on purchase intentions in social media influencer marketing: Mediating roles of characterizations	313 online questionnaires	Youtubers in South Korea	The paper studies the impacts of two types of variables, which are influencer attributes and perceived characterisation, on purchase intention	The results show that purchase intention induced by an influencer via video advertising is influenced by trustworthiness, perceived expertise, and PSR (parasocial relationships). In addition, PSR was influenced by homophily attitude, physical attractiveness, and social attractiveness.

Mittal, B., Lee, M.	A causal model of consumer involvement	144 surveys from both students and non-students	Jeans and video recorders	The paper investigates two types of involvement, product involvement and brand-decision involvement, by considering consumer goals and consumer behaviours	Both for jeans and video recorders product involvement was significantly more connected to interest in advertising, shopping enjoyment and product usage. Brand involvement
Pal, A., Herath, T., De', R., Raghav Rao, H.	Why do people use mobile payment technologies and why would they continue? An examination and implications from India	551 surveys	-	Considering users' perceptions of both positive and negative attributes of the technology, the paper utilises technology affordances and constraints theory (TACT) in order to investigate factors impacting actual usage and future use intention	Results found that: Information access is significant for both actual and future usage; same holds for perceived security. Convenience does not impact actual usage, but it does for future usage; the same holds for reflection opportunity. Design constraints and lack of support have negative impact on both actual usage and future intention
Dodds, W. B., Monroe, K., Grewal, D.	Effects of Price, Brand, and Store Information on Buyers' Product Evaluations	585 undergraduate students enrolled in marketing courses	Calculators and stereo headset player	The effects of price, brand, and store information are studied in order to assess their impacts on buyers' willingness to buy, as well as their perceptions of product quality and value	Price is positively correlated to perceived quality for both products, especially in absence of brand information. Price however is negatively correlated with perceived value (which is the trade off between perceived quality and sacrifice) indicating that the sacrifice has a stronger power of quality in determining the customer's willingness to buy
Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., Schlesinger, L. A.	Customer Experience Creation: Determinants, Dynamics and Management Strategies	-	Variety of consumption goods retailers	The paper is a comprehensive overview of the existing literature on customer experience	Through the examination of the existing literature the paper proposes a conceptual model for the study of the determinants of customer experience which includes: social environment, service interface, retail atmosphere, assortment, price, alternative channels, retail brand, as well as situation and customer moderators
Lemon, K.	Understanding	-	-	In the article the authors	Customer experience

N., Verhoef, P. C.	Customer Experience Throughout the Customer Journey			aim to develop a stronger understanding of customer experience and the customer journey. To achieve this goal, they examine existing definitions and conceptualizations of customer experience as a construct and they identify critical areas for future research	relates to the following concepts: customer buying behaviour process models, customer satisfaction and loyalty, service quality, relationship marketing, customer relationship management (CRM), customer centricity and customer focus, customer engagement.
Lee, Y., Kozar, K.	Understanding of Website Usability: Specifying and Measuring Constructs and Their Relationships	Study 1: 689 online and offline surveys Study 2: 82 students of a website usability class Study 3: 711 online questionnaires	Study 1: Amazon.com Study 2: - Study 3: Amazon.com	According to the paper, a usable website is pivotal for e-business success, therefore, the study first investigates the common dimensions of website usability and then conductes three field studies	The study assesses the positive correlation of the following dimensions of a website's usability with purchase intention: telepresence, navigability, interactivity, learnability, readability, content relevance and credibility
Chang, H., Yang, T.	Consumer rights or unethical behaviors: Exploring the impacts of retailer return policies	712 questionnaires	Apparel and accessories	The paper analyses the impact of liberal versus rigorous return policy on purchase intention using a moral decision-making model	The paper finds that a more restrictive return policy is likely to reduce fraudulent returns
Song, M., Xing, X., Duan, Y., Cohen, J., Mou, J.	Will artificial intelligence replace human customer service? The impact of communication quality and privacy risks on adoption intention	60 participants	Apparel products	Perceived differences in communication quality and privacy risks are examined in their impact on consumers' adoption intention	The main findings are: different types of service agents affect consumers' adoption intention perceived communication; quality and privacy risk mediate the effect of service agent type on adoption intention; the effects of service agent type on perceived accuracy, communicative competence, and privacy risk are moderated by the need for human interaction
Yang, S., Carlson, J. R., Chen, S.	How augmented reality affects advertising effectiveness: The mediating effects of curiosity and attention toward the ad	432 completed surveys	-	The paper studies how, why, and when augmented reality influences advertising effectiveness, measuring purchase intention and attitude towards the ad	The experiments carried out by the research finds that AR is effective in increasing attitude towards the ad is mediated by curiosity, which is higher when the ad in unfamiliar to the customer

III. Fashion e-commerce success factors

3. 1 Introduction to the research objectives

As discussed in the previous chapters, e-commerce has been growing at an impressive pace during the last two decades, with almost every market benefiting in its growth, and the fashion industry being one of the main recipients of this positive push.

When designing and building an e-commerce a brand should take into consideration a very high number of elements, starting from the very choice between choosing a platform for it to be hosted on, rather than building it from scratch with a custom solution. When the choice goes for a platform, a much wider set of choices unveils itself, with several e-commerce platforms available these days, each one offering different - or not so different - features and costs to browse through. Once the platform is chosen, the proper design process of the e-commerce starts. Elements to be taken into consideration in the design process are not only the target customers, the brand image, identity, and desired outcome, but also more technical ones such as catalogue extension and characteristics, type of product/services being sold, types of content to be incorporated in the website, countries served by the website and consequently languages that the website must be translated into.

Ultimately, the design process of an e-commerce website can be traced down to two main areas: the area that focuses on the structure and technical characteristics of the website itself, those that should aim at building the best possible website for the customer in terms of easy of use, trustworthiness, perceived quality and feel of comfort; to sum it all up, all those measures that should bring the customer to conclude the transaction and keep him/her satisfied with it in the easiest and seamlessly way possible.

The other area is the one that focuses on the involvement of the customer with the website on an emotional level, throughout efforts and initiatives of communication innovation. These types of efforts and initiatives may vary through time, just as communication and marketing practises do, according to the overall state of the technology, the current focus of public opinion, the evolving needs of masses, the ever changing landscape of means of communication and social dynamics. The changing nature of these efforts is the reason behind the fact that they're often labelled as “e-commerce trends” or “trend strategies of e-commerce”. Their changing nature however does not change the main objective that is behind them, which is bringing traffic to the website and emotionally involving the customers with the website and their purchases.

While both e-commerce designing processes and trends change and evolve throughout time, it is clear as they are differentiated in types of activities and objectives. Current literature has - extensively for some of the discussed themes, less extensively for others - studied how all of the elements of both areas have a positive correlation with purchase intention. This thesis aims at studying all these elements from a new perspective, framing them in the as well extensively studied contrast between product quality and product marketing. The debate on whether the greater role in selling a product has to be attributed to the quality of the product or the product marketing has been going on since ever, and the answer to this question is different for each examined situation, according to sector, product category, product positioning, price point, and many more variables. In the proposed research frameworks the product is represented by the website itself, and the research model tries to assess whether in regard of fashion items purchases the biggest role in determining the purchase intention in customers is played by the efforts in terms of quality of the website - intended as previously summarised as the easy of transaction that the website delivers - or by the marketing and communication efforts carried out for and around the product, aka the website. The research also introduced the presence of a moderator effect, which is the involvement with the product category. In this case the product is intended as the one sold in the e-commerce and not the e-commerce website itself. Therefore the product category is fashion items, and the

moderator effect is the involvement that the customer has with his/hers own fashion items purchases, regardless of the channel used for the purchase.

The research was carried out by the somministration online of a survey composed of multiple answers questions and the evaluation through different measurement scales of the positive - or negative - correlation among all the measured variables and the purchase intention.

Table 2. Scientific articles analysing the correlation between the sale channel characteristics and purchase intention

Reference	Sector analysed	Type of research	Data collection	Purchase intention/ likelihood	Considered variables types		Involvement with the product category
					Marketing variables	Ease of transaction	
Hewei, T., Youngsook, L., 2022	Fashion products	Quantitative	Surveys	✓	✓	✗	✗
Jalali, H., Van den Broeke, M., Van Nieuwenhuyse, I., 2022	Case study: global technology company	Quantitative	No	✓	✓	✗	✗
Kim, A.J., Ko, E., 2012	Luxury fashion brands	Quantitative	Surveys	✓	✓	✗	✗
Kim, H., Xu, Y., Gupta, S., 2012	Online bookstore	Quantitative	Surveys	✓	✓	✗	✗
Xu, Z., Dang, Y., Wang, Q.	Automobile	Quantitative	UGC in automobile forums	✓	✓	✗	✓
Masuda, H., Spring, H. H., Jungwoo, L.	Social Media Influencers	Quantitative	Surveys	✓	✓	✓	✗
Mittal, B., Lee, M.	Jeans and video	Quantitative	Surveys	✗	✓	✓	✓

	recorders						
Pal, A., Herath, T., De', R., Raghav Rao, H.	Mobile payments	Quantitative	Surveys	✓	✗	✓	✗
Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., Schlesinger, L. A.	Consumers' good retailers	Literature review	-	✗	✓	✓	✗
Lee, Y., Kozar, K.	Amazon.com	Quantitative	Surveys	✓	✗	✓	✗

3. 2 Research method, theoric model and hypothesis

In order to analyse the correlation between e-commerce websites structural and marketing elements and the formation of purchase intention, each one of the discussed topics was identified with a marketing scale. Purchase intention and involvement with the product category were identified as scales as well. Marketing scales used in this research were taken from both existing literature and the Marketing Scales Handbook, volume 5 (Bruner, 2009). Some of the scales were taken without changes and others were adapted and fine-tuned according to the research context. All the references for each scale are listed in the following table. All scales were measured using a 7-point Likert scale.

Table 3. Marketing scales used to measure the model's variables

Measures	Items	Sources
Attitude towards the website: content interactivity	1) The website shows me the merchandise from different angles 2) The website has a search tool that enables me to locate products 3) The website has a tool that makes product comparison easy 4) The website is very engaging 5) The website is very dynamic	(Srinivasan, S.S., Anderson, R., Ponnavolu, K., 2002)
Attitude towards the website: service and post-purchase activities (adapted)	1) The company is willing and ready to respond to customer needs 2) When you have a problem, the website shows a sincere interest in solving it 3) Inquiries are answered promptly 4) The website takes care of product exchange and returns promptly 5) Any after-purchase problems I experience are quickly resolved 6) It is easy to take care of returns and exchanges on the website	(Wolfinbarger, M, Gilly, M.C., 2003) (Seiders et al., 2005)
Attitude towards the website: attractiveness	1) The website design is attractive to me 2) For me, shopping through the website is fun 3) The website does feels inviting to me 4) I feel comfortable shopping through the website 5) The website looks appealing to me	(Srinivasan, S.S., Anderson, R., Ponnavolu, K., 2002)
Attitude towards the website: customization	1) The website makes purchase recommendations that match my needs. 2) The website enables me to order products that are tailor-made for me. 3) The advertisements and promotions that the website sends to me are tailored to my situation. 4) The website makes me feel that I am a unique customer. 5) I believe that the website is customized to my needs.	(Srinivasan, S.S., Anderson, R., Ponnavolu, K., 2002)
Social Media Marketing efforts	*Entertainment* 1) Using X brand's social media is	(Kim, A.J., Ko, E., 2012) (Godey et al., 2016) (Hollebeek et al., 2014)

	fun. 2) Content of X brand's social media seems interesting. *Interaction* 3) X brand's social media enable information-sharing with others. 4) Conversation or opinion exchange with others is possible through X brand's social media. 5) It is easy to provide my opinion through X brand's social media. *Trendiness* 6) Content of X brand's social media is the newest information. 7) Using X brand's social media is very trendy. *Customization* 8) X brand's social media offer a customized information search. 9) brand's social media provide customized service. *Word of mouth* 10) I would like to pass information on brand, product, or services from X brand's social media to my friends. 11) I would like to upload content from X brand's social media on my blog or micro blog.	
Attitude towards flash sales (renamed from original)	1) The probability that I would consider buying the product from a time-limited promotion is high. 2) If I were to buy the product, I would consider buying it from a time-limited promotion. 3) The likelihood of my purchasing a product from a time-limited promotion is high. 4) My willingness to buy products from a time-limited promotion is high.	(Peng, L., Zhang, W., Wang, X., Liang, S., 2019) (Kim, H., Xu, Y, Gupta, S, 2012) (Dodds, W.B., Monroe, K.B., Grewal, D., 1991)
Sustainable marketing activities	*Environmental*	(Jung, J., Kim, S.J., Kim, K.H., 2020)

	1) Environmentally friendly materials used 2) Consider the environment throughout the design process 3) Prevent environmental pollution during production and distribution process *Social* 1) Support activities for the community 2) Return some of the profits to society 3) Part of the profit is devoted to donation	
Innovativeness Awareness—Luxury Clothing Innovativeness (adapted)	1) I know more about new fashions before other people do 2) If I heard that an innovative luxury outfit was available through an online store, I would be interested enough to buy it. 3) I will consider buying an innovative luxury fashion item, even if I have not heard of it yet.	(Puiu et al., 2021) (Mittal, B., Lee, M., 1989)
Future usage intentions – delayed payment options (adapted)	I use delayed payment options because: 1) They allow me to make purchases I otherwise couldn't afford 2) They makes me feel less committed to the purchase 3) They make me feel like I can try/see the product before actually buying it	(Pal, A., Herath, T., De, R., Raghav Rao, H., 2021)
Involvement with the product category (adapted)	1) My fashion purchase are part of my self image 2) Fashion items are boring to me 3) Fashion items portray an image of me to others 4) Fashion items are fun to me 5) Fashion items are fascinating to me 6) Fashion items are important to me 7) Fashion items are exciting to me 8) Fashion items tell others about me	(Coulter, R. A., Price, L. L., Feick, L., 2003) (Higie, R. A., Feick, L. F., 1989) (Zaichkowsky, J. L., 1994)
Purchase intention (adapted)	1) I am likely to make fashion purchases through e-commerce websites	(Stafford, M.R., Stafford, T.F., Day, E., 2002) (Okechuku, C., Wang, G., 1988)

	2) I would buy a fashion item online rather than in a physical store 3) I actively search for fashion items to buy online	(Baker, M.J., Churchill, G.A., 1977)

The scales were then inserted in the following theoric model tracing the correlation among them and forming the model hypothesis:

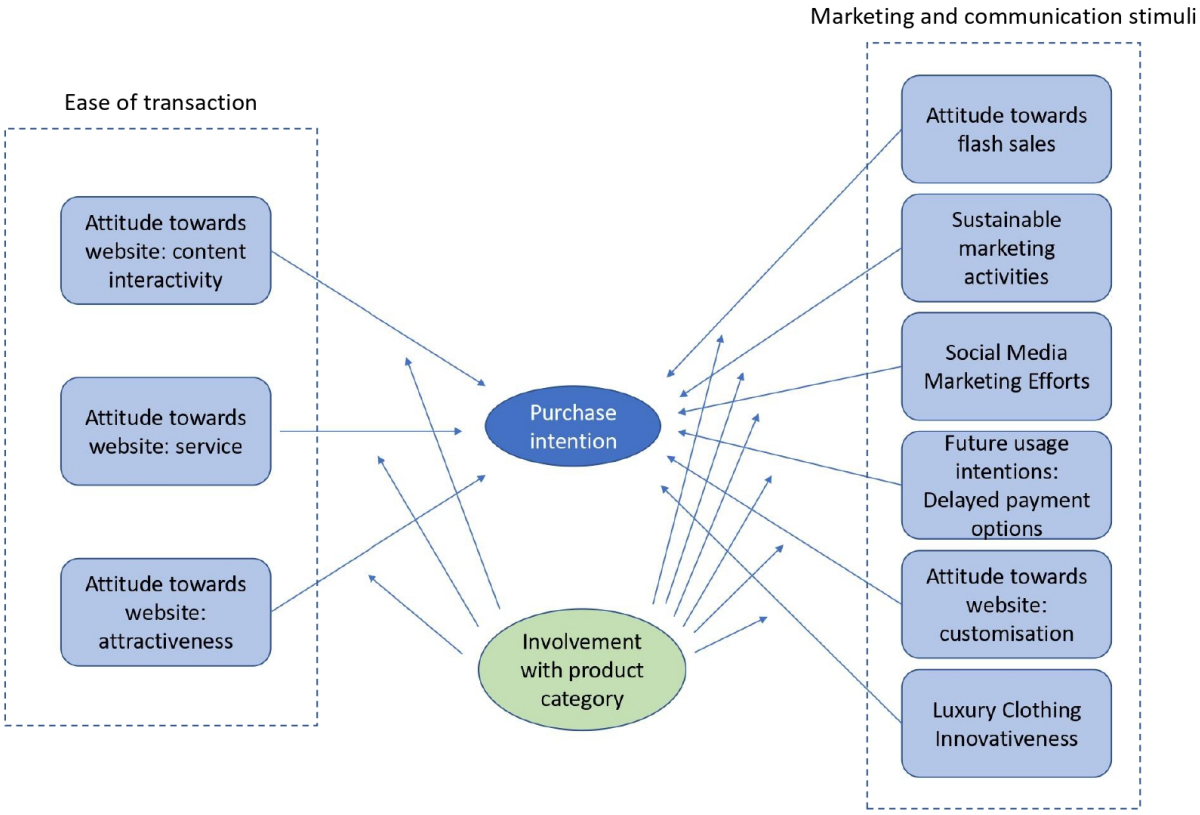

Figure 3. Conceptual proposed model

Attitude towards the website: content interactivity

The scale is composed of five, seven-point Likert type statements intended to assess a person's attitude regarding the degree to which a website has a "dynamic nature" enabling customers to search for, view, and compare products. The scale was developed by Srinivasan, Anderson, and Ponnavolu (2002) in their study "Customer Loyalty in

E-commerce: An Exploration of its Antecedents and Consequences" as part of a larger set of scales called the 8Cs. The scales were created following a research carried out with in-depth interviews that identified eight factors that seemed to influence e-loyalty. Content interactivity is here chosen as the scale that measures the extent to which the user gives importance to the elements designing the customer experience of an e-commerce website. Customer experience, as previously discussed in the second chapter of the thesis, is built throughout the purchase journey in various phases and with the usage of different touchpoints, and has as its final objective the creation in the customer of a feeling of satisfaction. Consistent patterns of satisfaction have been observed to produce not only purchase intention, but customer loyalty as well. Here the research investigates customer experience exclusively for the last touchpoint of it, which is the website. The hypothesis is therefore the following:

H1. *The development of a strategy of customer experience throughout the customer journey inside an e-commerce website influences positively the formation of purchase intention in the website visitors*

Attitude towards the website: service and post-purchase activities (adapted)

The scale used to measure the importance of customer service is the result of the combination of two scales, originally named "Attitude towards the website: service" and "Shopping convenience: post-purchase activities". The first scale was developed in the same study that the scale used in H1 was, a study specifically searching for factors influencing e-loyalty. The second scale was developed by Seiders et al. (2005) along with four other measures of convenience as it has to do with shopping. Their study focused on shopping at a specialty retailer but they reported that the items would be amenable for use with other types of retailers, including online vendors. The reason that this research combines these two scales is that they each measure two distinct moments of customer service, the first regarding the importance given to the service while still being in the purchase journey, the second the importance given to the service afterwards

the purchase, with a special on returns and exchanges offered service. As discussed in the dedicated paragraph, for e-commerce and especially fashion e-commerce, both these aspects, dealing with different phases of the purchase journey, have a great impact in determining first the progress of the user through the conversion funnel, bringing him/her towards the end of it and finalising the purchase, and second reduce possible dissatisfaction with the purchased item itself and the brand's e-commerce in general. Reduction of the possible dissatisfaction is crucial for the formation of purchasing intention in future interaction between the user and the brand. Therefore, the following hypothesis is proposed:

H2. *When using social e-commerce platforms to buy fashion products, the quality of the delivered customer service both during the purchase and after the purchase is positively correlated to purchase intention in the user.*

Attitude towards the website: attractiveness

This scale has been developed as well by the study of Srinivasan, Anderson, and Ponnavolu (2002). The scale investigates the user's content with the website graphic appearance, and it's therefore used in this research to assess respondents' attitude and given importance towards the graphic design components of an e-commerce website. Two items of the scale that were originally intended to be analysed as reversed, have been turned into not reversed items due to the impossibility of the application of reversed items to a non-specified website.

As previously stated, according to literature a website design should mainly have three objectives: the creation of an aesthetic identity, it should be accessible and easily usable by any user (Majid, Kamaruddin & Mansor, 2015), and it should communicate trustworthiness (Egger, 2000). The creation of a pleasing appearance has been observed as one of the elements facilitating the probability that a user would buy a product through online channels, especially for fashion items, by creating a connection between the user's personal aesthetic and the website one (Zhou, Suleiman, & Yaqub,

2021)(David et al., 2021). On the other hand, usability and trustworthiness are two elements facilitating the ease of transaction that the user experiences while in his/hers final phase of the purchase journey (Zhou et al., 2009)(Lee & Lin, 2005).
For these reasons, the following hypothesis is proposed:

H3. *The design of an e-commerce website that considers in its development appealing visual appearance, usability and trustworthiness has a positive impact on the formation of purchase intention*

Attitude towards the website: customization

The concept of customization of a website refers to various aspects: the offers of customised products, the offer for customised recommendations, the extent to which the website builds a personalised customer journey. Personalization is currently one of the main trends not only in e-commerce strategies but more broadly one of the main topics marketers are giving more and more attention to. Personalised customer journeys are built by marketers in nearly every retail sector, from food delivery to car retailers, from the cosmetics industry to grocery store chains, marketers are growingly focusing on making their customers feel like they are unique to their businesses.
The scale used to measure the importance given by users to an e-commerce website customization was developed by Srinivasan, Anderson, and Ponnavolu (2002).
Since customization is currently one of the most cited trends among those that are shaping the new face of fashion e-commerce, this thesis tries to assess the actual impact of a website offer for customization in determining purchase intention in its visitor. The proposed hypothesis is the following:

H4. *The offer for a customised customer journey, through tailored-made product, personalised recommendations and personalised offers/communication has a positive correlation with the formation of purchase intention in an e-commerce website visitors.*

Social Media Marketing activities

Social media marketing is nowadays no stranger to any fashion and luxury brand, with the brands being socially active on numerous social media platforms such as Instagram, Twitter, Facebook, Tik Tok, and others. This scale was taken by Kim and Ko (2012) who developed the scale by gathering twenty-five items for measuring perceived SMM activities from previous studies on luxury brand's social media marketing, attributes of two-way communication media, influence of mobile advertising, and characteristics of mobile fashion shopping related research. The scale proposed by Kim and Ko is a synthesis of these previous studies and it's composed of eleven items divided into five dimensions of SMM: entertainment, interaction, trendiness, customization and word of mouth. According to their research, SMM activities of luxury brands should include introducing a brand's products, services, and a brand itself in a sincere manner and providing a variety of services to consumers who engage in social media activities as means of marketing communications. Literature has linked this engagement between consumers and a fashion brand social media activities to continuous purchase intention (Hewei & Youngsook, 2021). Therefore the thesis states that:

H5. *Social Media Marketing has a positive correlation with purchase intention for brands operating in the fashion industry*

Attitude towards flash sales

This scale was taken from Peng et al. (2019), and renamed from its original name "Purchase intention in flash sales". The scale was developed in a study assessing the effect of time pressure on perceived product value and purchase intention in online sales. The scale was particularly fitting as the research also considered involvement with the product.

Although possibly having a negative effect on perceived value (Kim, Xu & Gupta, 2012), flash sales have risen significantly in popularity in the last decade, with even high-end fashion brands being present on sale dedicated apps, websites and multi markets, and many fashion names, from low-end to medium price point one having dedicated "outlet" areas or websites in which they sell products from old collections for a discounted price (see. Mango and Sandro Paris). Flash sales are from time to time used for the opposite intent, being the sale of limited numbered pieces or the launch of new products. In both cases, they represent one effective way with which brands leverage purchase intention in their customers. Therefore:

H6. *The usage of flash sales or raffles, either with the intent of launching a new/limited product or of clearing out stock from past collections, is linked positively with the formation of purchase intention*

Sustainable marketing activities – environmental and social

This scale was taken from Jung, Kim and Kim (2020) in a study examining the sustainable marketing activities of fashion brands and their effect on brand loyalty. The scale is made of six items divided into two areas of sustainable marketing: environmental and social. As discussed in the dedicated paragraph, both these two tematics of sustainable production have gained more and more attention from the public opinion and the brands' marketing departments. Sustainability is currently the main focus of marketing departments of the fashion industry, being this industry one of the most impacted by the accusations of unaccountability when it came to their environmental and social impact. Fashion brands, from high-end to low-end ones, from the biggest names of the industry to small businesses, have turned their production and marketing strategies to adapt to this commitment. This study investigates whether sustainability commitment from fashion brands has a positive correlation with the purchase intention manifested by their customers:

H7. *When a fashion brand is committed environmentally and socially to be sustainable and communicates this commitment through marketing activities, consumers' purchase intention is enhanced*

Innovativeness Awareness - Luxury Clothing Innovativeness

Technological innovations in the fashion industry have flourished in recent years, with fashion brands investing in online tries-on, online fitting, 3D, virtual reality, contamination with the gaming industry, and NFTs. These investments on the products are in this study considered as a marketing activity since the size of them hasn't reached the proper point in order to be considered as investments for the product itself, rather investments on the brand's image and perception of their target customers. According to Kim and Ko, technology development benefits the world of fashion by attracting customers to interact with the brands (Kim & Ko, 2012).

Therefore, a scale used to measure the attitude of customers towards technological innovations in fashion, taken from Puiu et al. (2021), which developed it in a study assessing, among other factors, the effect of status consumption on luxury fashion innovations, and the following hypothesis is proposed:

H8. *The incorporation of elements of technological innovation in fashion items and fashion e-commerce website has the effect of attracting new interest towards the items sold by the brand, therefore enhancing the formation of purchase intention*

Future usage intentions - delayed payment options

Delayed payments options are a marketing technique used by firms and companies in any sector since way before the spread of e-commerce. Literature has extensively studied the effect of the payments on the human brain, connecting it to the centre of pain. Indeed, Zellermayer coined the term "pain of paying" to refer to the emotion that

consumers experience in parting with their money (Zellermayer, 1996). Literature has also studied as the payment method and modalities can attenuate this pain, with credit card proven to reduce it and increasing the propensity to spend and willingness to pay (Ma, Wang, He, Tan, & Zhang, 2021)(Prelec & Simester, 2001)(Banker, Dunfield, Huang & Prelec, 2021), as well as mobile payment methods (Ma et al., 2021). According to the study by Soman (2003) the degree to which a payment method is able to diminish the negative impact of payments on the human brain is directly connected to the transparency and the salience of it (Soman, 2003). The less the customer has to invest time and effort in the payment action, the smaller is the transparency, and bigger the relief of the pain. Digital payments are all classified in this research as having the lowest transparency compared to traditional payment methods (cash, check, credit card, debit card). As already mentioned, credit has been extensively studied to both increase the WTP and the basket value (Liu & Dewitte, 2021). Digital delayed payment methods not only leverage low levels of transparency, but the credit element too. Taken these assertions into consideration, the following hypothesis is made:

H9. *The usage of online delayed payment methods has a positive effect towards purchase intention*

Involvement with the product category

The concept of involvement has its roots in the field of psychology. Mittal and Lee (1989) examined the various definitions and nuances of meaning given to it, and finally described it as "the perceived value of a goal-object that manifests as interest in that goal-object. The goal-object can be a product itself (as in product involvement). [...] Product involvement is the interest a customer finds in a product class. Such interest stems from the customer's perception that the product class meets important values and goals" (Mittal & Lee, 1989). Product category involvement is used in this research as the moderator effect influencing the correlation between ease of transaction and

marketing stimuli with purchase intention. More in detail, as literature states that growing involvement is connected to greater importance towards inner values and goals of the customer, and we presume that inner values and goals are less sensitive to external influences, the researcher hypothesised that higher levels of product category involvement diminish the relative importance of external marketing stimuli in favour of elements of the ease of transaction. Therefore, on the contrary, external marketing stimuli have a greater impact in determining the formation of purchase intention when the customer has little involvement with the product category, since the connection with inner goals and values is smaller. These assumptions are coherent with existing literature about product involvement and its relative effect on perceived trust and perceived price (which can be considered as the result of marketing stimuli) (Kim, Xu & Gupta, 2012).

The scale used to assess product category involvement was taken and adapted from Coulter, Price, and Feick (2003). The items of the scale not only measure a consumer's interest in a product category, but also a facet of self-concept in that the consumer believes decisions regarding the product category express something about one's self and others, which is particularly fitting for fashion purchases, as they are inevitably part of a person image to others (Coulter, Price & Feick, 2003).

The general hypothesis regarding IPC as moderator variable would be: involvement with the product category, when considered towards fashion purchases, likely influences positively the correlation between the elements contributing to enhance the ease of transaction and the formation of purchase intention, while likely influences negatively the correlation between marketing and communication stimuli and the formation of purchase intention. Therefore, the following hypothesis are formulated:

H10.1. *Involvement with the product category, when considered towards fashion purchases, likely influences positively the correlation between the attitude towards the website's content interactivity and the formation of purchase intention*

H10.2. *Involvement with the product category, when considered towards fashion purchases, likely influences positively the correlation between the attitude towards the website's attractiveness and the formation of purchase intention*

H10.3. *Involvement with the product category, when considered towards fashion purchases, likely influences positively the correlation between the attitude towards the website's customer service and the formation of purchase intention*

H11.1 *Involvement with the product category, when considered towards fashion purchases, likely influences negatively the correlation between the website offer for customization and the formation of purchase intention*

H11.2 *Involvement with the product category, when considered towards fashion purchases, likely influences negatively the correlation between the brand's social media marketing activities and the formation of purchase intention*

H11.3 *Involvement with the product category, when considered towards fashion purchases, likely influences negatively the correlation between the attitude towards flash sales and the formation of purchase intention*

H11.4 *Involvement with the product category, when considered towards fashion purchases, likely influences negatively the correlation between the brand's sustainable marketing activities and the formation of purchase intention*

H11.5 *Involvement with the product category, when considered towards fashion purchases, likely influences negatively the correlation between the innovativeness awareness and the formation of purchase intention*

H11.6 *Involvement with the product category, when considered towards fashion purchases, likely influences negatively the correlation between the usage intention for delayed payment options and the formation of purchase intention*

Purchase intention

The scale used for measuring the purchase intention was adapted from Baker and Churchill (1977) who developed it within the study of the cognitive, affective, and conative response of the public in respect of their evaluation of an ad. The scale has then been adapted and used in many other studies, reporting especial high values in regard of the scale reliability - Kilbourne (1986), Kilbourne, Painton and Ridley (1985), Neese and Taylor (1994), Perrien, Dussart, and Paul (1985), Stafford (1998), and Stafford, Stafford, and Day (2002), respectively. The scale originally is formed by four items, one of which has been removed in this research since it refers to the dimension of recommendation, which is considered not relevant for the studied relationships.

3. 3 Collection of data

The questionnaire was created using Qualtrics, a professional Experience Management platform, and was administered online via anonymous links in the period between January 17th and February 1st, 2022. The questionnaire, apart from the previously described scales, contained minimal demographic questions (gender, age range and wage level range) and a filter question in order to exclude from the analysis respondents with very little experience in fashion online purchase (less than 2 purchases per year), whose responses could be have been biassed by an absence of knowledge of the treated topics, for a total of 15 questions. It also contained three attention checks in order to exclude non-accurate responses, consisting of one redundant question about the age range (respectively the 1st and the 14th questions of the questionnaire) and two control

questions asking the respondent to “please mark the answer as..” (respectively positioned in the 6th and 11th question). The questions regarding IPC and PI were positioned right after the filter question, in order for the answers to be influenced by the following questions and length of the questionnaire as little as possible. The questions about the measured “ease of transaction” constructs were alternated with “marketing and communication stimuli” ones in order to avoid possible similarity between one question and the following one, and therefore similarity in the answers. As the questionnaire has been administered exclusively to Italian respondents it has been translated in italian.

The total number of collected responses was 283, from which XXX were kept as valid for the data analysis, after excluding responses not passing the filter question, not matching the attention checks and non-complete responses.

The distribution of the responses for the filter question is shown in the following table. The 12,32% of the collected responses, belonging to the “about twice a year” answer, were excluded from the analysis and the sample demographic description.

Table 4. Frequency of purchase responses and purchase intention distribution

How often do you purchase clothing/shoes/accessories online?		
At least 3/4 times a month	19	9,36%
About 1/2 times a month	42	20,69%
About 1/2 times every two months	49	24,14%
About 1/2 times every four months	31	15,27%
About 1/2 times every six months	37	18,23%
About twice a year	25	12,32%

Table 5. Demographic questions responses distribution

Question	N.	%
Gender		
Woman	123	70,69%

Man	51	29,31%
Age		
Less than 18	0	0%
18 - 24	19	7,06%
25 - 35	105	39,03%
36 - 40	16	5,95%
41 - 55	54	20,07%
56 - 65	67	24,91%
Over 65	8	2,97%
Wage level		
0 - 10.000	26	14,94%
11.000 - 30.000	56	32,18%
31.000 - 50.000	45	25,86%
Over 50.000	14	8,05%
I prefer not to answer	33	18,97%

The sample is constituted of the majority by women, over 70%, while consequently men represent less than the 30% of it. As the questionnaire has been distributed equally among men and women, and the gender question was positioned after the filter question of purchase frequency, the marked preponderance of women in the resulted analysed sample shows that women are still more prone than men to buying fashion items via online channels, coherently with the ongoing trend of the decade (Karpinska-Krakowiak, 2021). The two preponderant age ranges in the analysed sample are represented by the 25 - 35 segment with 39,03% of the respondents, and the 56 - 65 one with the 24,91% of the respondents, followed closely by the 41 - 55 segment with the 20,07% of the respondents. The total remaining 15,98% of respondents belong to the other segments with minority percentages as listed in the table above, while the 0% of respondents are less than 18 years old. Wage level responses distribution shows the

preponderant range of the sample being 11.000 - 30.000 with the 32,18%, coherently with the national average wage level of the 25 - 35 years old segment (25.818 euros for workers between 25 and 34 years old, italiaindati.com, 2022). The following ranges by size of the belonging sample respondents are 31.000 - 50.000 with 25,86%, 0 - 10.000 with 14,94%, and over 50.000 with 8,05%. 18,97% of the respondents selected the "I prefer not to answer" option.

The following table shows the distribution of responses for the three questions regarding the purchase intention of fashion items of the sample through e-commerce channels.

Table 6. Purchase intention responses distribution

I am likely to make fashion purchases through e-commerce websites		
Strongly disagree	4	2,21%
Disagree	20	11,05%
Somewhat disagree	30	16,57%
Neutral	18	9,94%
Somewhat agree	45	24,86%
Agree	36	19,89%
Strongly agree	28	15,47%
I would buy a fashion item online rather than in a physical store		
Strongly disagree	25	13,81%
Disagree	33	18,23%
Somewhat disagree	27	14,92%
Neutral	34	18,78%
Somewhat agree	29	16,02%
Agree	23	12,71%
Strongly agree	10	5,52%

I actively search for fashion items to buy online		
Strongly disagree	16	8,84%
Disagree	31	17,13%
Somewhat disagree	30	16,57%
Neutral	17	9,39%
Somewhat agree	32	17,68%
Agree	33	18,23%
Strongly agree	22	12,15%

Assigning a number from 1 to 7 to each point of the Likert scale, the average given points for each question is 4.66 for the first one, 3.65 for the second one and 4.13 for the third one. Overall, consistently with the answers of the filter question of purchase frequency, the average purchase intention of fashion items via online website per se is neither markedly positive nor negative, with an average total points of 4.15. It can be noted that the average points of the second answer is visibly lower than the two other questions. This is clearly given by the presence in the question of the comparison of the online channels with the traditional brick-and-mortar point of sales. When asked about online shopping of fashion items per se, the respondents showed a quite positive attitude towards purchase intention, when asked about the preference for online websites over physical stores however, the attitude towards purchase intention via online channels is almost neutral (in average). This shows a persistent affection of Italian customers for physical points of sales when shopping for fashion items, persistence of which the reasons are not investigated in this thesis, but according to data collected by Bloomberg among the reasons keeping customers from choosing online stores over physical ones are the waiting time of shipment and delivery, the waiting time of refunds, and the concern for wrong or bad fitting (Webb & Felsted, 2021), while Forbes reports the possibility of seeing and touching the products, loyalty to the shop, force of habit, payment security concerns, and lack of necessary skills too (Angelovska, 2018).

The thesis will now pass to the statistical analysis of the data in order to investigate accuracy of the model as well as the correlation of the measured constructs with the dependent variable, which is the purchase intention.

3. 4 Data analysis

The statistical analysis of the collected data was carried through to usage of the SmartPLS software, a user friendly software that allows researchers to perform partial least squares structural equation modelling of their data, a type of multivariate analysis mainly used in exploratory researches that focuses on explaining the variance in the dependent variables of the model. SmartPLS analyses both the two types of models of which the research model is composed of, being the measurement model and the structural model. The measurement model, also called external, consists of the complete set of items used to measure each one of the independent constructs, and the analysis of it has the purpose of assessing the reliability and the validity of the proposed constructs. Measurement items can in turn be of two types, reflective and formative. Reflective items are caused by the construct, while formative items cause - form - the construct. The proposed research model utilises exclusively reflective items, which can be distinguished from reflective ones by the direction of the arrows connecting them with the constructs, in the case of reflective measurements going from the construct towards the items, and vice versa for formative ones. The structural model on the other hand, also called the internal model, is formed by the relationships among independent and dependent variables, and the analysis of it has the purpose of studying the nature and the strength of these relationships. These relationships correspond to the hypothesis of the thesis. The research model might also include, as per this thesis with the Involvement with Product Category construct, one or more moderator variables that influence the relevance and the strength of the structural model.

The following image represents the research model created with SmartPLS, in which can be recognised the measurements model consisting of the yellow rectangles, the structural model consisting of the blue circles with the relationships drawn between the independent and the dependent variables, and the moderating effects consisting in the green circles, produced by the influence of IPC on the relationships between the other independent variables and the dependent one.

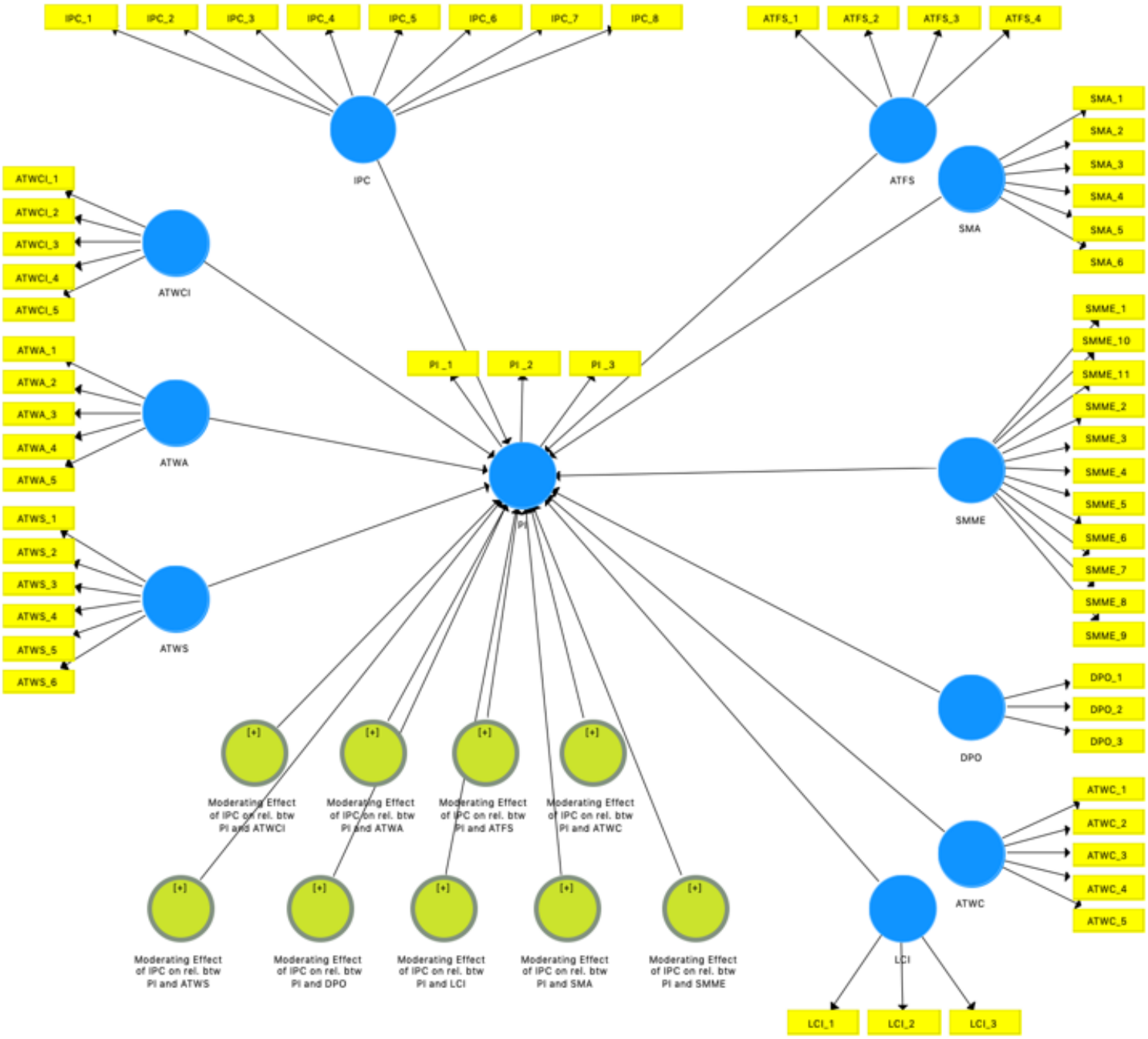

Figure 4. Structure of the research model designed in SmartPLS

3. 4. 1. Analysis of the measurement model: reliability and convergent validity

Reliability and validity are two different kinds of assessments done on the measurement model. The assessment done on the reliability of the model, more precisely the composite reliability, aims at analysing the internal consistency of the measurement model. Reliability is traditionally measured by the calculation of the Cronbach's alpha, which provides an estimation of the reliability based on the intercorrelations of the observed indicator variables. In other words, the Cronbach's alpha indicates with which grade of goodness a set of items measures one latent construct. Since the Cronbach's alpha has been criticised for its excessive conservative nature, that tends to underestimate the internal consistency reliability, the reliability assessment is done pairing it with another coefficient, the Composite Reliability. CR, contrary to Cronbach's alpha, tends to overestimate the internal consistency reliability. For these reasons, in order to have a comprehensive reliability assessment, both the criteria must be considered, and the actual reliability value should be considered to be placed between Cronbach's alpha (representing the lower bound) and the composite reliability (representing the upper bound) (Hair, Hult, Ringle & Sarstedt, 2017). The following table reports the original values for both the criteria.

Table 7. Reliability indicators values

	Cronbach's Alpha	Composite reliability	Average Variance Extracted (AVE)
ATFS	0.93	0.949	0.824
ATWA	0.813	0.859	0.559
ATWC	0.822	0.86	0.565
ATWCI	0.691	0.37	0.204
ATWS	0.918	0.924	0.673
DPO	0.862	0.913	0.779

IPC	0.869	0.896	0.528
LCI	0.785	0.858	0.671
PI	0.929	0.940	0.876
SMA	0.932	0.938	0.716
SMME	0.91	0.862	0.393

For both the Cronbach's alpha and the CR criteria, values greater or equal to 0,7 are considered to indicate a good reliability, while values equal or greater than 0,6 are considered to indicate acceptable reliability. Values lower than 0,6 or greater than 0,95 are considered not acceptable. In the first case because lower values would indicate weak reliability of the measurement, while for greater values they might indicate the presence of redundant items in the measurements of the constructs, this happens often when the items are formed by questions containing similar wording or rephrasing (Hair, et al., 2017). As can be seen in the reported values in the above table, one of the constructs presented values comprehended in the one of described non acceptable cases. Therefore, in order to increase their reliability (specifically composite reliability), as suggested by Hair et al., all the items with outer loadings between 0.40 and 0.70 were excluded from the analysis. The excluded items were: ATWA_4, ATWCI_4, ATWCI_5, ATWC_2, ATWS_6, IPC_1, IPC_3, IPC_8, SMME_4, SMME_5, SMME_8, SMME_11.

The resulting new values of the criteria are listed below.

Table 8. Fix on the reliability indicators values

	Cronbach's Alpha	Composite reliability	Average Variance Extracted (AVE)
ATFS	0.93	0.949	0.824
ATWA	0.816	0.878	0.643
ATWC	0.834	0.86	0.667
ATWCI	0.608	0.619	0.411

ATWS	0.916	0.931	0.729
DPO	0.862	0.913	0.779
IPC	0.897	0.923	0.706
LCI	0.785	0.858	0.671
PI	0.929	0.940	0.876
SMA	0.932	0.938	0.716
SMME	0.897	0.914	0.607

Overall the exclusion of the indicated items improved the reliability criteria of all the variables for which items were excluded, with ATWCI particularly benefiting from it and acquiring acceptable values for both the Cronbach's alpha and CR.

The above table shows values for the Average Variance Extracted (AVE) too. Average Variance Extracted is used to calculate the convergent validity of the measurement model. Convergent validity is defined as "the extent to which a measure correlates positively with alternative measures of the same construct." (Hair, et al., 2017). In other words, convergent validity refers to the measurement of the internal coherence of the model, and the accuracy with which the variables effectively are able to evaluate the constructs that they represent, therefore consists of the measurement of the how much multiple items are able to converge and contribute to describe each latent variables. AVE's values are obtained by calculating the square root of each outer loading and then the average of the resulting numbers. AVE values are usually considered acceptable when equal or above 0,5. An AVE value of 0,5 means that at least the 50% of the variance of the measurement is being captured by the latent variables. As it can be seen in the table, the only latent variable having an AVE value below 0,5 is ATWCI. As two of the five items measuring ATWCI were already excluded from the examination of their outer loading, and tested that the exclusion of a third item would result in a worsening of the Cronbach's alpha to 0.495, the research prefers to keep the three items despite their not optimal convergent validity in order for the model to be analysed in its entirety and eventually address this as a limit of this thesis in the latest paragraphs.

3. 4. 2. Analysis of the measurement model: discriminant validity

The validity of the construct can be defined as the degree to which it is possible to define the components responsible for the observed effect, hence the degree to which the scale measures what is meant to be measured. It evaluates whether a scale or set of measured items reflects and justifies the latent construct being measured. The validity of the construct provides for two types of validity measurements, the convergent validity and discriminating validity; the first one refers to the degree of correlation between two measures of the same concept, and it has just been analysed in the above paragraph through the usage of the Average Variance Extracted; the second one refers to the diversity and unicity between the constructs, and therefore it is analised in orderd to evaluate how much each single latent variables has its own individual identity that differentiates it from all other model constructs.

Discriminant validity is defined as "the extent to which a construct is truly distinct from other constructs by empirical standards." (Hair, et al., 2017), therefore it indicates the statistical difference elapsing among the various constructs. Discriminant validity is assessed through the usage of three methodologies:

- ➢ Fornell-Larcker criterion
- ➢ Cross-loadings criterion
- ➢ Heterotrait-monotrait ratio (HTMT)

Cross-loadings criterion is usually the first approach to the assessment of discriminant validity (Hair, et al., 2017). Using the cross-loading criterion, in order for the constructs to have an acceptable discriminant validity, outer loadings on each of them should be greater than any of its cross-loadings on other constructs. In order to establish whether the constructs hold discriminant validity issues, the indicators should have the highest loading value with the construct to which it has been assigned to. Table 8 shows the values of all the outer loadings and the cross-loadings (in bold). As can be observed,

cross-loadings of all the constructs have greater values than the respective outer loadings, therefore it can be established that according to the cross-loadings criterion the model does not hold any discriminant validity issue.

Table 9. Cross-Loadings Analysis

	ATFS	ATWA	ATWC	ATWCI	ATWS	DPO	IPC	LCI	PI	SMA	SMME
ATFS_1	**0,927**	0,249	0,357	0,024	0,109	0,298	0,261	0,384	0,272	0,035	0,259
ATFS_2	**0,874**	0,283	0,281	0,026	0,076	0,302	0,184	0,314	0,170	0,082	0,174
ATFS_3	**0,895**	0,218	0,290	0,033	0,086	0,269	0,347	0,293	0,313	0,028	0,287
ATFS_4	**0,935**	0,263	0,393	-0,022	0,025	0,275	0,332	0,352	0,263	0,037	0,330
ATWA_1	0,202	**0,861**	0,426	0,159	0,223	0,141	0,355	0,328	0,122	0,154	0,432
ATWA_2	0,310	**0,705**	0,464	0,322	0,124	0,265	0,339	0,307	0,068	0,228	0,474
ATWA_3	0,246	**0,823**	0,390	0,296	0,277	0,221	0,280	0,258	0,116	0,201	0,387
ATWA_5	0,159	**0,809**	0,342	0,113	0,121	0,157	0,232	0,282	0,102	0,079	0,401
ATWCI_1	0,242	0,295	0,079	**0,346**	0,228	0,129	0,224	0,145	0,001	0,359	0,122
ATWCI_2	0,058	0,228	0,059	**0,324**	0,351	-0,108	0,168	0,004	-0,009	0,155	0,045
ATWCI_3	0,016	0,254	0,042	**0,997**	0,162	0,223	-0,126	0,011	-0,106	0,407	0,085
ATWC_1	0,281	0,430	**0,746**	0,158	0,163	0,277	0,268	0,366	0,133	0,050	0,464
ATWC_3	0,297	0,319	**0,858**	-0,097	0,130	0,145	0,341	0,385	0,189	0,009	0,458
ATWC_4	0,368	0,523	**0,815**	0,146	0,216	0,316	0,405	0,391	0,144	0,222	0,604
ATWC_5	0,238	0,369	**0,843**	-0,019	0,162	0,209	0,335	0,277	0,116	-0,029	0,564
ATWS_1	0,044	0,202	0,133	0,092	**0,883**	0,056	0,131	0,184	0,128	0,120	0,170
ATWS_2	0,050	0,245	0,260	0,161	**0,915**	0,123	0,250	0,220	0,092	0,217	0,219
ATWS_3	0,155	0,195	0,163	0,265	**0,804**	0,149	0,164	0,132	0,066	0,276	0,135
ATWS_4	0,039	0,196	0,099	0,175	**0,842**	0,081	0,220	0,166	0,026	0,205	0,066
ATWS_5	0,085	0,184	0,183	0,184	**0,822**	0,079	0,274	0,195	0,047	0,208	0,118
DPO_1	0,261	0,197	0,218	0,174	0,110	**0,938**	0,145	0,184	0,037	0,128	0,226

DPO_2	0,279	0,174	0,226	0,198	0,091	**0,916**	0,084	0,249	0,027	0,173	0,090
DPO_3	0,314	0,276	0,353	0,196	0,088	**0,786**	0,187	0,270	0,019	0,147	0,272
IPC_2	0,163	0,249	0,276	-0,135	0,209	0,054	**0,860**	0,414	0,267	-0,013	0,214
IPC_4	0,295	0,230	0,256	-0,083	0,155	0,218	**0,816**	0,389	0,224	0,150	0,307
IPC_5	0,307	0,395	0,393	0,061	0,227	0,255	**0,844**	0,395	0,235	0,220	0,410
IPC_6	0,243	0,239	0,339	-0,223	0,115	0,040	**0,817**	0,475	0,321	-0,024	0,272
IPC_7	0,353	0,444	0,460	-0,052	0,241	0,114	**0,864**	0,464	0,283	0,030	0,410
LCI_1	0,296	0,314	0,384	-0,104	0,142	0,157	0,551	**0,903**	0,371	-0,024	0,230
LCI_2	0,375	0,333	0,393	0,166	0,193	0,305	0,321	**0,855**	0,238	0,161	0,357
LCI_3	0,249	0,233	0,312	0,042	0,291	0,207	0,313	**0,682**	0,109	0,085	0,281
PI_1	0,237	0,103	0,154	-0,132	0,122	-0,009	0,296	0,297	**0,942**	-0,194	0,101
PI_2	0,274	0,103	0,178	-0,082	0,076	0,061	0,242	0,287	**0,924**	-0,066	0,165
PI_3	0,303	0,155	0,183	-0,082	0,092	0,040	0,356	0,353	**0,941**	-0,111	0,137
SMA_1	0,025	0,136	0,065	0,258	0,203	0,217	0,147	0,040	-0,051	**0,815**	0,137
SMA_2	0,038	0,170	0,081	0,286	0,189	0,209	0,104	0,098	0,000	**0,808**	0,124
SMA_3	0,043	0,197	0,050	0,404	0,221	0,138	0,035	0,039	-0,068	**0,842**	0,082
SMA_4	0,048	0,208	0,062	0,410	0,205	0,138	0,035	0,055	-0,185	**0,951**	0,107
SMA_5	0,021	0,139	0,075	0,304	0,185	0,136	0,099	0,066	-0,081	**0,865**	0,121
SMA_6	0,064	0,104	0,133	0,296	0,104	0,112	0,092	0,100	-0,032	**0,787**	0,128
SMME_1	0,181	0,514	0,534	0,008	0,149	0,101	0,324	0,259	0,061	-0,036	**0,757**
SMME_10	0,265	0,382	0,543	0,041	0,078	0,198	0,312	0,266	0,187	0,075	**0,887**
SMME_2	0,132	0,448	0,505	-0,133	0,162	-0,011	0,279	0,210	0,060	-0,076	**0,729**
SMME_3	0,238	0,373	0,511	0,013	0,102	0,114	0,305	0,308	0,086	-0,008	**0,804**
SMME_6	0,245	0,303	0,482	0,172	0,348	0,183	0,280	0,293	0,040	0,301	**0,612**
SMME_7	0,264	0,487	0,454	0,119	0,258	0,201	0,338	0,241	0,112	0,221	**0,753**
SMME_9	0,270	0,408	0,510	0,215	0,125	0,288	0,289	0,278	0,110	0,208	**0,878**

The Fornell-Larcker criterion is usually the second approach utilised in the analysis of the discriminant validity. This criterion compares the square root of the AVE values with the latent variable correlations, and the comparison should indicate that the square root of each AVE's value to be higher than its highest correlation with any other construct. This method is based on the idea that a construct shares more variance with its own associated indicators than with any other construct. Table 9 exhibits the values for each of the constructs in a symmetric matrix, in which the square root of AVE is highlighted in bold along the diagonal. Below the diagonal are reported all the values of the correlation that elapses between each combination of the construct. Looking at each column, it can be observed that all the square roots of AVE have greater values than all the correlation values reported below. It can be therefore affirmed that the Fornell-Larcker criterion confirms the result on the discriminant validity assessment done with the cross-loading criterion, that the constructs' model hold acceptable

Table 10. Fornell-Larcker Criterion Analysis

	ATFS	ATWA	ATWC	ATWCI	ATWS	DPO	IPC	LCI	PI	SMA	SMME
ATFS	**0,908**										
ATWA	0,273	**0,802**									
ATWC	0,366	0,494	**0,816**								
ATWCI	0,017	0,263	0,045	**0,638**							
ATWS	0,082	0,242	0,202	0,184	**0,854**						
DPO	0,311	0,232	0,281	0,208	0,110	**0,883**					
IPC	0,322	0,370	0,414	-0,113	0,223	0,151	**0,840**				
LCI	0,369	0,361	0,440	0,009	0,212	0,251	0,514	**0,819**			
PI	0,291	0,131	0,184	-0,105	0,104	0,033	0,322	0,336	**0,936**		
SMA	0,045	0,198	0,077	0,407	0,221	0,164	0,074	0,063	-0,133	**0,846**	

SMME	0,298	0,516	0,631	0,085	0,187	0,215	0,381	0,328	0,143	0,125	**0,779**

The last method used to evaluate the discriminant validity of the proposed model is the heterotrait-monotrait ratio (HTMT). This method was developed by Henseler et al. (2015) as a result of their study in which they underline some significant issues of both the precedently examined criteria. More in detail, they indicate that the cross-loading criterion fails to find discriminant validity issues when two constructs are perfectly correlated, while the Fornell-Larcker criterion's performance in detecting discriminant validity issues lacks of a significant performance when indicator loadings of the constructs under consideration differ only by a small difference (around 0,2 range of difference) (Henseler, Ringle & Sarstedt, 2015). For these reasons, Henseler et al. propose the evaluation of the discriminant validity of the model using the heterotrait-monotrait ratio (HTMT) of the correlations. The HTMT is defined by Hair et al. as "the ratio of the between-trait correlations to the within-trait correlations. HTMT is the mean of all correlations of indicators across constructs measuring different constructs (i.e., the heterotrait-heteromethod correlations) relative to the (geometric) mean of the average correlations of indicators measuring the same construct" (Hair, et al., 2017). This criterion calculates discriminant validity as if in the model there would not be any reliability issues, and it is for this reason also called disattenuated correlation. The disattenuated correlation between two distinct constructs should be significantly lower than the correlation that each construct has with itself, which is 1. A disattenuated correlation close to 1 would mean that the two constructs are too similar to each other. Acceptable values suggested by Henseler et al. (2015) indicate a threshold of 0,9 for models proposing constructs conceptually similar among them. In the case of the model proposed in this research, this condition holds as many of the used marketing scales share the "attitude towards the website" characteristic. Therefore, in order to assess the discriminant validity of the constructs, all the disattenuated correlation values should be smaller than 0,9. As can be verified in the following table, all the reported results hold more than acceptable values, even considering the more conservative

approach suggested for models featuring very heterogeneous constructs, for which a threshold of 0,08 is suggested.

Table 11. Heterotrait-monotrait ratio analysis

	ATFS	ATWA	ATWC	ATWCI	ATWS	DPO	IPC	LCI	PI	SMA	SMME
ATFS	1										
ATWA	0,334	1									
ATWC	0,408	0,621	1								
ATWCI	0,197	0,494	0,204	1							
ATWS	0,094	0,262	0,227	0,467	1						
DPO	0,363	0,306	0,364	0,288	0,126	1					
IPC	0,340	0,439	0,473	0,329	0,268	0,192	1				
LCI	0,427	0,440	0,530	0,248	0,294	0,341	0,559	1			
PI	0,299	0,143	0,202	0,108	0,090	0,043	0,342	0,332	1		
SMA	0,058	0,222	0,120	0,507	0,247	0,210	0,140	0,131	0,095	1	
SMME	0,307	0,630	0,754	0,202	0,223	0,242	0,433	0,423	0,133	0,190	1

In conclusion, it can be affirmed that the evaluation of the model, carried out through the usage of three different criteria, has established an excellent discriminant validity of the constructs of the model.

3. 4. 3. Structural model: analysis of the correlation between the variables

After the analysis of the reliability and the validity of the measurement model, the research can proceed with the analysis of the structural model, therefore the analysis of the hypothesised correlations elapsing among the variables as well as their intensity.

The SmartPLS software, in order to study the correlations, adopts the bootstrapping technique. The bootstrapping is a non-parametric procedure that allows the to test the statistical significance of various path coefficients, through the amplification of the original sample data by an automatic generation of additional data starting from the actual collected data (Hair et al. suggest the generation of 5000 bootstrap samples). The path coefficients have standardised values approximately between –1 and +1 (Hair et al., 2017), with path coefficient values close to +1 representing strong positive correlations, values close to -1 represent strong negative correlations, and finally values equal or close to 0 mean a low statistical significance. The following table lists all the estimated path coefficients for the proposed model.

Table 12. Path Coefficients Bootstrapping procedure

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
ATFS -> PI	0,174	0,182	0,053	3,267	0,001
ATWA -> PI	0,056	0,064	0,055	1,011	0,312
ATWC -> PI	0,195	0,199	0,069	2,825	0,005
ATWCI -> PI	-0,015	-0,015	0,057	0,258	0,797
ATWS -> PI	0,058	0,052	0,115	0,505	0,614
DPO -> PI	0,007	-0,007	0,049	0,141	0,888
IPC -> PI	0,166	0,154	0,054	3,087	0,002
LCI -> PI	0,143	0,138	0,049	2,938	0,003
SMA -> PI	0,098	0,100	0,052	1,878	0,060
SMME -> PI	0,215	0,213	0,072	3,008	0,003

Whether a coefficient is significant ultimately depends on its standard error that is obtained by means of bootstrapping. More precisely:

- ➢ The Original Sample, also known as the Beta Value, indicates the importance of the influence that an independent variable has on a dependent variable. As a preliminary analysis, an Original Sample value greater than 0,2 can be considered as an indicator of the presence of a statistical significance between the variables.
- ➢ As the Original Sample is considered to not be very efficient in determining whether there is a significant relationship between two variables, two other coefficients are calculated, considered to be a better estimation of the correlation within the model, the *p* values and the *t* values. *P* values are the most commonly used coefficients by researchers to assess correlations significance. The *p* values represent the probability of erroneously rejecting a true null hypothesis, in other words, assuming a significant path coefficient when actually it is not significant. The *t* values represent the calculated difference represented in units of standard error. The greater the magnitude of *t* values, the greater the evidence against the null hypothesis, while the closer *t* values are to 0, the more likely there isn't a significant difference. Critical values for *p* and *t* values depend on the type of research and the sector of it. For marketing researches critical values for *p* value are considered to be acceptable at a equal or smaller value of 0,05 (in other words the 5% o lower probability that the study would assume an existing significance that in reality does not exists), while critical values for t value are considered those equal or greater than 1,96.

Given definitions and critical values for each path coefficient, we will proceed to discuss results and considerations in following paragraphs, while in the next paragraph we will argue about the moderator variable and its analysis.

3. 4. 4. Moderator variable effects analysis

The moderator variable is a construct that intervenes on the relations existing between two other constructs, it influences it by modifying its strength and possibly its direction.

There are more than one type of moderator variables: first of all, they can be observable or unobservable variables. Examples for observable variables would be age, gender or income, while examples for unobservable variables would be attitude towards a brand, sentiment towards an ad, etc. When measuring a moderator variable, the measurement scale can be made of one single item or multiple items. The most important discriminant difference in moderator variables however, is the classification of categorical and continuous moderators. The categorical moderator variables are measured by dummy codable scales, meaning that the respondent answering the categorical moderator variable scale would answer by selecting only one of the listed option, making the given answer the "true" (1) answer and the rest of the answers the false (0) ones. On the other hand, continuous moderator variables are measured through the consideration of the points given to a number of scale items (the scale could also contain only one item, although it is advised not to use one itemed scales when measuring unobservable abstract traits, such as attitude and sentiment). In this research, the examined moderator variable is Involvement with Product Category, which has been defined and explained in paragraph 3. 2. In the proposed hypothesis, IPC should act as a positive moderator variable on the relationships elapsing between constructs of the ease of transaction set, whereas it is expected that the moderation effect should be negative for constructs belonging to the marketing and communication set. Being IPC a construct measuring a personal preference of the respondent, it can be determined that it falls in the categorization of continuous moderator variables.

Having explained and classified the moderator variable of the proposed research model, we can now pass on to the evaluation of the moderator variable inside the model. Measurement and structural model evaluation criteria apply to moderator models too, and in order for the moderator variables to concur in the structural model analysis, they must meet relevant criteria for internal consistency reliability, convergent validity, and discriminant validity. Evaluations upon all the relevant mentioned analysis for IPC have already been carried out in the previous paragraphs, therefore this paragraph only focus on the evaluation of the structural model, in other words on the assessment of the moderation effect of IPC on the relationship between the exogenous variables and the

endogenous variable PI. In order to do so, path coefficients are again taken into consideration as well as the Simple Slope analysis.

Table 13. Path coefficient analysis for the moderator variable

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Moderating Effect of IPC on rel. btw PI and ATFS -> PI	0,057	0,043	0,060	0,954	0,340
Moderating Effect of IPC on rel. btw PI and ATWA -> PI	-0,103	-0,097	0,051	2,011	0,044
Moderating Effect of IPC on rel. btw PI and ATWC -> PI	0,097	0,092	0,069	1,406	0,160
Moderating Effect of IPC on rel. btw PI and ATWCI -> PI	-0,014	-0,019	0,052	0,262	0,793
Moderating Effect of IPC on rel. btw PI and ATWS -> PI	0,040	0,039	0,056	0,726	0,468
Moderating Effect of IPC on rel. btw PI and DPO -> PI	-0,071	-0,048	0,060	1,179	0,238
Moderating Effect of IPC on rel. btw PI and LCI -> PI	-0,049	-0,053	0,049	1,010	0,313
Moderating Effect of IPC on rel. btw PI and SMA -> PI	0,039	0,036	0,046	0,860	0,390
Moderating Effect of IPC on rel. btw PI and SMME -> PI	0,069	0,066	0,061	1,125	0,261

Observing the path coefficient values, it can be seen that the only statistically significant effect of the moderator variable on the model's correlation is the one that IPC exerts on the relationship between ATWA (attitude towards the website: attractiveness) and PI, since its *t* value is above the critical value of 1,96 and its *p* value is lower than the critical value of 0,5. Both the coefficients however, are quite close to their critical acceptance values, indicating that the significance of the influence of IPC on this

relationship is not very strong. Moving to the Simple Slope analysis, this analysis allows us to graphically analyse the change of the relationship between ATWA and PI according to variation of the moderator variable.

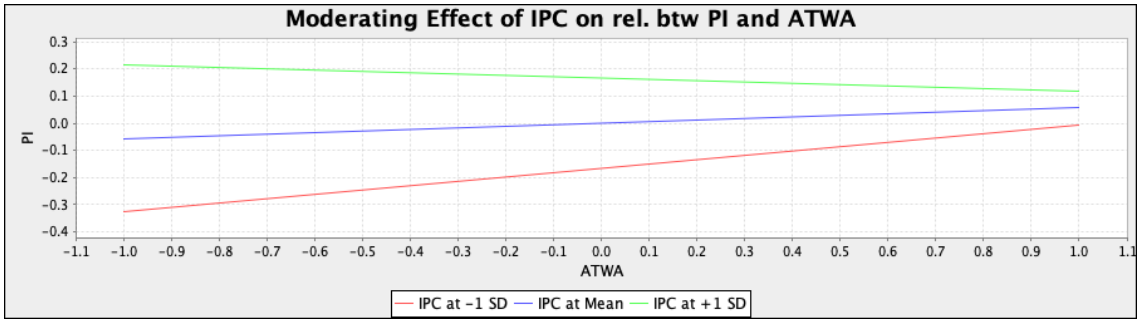

Figure 5. Simple Slope Analysis for moderator effect of IPC on the relationship between ATWA and PI

In the graph, the red slope indicates how the relationship between ATWA and PI would be with IPC having a standard deviation value of -1; the blue slope indicates the relationships between ATWA and PI with IPC having a mean standard deviation value; finally, the green slope indicates the relationship between ATWA and PI with IPC having a standard deviation value of +1. First of all, we must observe that the interaction among the three slopes happens outside the observed range of values, it is not directly observed, therefore making it an ordinal interaction. If we imagine to extend the slopes further than the observed range of values, we would observe that after the slopes interaction (intersection), the red slope would be on top, while the green would be on the bottom. This indicated a negative effect of the moderator variable IPC on the relationship between ATWA and PI. In other words, this means that higher values of IPC weaken the positive effect of ATWA on PI.

3. 4. 5 Evaluation of the structural model: R^2 Value

The R^2 Value is the most commonly used measure to evaluate the proposed structural model's predictive power. The R^2 Value represents the amount of variance in the endogenous constructs explained by all of the exogenous constructs linked to it. The R^2 value ranges from 0 to 1, with levels close to 1 indicating higher levels of predictive power, while levels close to 0 indicating lower predictive power. Reference critical levels for acceptance vary according to the research field of the study. For marketing researchers, suggested levels for substantial, moderate and weak predictive power are respectively of 0.75, 0.50, or 0.25 (Hair et al., 2011)(Henseler et al., 2009). However, R^2 value analysis is not always completely suitable to assess a model's predictive power, especially when the model features a high number of exogenous variables all pointing to one endogenous variable, as it is for the proposed model of this thesis. This is because the R^2 value will be increased by each of the exogenous variables, regardless of their correlation with the endogenous variable. Therefore, in order to avoid this biassed evaluation, we also use the adjusted R^2 value. This measure, contrary to regular R^2 value, is not biassed by the number of paths pointing to the endogenous variable, since it is modified according to the number of exogenous constructs relative to the sample size.

Table 14. R^2 and adjusted R^2 values

	R^2	R^2 adjusted
PI	0,877	0,861

Both the calculated values are above the level of substantial predictive power, meaning that the model's exogenous variables are explaining about 86% of the endogenous variable PI.

3. 4. 6 Results summary and hypothesis verification

The previous paragraphs contain the calculation and exhibit of the analysis of the structural model and therefore the relationships between the exogenous variables and the endogenous variable. Knowing the critical values for each coefficient of the analysis, we can now establish whether the proposed hypotheses are verified or rejected. The following table summarises all the relationships' directions, the coefficients results, and the verification or rejection of each hypothesis.

Table 15. Results of the hypothesis testing

No.	Path	Direction	Original Sample (O)	*T* value	*P* value	Support
H1	Attitude towards website: content interactivity → Purchase Intention	+	-0,015	0,258	0,797	No
H2	Attitude towards website: service → Purchase Intention	+	0,058	0,505	0,614	No
H3	Attitude towards website: attractiveness → Purchase Intention	+	0,056	1,011	0,312	No
H4	Attitude towards website: customisation → Purchase Intention	+	0,195	2,825	0,005	Yes
H5	Social Media Marketing Efforts → Purchase Intention	+	0,215	3,008	0,003	Yes
H6	Attitude towards Flash sales → Purchase Intention	+	0,174	3,267	0,001	Yes
H7	Sustainable Marketing Activities → Purchase Intention	+	0,098	1,878	0,060	No
H8	Luxury Clothing	+	0,143	2,938	0,003	Yes

	Innovativeness → Purchase Intention					
H9	Delayed Payment Options → Purchase Intention	+	0,007	0,141	0,888	No
H10.1	Moderation of Involvement with Product Category on ATWCI → PI	+	-0,014	0,262	0,793	No
H10.2	Moderation of Involvement with Product Category on ATWA → PI	+	-0,103	2,011	0,044	No
H10.3	Moderation of Involvement with Product Category on ATWS → PI	+	0,040	0,726	0,468	No
H11.1	Moderation of Involvement with Product Category on ATWC → PI	-	0,097	1,406	0,160	No
H11.2	Moderation of Involvement with Product Category on SMME → PI	-	0,069	1,125	0,261	No
H11.3	Moderation of Involvement with Product Category on ATFS → PI	-	0,057	0,954	0,340	No
H11.4	Moderation of Involvement with Product Category on SMA → PI	-	0,039	0,860	0,390	No
H11.5	Moderation of Involvement with Product Category on LCI → PI	-	-0,049	1,010	0,313	No
H11.6	Moderation of Involvement with Product Category on DPO → PI	-	-0,071	1,179	0,238	No

As can be seen in the table, of all the hypothesised correlations, only H2, H4, H5, H6 and H8 are supported.

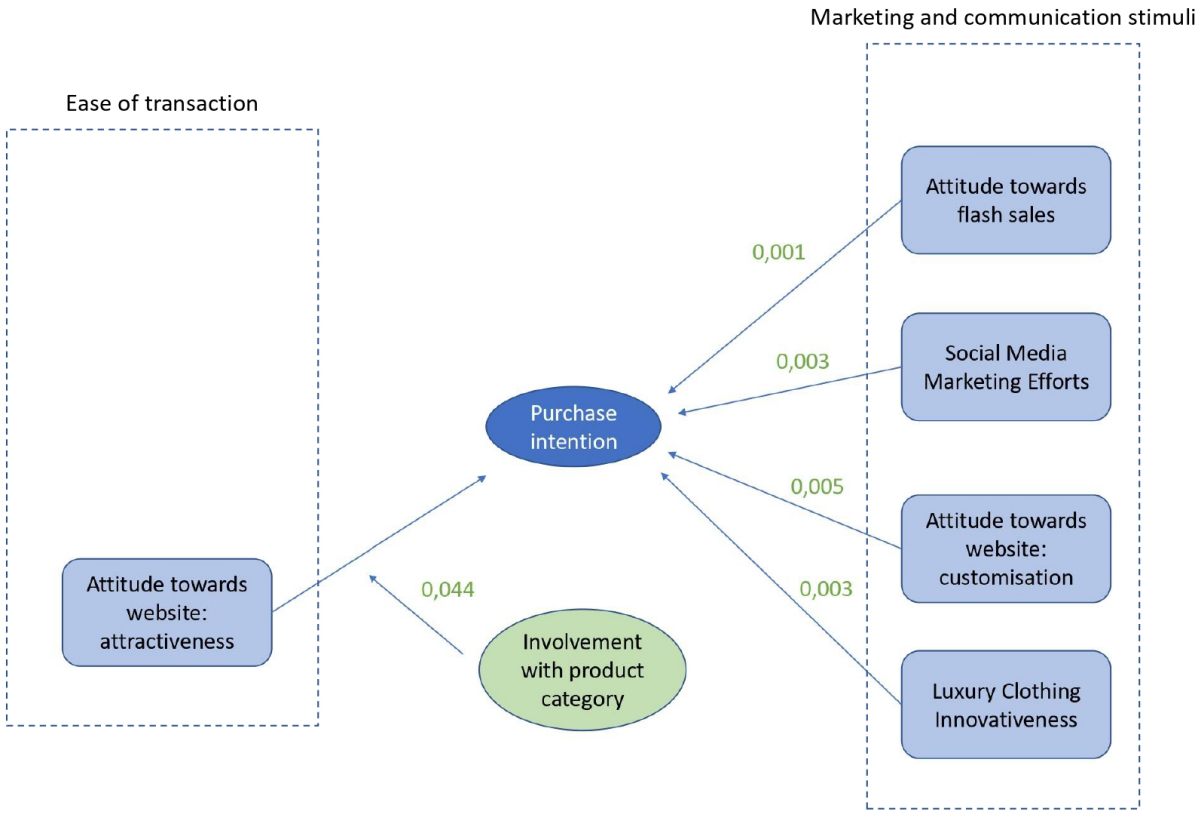

Figure 6. Research model with highlighted significant relationships

3. 5 Results discussion and relevant consequences for marketing strategies

After having analysed the structural model, the significance of the paths featured in the model and therefore verified whether the proposed hypotheses are supported, we now proceed with the discussion of the results. The discussion will concern each hypothesis individually, and then it will brought to the discussion and commentary of the initial research question, which is an investigation of the performance in terms of purchase intention formation capabilities of two types of elements of the marketing mix of a company, which are investments on the product and investments on communication and promotion. Upon the discussion of the results of the research question, considerations in terms of relevant consequences for marketing strategies will be discussed.

H1. The first hypothesis of the thesis proposes a positive correlation between a well-developed customer experience and the formation of purchase intention in the customer. Despite customer experience being found as a valid and substantial element of the purchase journey leading to the conversion of the purchase (Bilgihan et al., 2014) (McCarthy & Schadler 2014) (Cao et al., 2015), the results of the examined data show a lack of significance of this variable. Reasons behind this result might be related to a change of importance of the elements forming the purchase journey. Most of the literature supporting customer experience as linked to the formation of purchase intention is about five years old, a time period that for a fast-evolving sector as it is e-commerce might be sufficient to change the customers' priorities and preferences when shipping.

H2. The second hypothesis proposed a positive correlation between the quality of the customer service and purchase intention. The correlation turned out to be not significant for the examined data. The reason behind this lack of significance might be found in the very data itself. By taking a look to the average answers regarding customer service variable questions (given on a seven points Likert scale), Qualtrics reports the following average points for each item:

Table 16. Average points for each item of ATWS

	Mean	Std Deviation	Variance
ATWS_1	5.97	1.04	1.07
ATWS_2	6.17	1.00	1.00
ATWS_3	6.31	1.01	1.03
ATWS_4	6.26	0.93	0.87
ATWS_5	6.49	0.87	0.76
ATWS_6	6.55	0.87	0.75

Source: Qualtrics

The mean values show how for all the items the majority of the answers are concentrated on the “Important” and the “Very important” points of the scale. The standard deviation and variance values furthermore confirm that the majority of the answers lie far from the mean value. In other words, the great majority of respondents give great importance to customer service quality, regardless of their propensity to purchase intention being high or low. This fact is likely at the base of the lack of significance found by the hypothesis testing, since customer service doesn’t look to be connected specifically to high purchase intention.

H3. The third hypothesis proposed the existence of a positive correlation between a website’s aesthetic appearance and the formation of purchase intention. Literature supporting this hypothesis can be found both in recent studies (Nia & Shokouhyar, 2020)(David et al., 2021) as well as in older ones (Zhou et al., 2009)(Lee & Lin, 2005). Despite the literature supporting the hypothesis, the correlation has found not to be significant for the considered sample. This discrepancy of results might be related to various reasons: first of all, the scale used for measuring the concept of a website’s aesthetic attractiveness was developed in 2002 (Srinivasan et al., 2002), possibly making the scale not up to date in regard of the elements considered to concur in the visual attractiveness of an e-commerce website. Secondly, the researches taken into consideration in the literature review, both David et al. (2021) and Nia and Shokouhyar (2020), test the website’s visual appearance and aesthetics in direct relationship with satisfaction rather than purchase intention, and then link the strength of this relationship to purchase intention and recommendation intention as a secondary effect.

H4. The fourth hypothesis proposed a positive correlation between a website’s degree of customization offer, in terms of customised experience and products as well, and the formation of purchase intention. The hypothesis was supported by the analysis of the data with very high significance value, confirming that customization, currently one the most trending strategy for many fashion brands in e-commerce channels, communication, branding and product development is in fact not only a way of attracting customers but also produces in them a propension for purchase intentions. This result is coherent not only with the existing literature (Fan et al., 2021)(Kaiser et

al., 2014), but most importantly with what can be observed in the fashion industry landscape. Whereas customisation, both in experience and in products, has been a distinctive trait of the luxury sector ever since their creation, being one of the reasons behind luxury brand's success, fast fashion brands have been the incarnation of standardisation and globalisation since their very rise. It is a new, but already quite widespread trend for fast fashion brands to offer customised experiences and products. Many brands belonging to this category however were quick to jump on the trend by developing and offering from low levels of customisation (i.e. embroidered letters on product, see Pull&Bear) to high levels of customisation (i.e. DNM LAB by Bershka).

H5. The fifth hypothesis proposed a positive correlation between a brand's social media marketing activities and the formation of purchase intention. The hypothesis was supported by the examined data, confirming the existence of a strong correlation between the two variables. Social media and influencer marketing have been widely studied in the literature, with researches investigating how various aspects of the role of social media channels, contents, and content performer - namely, the influencer - are connected to the creation of different positive effects in customers, such as word of mouth, recommendation intentions, affection to the brand, purchase intention and other variables. The results of this thesis confirm existing studies and are more relevant than ever considering the constant growth of importance of this type of marketing. Especially when considering the role of influencers, it is almost overwhelming the power that some of them have on their follow. As reported by the Financial Times in the then-went-viral article "The rise and rise of the ultra-influencer", the most powerful figures in the influencers landscape are able to produce skyrocketing sessions flow and sale. For example, when Kylie Jenner wore a pink mini dress for her birthday celebration the searches for pink minidresses spiked by 107% in the following 48 hours (Harrod, 2018). Similarly, after Chiara Ferragni's wedding ceremony in which she wore a custom wedding gown by Dior, searches for the brand increased by 109% in the week (Harrod, 2018). Ultimately, it is easy to see why the data show a substantial positive relationship between social media marketing activities and purchase intention.

H6. Hypothesis six suggested the existence of a positive correlation between the usage of flash sales and raffles and the formation of purchase intention. As hypothesised, the correlation was confirmed by the data analysis. The confirmation of this hypothesis was very much expected by the researcher, as this type of promotions leverage two types of purchase incentives, which are price sensitiveness and scarcity, both largely recognized to increase the propension to buy (Zhang et al., 2018)(Liu et al., 2021). The results found in this thesis indicate a strong correlation between these two variables, in accordance with the flash sales and raffles landscape, which sees consolidated players such as Zalando Privé and VeePee grossing respectively 7,9 and 1,8 billions euros (Statista, 2022), and new players adding themself to the landscape, such as ABOUT YOU app, Sample Lover website, as well as raffle-dedicated websites such as Raffall, Rallyup and Raffolux.

H7. The seventh hypothesis suggested a positive correlation between the environmental and social commitment of fashion brands in the formation of purchase intention. The data analysis reported results of a borderline non-significance of the correlation, with the coefficients however being actually very close to the critical acceptance levels. The hypothesis can be therefore considered to be partially accepted. Several scientific articles and thesis support the positivity of this relationship (Mukherjee, 2015) (Jung et al., 2020) (Sun et al., 2021). Reasons behind the lack of a strong significance in the collected data might be due to two main reasons: first, the considered sample is composed by respondents of all age, while it has been proven that the availability and interest in buying sustainable fashion items is stronger for the Y generation (Filippi, 2021); secondly, the used scale for measuring the given importance to the level of sustainability commitment of a brand, does not only considered environmental sustainability but social responsibility as well. The majority of the existing literature focuses exclusively on environmental sustainability rather than social one, which is coherent with the observable consistent presence of environmental commitment marketing campaigns and initiatives across all the fashion industry, while the same presence can’t be observed for themes related to social sustainability. In other words, while the large public is becoming more and more aware and sensitive in regard to

environmental sustainability issues, the same awareness and sensitivity levels can't be observed in regard to social sustainability issues. The fact that the selected scale also contained items investigating this little considered aspect of a brand sustainability commitment could be at the base of the quite weak correlation found with purchase intention.

H8. The eight hypothesis regarded the existence of a positive correlation between technological innovations being incorporated into e-commerce websites and fashion items themselves and the formation of purchase intention. Despite the supporting literature (Kim & Ko, 2012) (Puiu et al., 2021) (Zhou, 2018) (Arribas & Alfaro, 2018) being in turn supported by sector specific press (Allaire, 2021) (Scarabelli, 2021) (Mcdowell, 2021) and a great number of initiatives taken by a variety of brands, from luxury to fast fashion, the expected result of the hypothesis testing was very uncertain, since the literature and the press articles tend to consider various positive effects that technology incorporations have on brands, but rarely focus on the direct connection between these and purchase intention. Ultimately, the results of the hypothesis testing came out to be substantially supportive of the proposed hypothesis. The results go to show that technology usage in e-commerce websites and in brands' catalogues are actually a great driver not only of interest and of benefits in terms of perceived quality, brand image and so on, but also in terms of creating in customers the intention to buy the brand's products.

H9. Hypothesis nine suggested a positive correlation between the availability on e-commerce websites of delayed payment options and purchase intention. The existing literature is very poor in terms of the study of these specific payment options, but rather focus on the general concept of credit as incentive to consumption, with various researches supporting this positive correlation (Ma et al., 2021) (Prelec & Simester, 2001) (Banker et al., 2021). However, when asked about their attitude and future usage intention towards online delayed payment options, the reference sample did not show great interest. The proposed hypothesis in fact was not supported by the data analysis, with path coefficients being very far from the significance levels. This result might be related to a specific attitude towards credit for consumption of the thesis sample. In fact,

it is generally known, supported by data (Marra, 2019), that Italian consumers, especially when considered per household, have the lowest private debt out of all the countries of the Eurozone. This evidence is a sign of the cultural trait that keeps Italian consumers away from getting into debt for consumption purposes, and being online delayed payment options just another form of getting a debt towards a payment provider, this could be the reasoning behind the lack of support of the hypothesis from the collected data.

H10. and H11. Hypotheses regarding the role of the moderator variable, involvement with product category, were divided into two groups, basically assuming a positive influence of the moderator on the relationships between the ease of transaction set of variables and a negative influence of the moderator on the relationships between the marketing and communication stimuli set. These hypotheses were formulated following a literature review of the definitions and meanings of involvement with the product category, which connect the product category with personal and deep values and goals of the customer. Therefore, established that a high product category involvement means a deep connection between the customer's value and the product itself, we assumed that external marketing and communication stimuli effect would have been weaken by the presence of high IPC levels, while the same high IPC levels would have strengthened the relationships between the ease of transaction set of variables, which without interfering with the customer's personal values and goals would have rather facilitated the reach of these goals by making the purchase process, and therefore the product acquisition, as seamless and easy as possible. Involvement with the product category revealed itself to be not a very significant moderator variable for nearly any of the conceptual model paths. The only relationship being influenced by IPC is the one elapsing between ATWA (attitude towards the website: attractiveness) and purchase intention, with the moderator having a negative influence on the relationship. This significance contradicts one of the proposed hypothesis, specifically H10.2, which suggested on the contrary that the influence would have been positive. To paraphrase the meaning of the found significance, the data testing exhibits that when a customer is highly involved with the product category the visual aspect and aesthetic pleasing

quality of the e-commerce website used for the purchase is less important; therefore, although the relationship between ATWA and PI turned out to be not significant in the structural model analysis, we can learn from the effect of the moderator that this relationship is in fact not significant in case of high levels of IPC, while in presence of low levels of IPC it gains significance. This result, although unexpected, is coherent with some existing literature. For example, Lee (2022), which conducted an analysis on the willingness to pay premium in relation to the visual aesthetic of wearable devices, found Product Involvement Category (INV) to have a negative moderation effect as well (Lee, 2022). More in detail, Lee conducted the analysis dividing the sample into two groups, a low-INV group and a high-INV group. He proceeded first assessing the presence of a significant positive correlation between visual aesthetic (VA) and willingness to pay premium (WTP) in both the groups, and he then studied the effect of INV as a moderator variable influencing the mentioned above. He found out that while VA showed a significant positive association with WTP in the low-INV group, the same relationship was weakened until turning non-significant in the high-INV group (Lee, 2022). Contrary to the assumption made in this thesis, the author was in fact expecting this result, reporting "As expected, in wearable consumption, design aesthetics is considered an extrinsic cue whose significance in consumers' valuations is heightened when they are less involved" (Lee, 2022). Although design quality and aesthetic are considered in relationship with two different aspects - aesthetic of the sale channel in this thesis, and aesthetic of the product in the article - we can definitely affirm that the two results are coherent with each other.

The last consideration that is due on the discussion of the moderator variable hypothesis regards the very hypothesis formulation itself. As just above mentioned, the hypotheses were formulated assuming that marketing and communication stimuli would have weakened by high levels of IPC, as being external stimuli they should be less powerful than internal connection between the customer and the product. This assumption was however lacking the following consideration: marketing and communication stimuli might target exactly the same personal and internal values and goals creating high levels of IPC. For example, customization targets exactly a personal connection between the

product and the customer; social media marketing and influencers might do the exact same thing by leveraging with their communication strategies personal values and goals of the target audience. Environmental and social sustainability marketing could be targeting customers' inner values in terms of sustainability as well. Ultimately, it is fair to say that while not expecting such a low significance of IPC as a moderator variable, the hypotheses formulation was probably based on the wrong considerations.

Having discussed all the hypothesis results separately, it is now time to discuss the main initial research proposed question, which was an investigation on the performance of two different sets of variables, the 'ease of transaction' and the 'marketing and communication stimuli' sets, in terms of their capability in creating purchase intention and therefore ultimately produce the best results in terms of sales. The answer to the research question arises pretty clearly from the hypothesis testing. Despite not all the hypotheses regarding the marketing and communication stimuli variables being supported, it is straightforward to observe that this set performed significantly better than the ease of transaction set. It could therefore be established that, according to the data analysis of the proposed conceptual model, marketing and communication stimuli perform better than ease of transaction aspects in terms of creation of purchase intention in customers. This result could be relevant for marketing strategists of fashion industry brands because it shows how marketing investments could have a much more powerful impact on the brand sales performance compared to the same investment in the building and fine-tuning of the e-commerce website from which the products are sold. For giants of the sector, such as Gucci or Zara, biggest representative of the two opposites of the fashion industry, this consideration might not be as relevant as it would for smaller brands. Below the surface of the big names of the fashion industry there is a flourishing landscape of small fashion brands, often selling high quality crafted products to a selected audience of target customers. These brands do not have the same spending possibilities of the big companies of the sector, and they often face budget limitations in front of which it is necessary to choose where to allocate the available funds, on a custom development of a website based on an expensive e-commerce platform - such as Salesforce - while keeping marketing and communication investments low, or at the

opposite, choose a low cost e-commerce platform with ready to use templates and built-in features while investing in marketing and communication initiatives. The results show how in this situation by choosing to invest in marketing and communication initiatives, not only the brands would likely increase brand awareness - one of the basic objectives of marketing and communication strategies of small firms - but they would also likely increase their sales performance in comparison to the situation in which the same investments would have destined to the building and platform costs of the e-commerce website. This result is also very coherent with the revolution happening in the e-commerce platforms landscape discussed in chapter two of the thesis. The continuous flourishment and birth of new merchant-friendly e-commerce platforms, such as Shopify, Wix, Fiverr, Prestashop and many other, are supported by the massive migration happening in the fashion sector witnessing a lot of companies moving from traditional e-commerce platforms - Salesforce, Magento and Woocommerce being the main ones - (i.e. Pangaia, Never Fully Dressed, Clarks, Gas Jeans, Chitè Milano. Source: Shopify and Diana Corp.) to these new platforms which offer a smart, almost ready-to-use solution with much lower costs, in exchange of a limited freedom of customisation of the platform and the platform's features. This renounce however is proven by the results of this thesis to not be very significant or negative in terms of impact on the sales performances, as the investments on the platform and website features themselves are not linkable to the formation of purchase intention.

In conclusion, the results of this thesis suggest that when fashion brands have as main objective of their investments the best sales performance, and they face budget constrictions bringing them to consider whether to invest into a highly customizable e-commerce platform or into marketing and communication strategies, they should prioritise their spending towards the latter ones.

Moreover, the supported moderating negative effect of involvement with the product category on the relationship between the attractiveness of the website and purchase intention finds potentially interesting insights for practical use. To the knowledge of the author, although IPC has been studied as a moderator variable on the relationship between the aesthetic quality of a product and the willingness of the customer to pay a

premium price, it has never been studied when IPC was applied to the sale channel instead of the products sold in it. Fashion brands usually put great attention and effort into the aesthetic quality of their websites, mainly in order to perpetuate and enhance the brand image and perception. In which cases however this effort had an impact on the sales performances of the website was unknown. The finding of this thesis has straightforward practical implications on this impact: purchases characterised by a high involvement from the customer, purchases that in the context of the fashion industry could be identified in purchase of luxury/premium items, are not or little influenced by the aesthetic of the website; on the other hand, purchases triggering low levels of involvement in the customer, which could be identified in the fast fashion category items, are positively influenced by the aesthetic quality of the website. This provides to the brands of the industry some useful knowledge on whether their efforts in improving the aesthetic quality of their e-commerce website has an impact on the sales performances of it. In the case of luxury and premium brands, for which this finding establishes a lack of impact of it, it can mean that, assuming that the aesthetic of the website has other functions other than boosting the sales as enhancing the brand image, the efforts put in place for the aesthetic quality could focus more on editorial parts of the website - such as the about page, the blog, the homepage - instead of the proper e-commerce pages - listing page and product page, as well as the cart and checkout page. On the other hand, for fast fashion brands the aesthetic quality of the website might be worth the effort especially if focused on the selling pages of the website.

3. 6 Limits of the thesis and suggestions for future research

As every other scientific research, this research presents some limits. First of all, results concerning the relationship between ATWCI and PI might not be precise due to a lack of substantial reliability. Although the scale items were taken from a reliable source, the Marketing Scale Handbook, Volume 5, by Gordon C. Bruner II, and they were not furtherly adapted in this research, the scale ultimately did not perform well in terms of

internal consistency (see Cronbach's Alpha and Composite Reliability results in paragraph 3. 4. 1). It is therefore suggested to future researchers to try improving the reliability of the used scale, or to propose a different scale for the measurement of the construct that investigates the e-commerce performance in terms of customer experience, in order to assess whether the resulting correlation between the construct and the formation of purchase intention is found to be significant.

Another consideration that I care to make concerns some of the constructs and concepts of the model, which for this research were positioned in the "marketing and communication stimuli" set of variables, but they arguably could have been considered as part of the "easy of transaction" set. Among these are the offer for delayed payment options, the offer for live chats in the e-commerce website, the presence of tools for online sizing and virtual fitting (these latter ones not specifically studied by dedicated constructs but included into the technological innovation construct). The reason behind their placement in this research is related to their recent advent into the landscape of e-commerce features, that makes them part of communication campaigns as means of attracting new and larger traffic on the e-commerce website rather than actually making them part of the consolidated strategy of customer experience. Once these innovations will pass from the stage of early adopters to being widely used by companies and customers as part of the purchase journey of e-commerce website they will have to be considered differently, in particular they will have to be considered as part of the set of elements concurring in the ease of transaction that an e-commerce website offers, and therefore seen as an evolution of the commonly discussed concept of e-commerce best practises.

Finally, The research presents some limits in terms of the respondents' sample. As previously discussed, on average the purchase frequency and purchase intention of the sample are not very strong, making the results of the thesis only relevant for markets with similar propensity to buy fashion items online. The results would probably be significantly different if the propensity of the considered market and target customers were higher. The same would probably hold for markets with lower purchase frequency and purchase intention for fashion items online. Moreover, the research does not focus

on one specific age segment, but rather includes in the analysis all the respondents. Due to the nature of some of the constructs, especially those featured in the marketing and communication stimuli set, such as SMA, SMME, DPO, and LCI, being these constructs the reflection of a change and evolution of the classic marketing strategies and generally involving an aspect of innovation and technological innovation, the results would likely vary if the analysis was to take into consideration only younger segments (i.e. gen z and millenials) or older segments (i.e. baby boomers). This would be due to a natural higher propensity in average of younger aged people to adopting and trying innovations. This consideration is particularly relevant in terms of the previously discussed consequences for marketing strategies. In fact, for companies having an heterogeneous target of customers in terms of age the results of this thesis and discussed relevant consequences might be useful to take into considerations, whereas for companies and brands having a well-defined target customer belonging to one of these specific segments, such as the gen z segment or the baby boomers segments, the same consideration might not hold significant as well. This is important to underline as it is not rare for fashion and apparel brands to have such defined targets of customers, with brands having the large majority of their customer base belonging to older segments (i.e. local productions of high-end clothing, such as cashmere garments, like already mentioned in this thesis Lanificio Colombo and Malo) or to younger segments (i.e. previously mentioned A Better Mistake and Coperni). Lastly, the research sample is exclusively formed by Italian respondents, making the results of the thesis inevitably anchored to the underlying cultural and social background. Some of the constructs' relationships with the endogenous variable PI might have different outcomes when considered in other societies having different cultural traits. For example, it is known that Italy has a much lower rate of private debt compared to the United States, indicating a lower propension of Italian private citizens to take out loans for consumption, but rather limit the debt incurrence only for bigger investments, such as house mortgages. This difference in debt propension could change the result of the correlation between DPO and PI, which is not verified for the considered sample. The opposite could happen for countries and societies with a low presence of innovations

early adopters, for which some of the verified relationships might not hold significance. It is therefore suggested to the future research to take into consideration the possible variation of the presented results in consequence of the variation of the cultural and social constructs of the considered sample.

3. 7 Conclusions

E-commerce sales and usage have been in constant growth in the last decade, with e-commerce revenues especially spiking during the Covid-19 global pandemic. The fashion sector is one the principal beneficiary of this growth, with highly positive annual growth rates and nearly every fashion brand, from the biggest names of the industry to small businesses owning and running an e-commerce website, and even brands selling exclusively through e-commerce platforms. The e-commerce landscape has been the stage in the recent years of the rise of new e-commerce platforms, which in contrast to traditional platforms, born to be managed by technical figures - developers -, are designed and built in order to be used by non-technical figures of a company. The competition between these two types of platforms is played mainly on two elements: the cost convenience versus the customization possibilities.

This thesis wanted to investigate and establish which are the elements of a company's e-commerce strategy producing the best performances in terms of sales when comparing investments on the e-commerce platform and investments on marketing and communication actions involving the e-commerce website, in order to understand and give a useful feedback on whether big investments on highly customizable e-commerce platforms are still reasonable and useful in the evolving scenery. The proposed model and consequently proposed hypotheses were formulated according to existing literature for each of the hypothesised paths. Here are reported some of the most relevant ones for a comprehensive and conclusive view:

- H1: (Puccinelli, Goodstein, Grewal, Price, Raghubir, & Steward, 2009), (Verhoef, Lemon, Parasuraman, Roggeveen, Tsiros & Schlesinger, 2009), (De

Keyser, Lemon, Klaus & Keiningham, 2015), (Lemon & Verhoef, 2016), (Neslin, Grewal, Leghorn, Shankar, Teerling, Thomas & Verhoef, 2006)

- ➢ H2: (Chung, Ko, Joung & Kim, 2020), (Uzir et al., 2021), (Song, Xing, Duan, Cohen & Mou, 2022), (Jones, Taylor, 2018), (Chang & Yang, 2022), (Rokonuzzaman, Iyer & Harun, 2021), (Shao, Cheng, Wan & Yue, 2021)
- ➢ H3: (Lee & Kozar, 2012), (David, Senn, Peak, Prybutok, & Blankson, 2021), (Zhou, Lu & Wang 2009), (Zhou, Suleiman & Yaqub, 2021), (Majid, Kamaruddin & Mansor, 2015)
- ➢ H4: (Fan, Wang & Wang, 2022), (Kwon, Ha & Kowal, 2017), (Wang, Wu, Lin & Shafiee, 2019), (Galizia, ElMaraghy, Bortolini & Mora, 2019), (Choi & Guo, 2017)
- ➢ H5: (Meek, Wilk, & Lambert, 2021), (Yang, Zhang & Kannan, 2021), (Grewal & Stephen, 2019), (Tang, Fang, & Wang, 2014), (Zhou, Barnes, McCormick & Blazquez Cano, 2021), (Muntinga, Moorman & Smit, 2011), (Mayrhofer, Matthes Einwiller & Nardered, 2019)
- ➢ H6: (Zhang, Zhang, Cheng & Hua, 2018), (Berezina, Semrad, Stepchenkova & Cobanoglu, 2016), (Shi & Chen, 2015), (Peng, Zhang, Wang & Liang, 2019)
- ➢ H7: (Sun, Bellezza & Paharia, 2021), (Kim, Kang & Lee 2020), (Battaglia, Testa, Bianchi, Iraldo & Frey, 2014), (Du & Bhattacharya, 2010), (Bartels & Onwezen, 2013)
- ➢ H8: (Kim & Ko, 2012), (Chung, Ko, Joung & Kim, 2020), (Zhou, 2018), (Yang, Carlson & Chen, 2020), (Hilken, T., Heller, J., Chylinski, M., Keeling, D. I., Mahr, D. & de Ruyte, K., 2018), (Puiu, Ardeleanu, Cojocaru & Bratu, 2021)
- ➢ H9: (Zellermayer, 1996), (Prelec & Simester, 2001), (Pal, Herath, De, & Raghav Rao, 2021), (Liu & Dewitte, 2021), Boden, Maier & Wilken, 2020)
- ➢ H10: (Kim, Xu & Gupta, 2012), (Coulter, Price & Feick, 2003), (Mittal & Lee, 1989)
- ➢ H11: (Kim, Xu & Gupta, 2012), (Coulter, Price & Feick, 2003), (Mittal & Lee, 1989)

The existing literature, overall, treats the variables in relation to purchase intention either singularly or by groups of similar variables, but it doesn't provide a comprehensive overview of how all these variables perform their impact on purchase intention, and how the opposition of two distinct types of variables perform one against the other. The results of the thesis, by confirming or contradicting the hypotheses, and therefore the findings of the mentioned literature, bring a quite clear answer to the research question, witnessing a significant correlation with purchase intention in consumers of marketing and communication stimuli that they receive involving the e-commerce website, while the qualities and features of the e-commerce website enhancing the ease of transaction do not look to be related to a significant impact on purchase intention. For this reason, as a relevant consequence for marketing strategies, this thesis suggests that marketing strategists should give priority to investments in these marketing and communication activities rather than in expensive, highly customisable e-commerce platforms. Moreover, a significant moderator variable is found in involvement with product category, which was never-before studied as moderator on the relationship between aesthetic quality and purchase intention when the former is applied to the sale channel.

Appendix

IV. The Internet and e-commerce history

4. 1 Introduction

In 2019 on Cyber Monday alone, a record of 9,4 billion dollars were made online (Forbes, 2019), marking it as the biggest selling day of history, and the first day in history when consumers spent over $3 billion using their smartphones. When we trade an asset of an object for money we are making a financial transaction. When we do it over an electronic network, like the internet, it is called e-commerce. At first, the term e-commerce meant the process of execution of commercial transactions electronically with the help of the leading technologies such as Electronic Data Interchange (EDI) and Electronic Funds Transfer (EFT) which gave an opportunity for users to exchange business information and do electronic transactions. The ability to use these technologies appeared in the late 1970s and allowed business companies and organisations to send commercial documentation electronically. Although the Internet began to advance in popularity among the general public in 1994, it took approximately four years to develop the security protocols (for example, HTTP) and DSL which allowed rapid access and a persistent connection to the Internet. In 2000 a great number of business companies in the United States and Western Europe represented their

services in the World Wide Web.[45] But how did we get from the first thing sold on the internet to this massive result?

To get to the very beginning of how e-commerce was born, we have to first look at the history of how the Internet was born. Unlike many innovations that arise nowadays, often developed from the seed of an idea thanks to crowd-founded startups, the invention of the Internet has its roots in the United States Government. The history of the Internet as we know it today traces back to before Internet Explorer and the World Wide Web, all the way to the ARPANET[46].

4. 2 The ARPANET

It was just 34 days before the biggest selling day on the internet in history, that the internet was turning 50. The day that history dates as the birth of the Internet was the 29th of October 1969, when the first package of data was transmitted from a computer to another one(Simonetta, 2019), located respectively at the Los Angeles University and Stanford University, through the ARPANET.

The "ARPANET" is a project born from the visionary idea of Joseph Licklider. Licklider was at that time the Head of the Information Processing Techniques Office (IPTO) at ARPA, the United States Department of Defense Advanced Research Projects Agency (Ceruzzi, 2012), formed by the Pentagon five years earlier in the aftermath of USSR's Sputnik as a fast-response research agency. Coming from a background in psychology, Licklider caught the attention of ARPA's director, Jack Ruina, when he published his expound upon his vision of interactive, symbiotic computing (History-computer.com, 2020). In March 1960 he went forward publishing a seminal paper titled "Man-Computer Symbiosis", in which he described his vision on the relationship between human and machine. He believed that the two were made to

[45] History of E-commerce, e-commerce land, 2004
https://www.ecommerce-land.com/history_ecommerce.html
[46] Acronym for Advanced Research Project Agency Network

cooperate, and the machine in particular, to be the element capable of enhancing human's intelligence and potential. In order to be able to do that, he formulated some characteristics that the computers should have, the most important to the history being the "real time". to explain the concept properly he even referred to an hypothetical situation: "Imagine trying, for example, to direct a battle with the aid of a computer on such a schedule as this. You formulate your problem today. Tomorrow you spend with a programmer. Next week the computer devotes 5 minutes to assembling your program and 47 seconds to calculating the answer to your problem. (...) Obviously, the battle would be over before the second step in its planning was begun. To think in interaction with a computer in the same way that you think with a colleague whose competence supplements your own will require much tighter coupling between man and machine than is suggested by the example and than is possible today." (Licklider, 1960). It was from this concept that, funded and encouraged by the ARPA, he developed the idea that turned out to be so revolutionary.

After being asked to be the director of DARPA's IPTO[47], he formed and funded groups of research around the country, such as the MAC[48] Project at MIT[49], an Artificial Intelligence research group at Stanford University under the lead of time-sharing inventor John McCarthy, Berkeley, Rand Corp. and so on. He also collaborated with another scientist whose ideas on the man-machine ideas were very close to his own, Douglas Engelbart, which, thanks to funds by Licklider and eventually the NASA[50], ended up being the father of the mouse, hypertext, on screen windows and many other features of modern software.

Creating this net of people, researchers and scientists, and information, Licklider wanted to build a community in which the progresses were made on one another's work, organically instead of in parallel, which would have risked to result in a network of incompatible machines. He was also foreseeing the physical infrastructure from which to build the result of the research efforts.

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[47] Information Processing Techniques Office

[48] the name stood for both "Multi-Access Computer" and "Machine-Aided Cognition" (History-Computer.com, 2020)

[49] Massachusett Institute of Technology

[50] National Aeronautics and Space Administration

Finally, in a memorandum to his colleagues dated April 23rd, 1963, Licklider presented the concept of the Intergalactic Computer Network, describing it as ‘the main and essential medium of informational interaction for governments, institutions, corporations, and individuals.' (Licklider, 1963). The solution was to make it extremely easy for people to work together by linking all of ARPA's time-sharing computers into a national system. These very concepts are the precursors of what today we call the internet.

Shortly after the presentation of his idea, Licklider was asked to go back to MIT, so the project of the ARPANET was then brought forward by two of Licklider’s colleagues, university professors Ivan Sutherland and Robert Taylor. Taylor became director of the ARPA in 1966, and carried on a research in order to involve the most brilliant minds of the country in the project. Particularly crucial for its contribution to the project has been the recrutation of Larry Roberts. Roberts, previously working at MIT, became the program manager for the ARPANET project. His design of the network together with the work of Paul Bauran and Donald Davies on packet switching made what since then had been an idea into something possibile (comupterhistory.org, 2020).

In 1968 Taylor presented the project for the creation of a network of computers to allow the exchange of data, information and communications among ARPA’s offices and the various universities that were collaborating with the agency. The construction of the network started the following year and its functioning was based on the use of the IMP, Interface message Processors, nowadays called routers (Fastweb, 2013).

The first version of the ARPANET was formed by four IMPs, located one at the laboratories of the University of California (UCLA), one at the Augmentation Research Center of Stanford Research Institute, the third at the offices of the University of California, Santa Barbara (UCSB), and the fourth in the computer science department of the University of Utah. The 2nd of October, 1969, the first message ever was exchanged from UCLA to SRI. The message was the word “login”, and it actually caused the SRI host to crash after having received only the first two letters “lo”. The full message was later successfully transmitted only on the 29th of the same month (Savio, 2011).

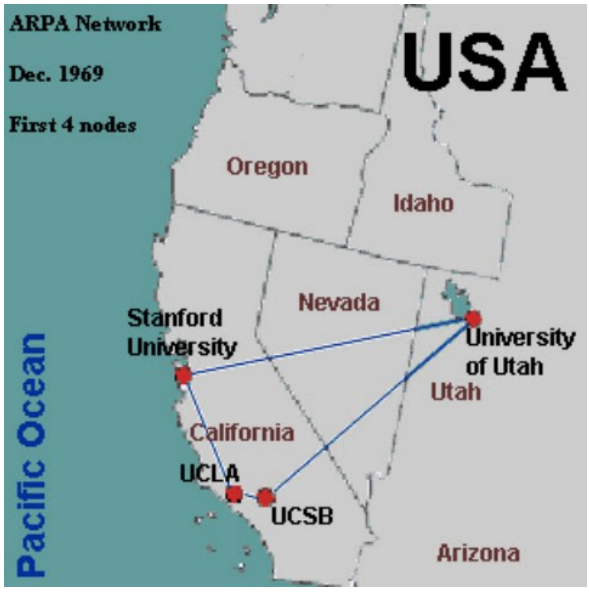


Figure 7. The four original nodes of the ARPANET

Nodes started to be added to the ARPANET net at the rate of one per month, in 1971 they were already 17, and thanks to large investments, by 1973, when the ARPANET counted thirty institutions connected to each other, the network also reached overseas countries, such as Norway and England (Kirstein, 1999).

As the touchpoints were growing, the need for a common language became more and more evident. One of the major problems was that the ARPANET was a radio-based PRnet, while SATNET[51] all had different interfaces, packet sizes, labelling, conventions and transmission rates.Thus, Bob Kahn moves from BBN[52] to DARPA to work for Larry Roberts, and his first task is the interconnection of the ARPANET with other networks. He enlists Vint Cerf, who has been teaching at Stanford. In 1974 they published the Transmission Control Protocol (TCP) and the Internet Protocol (IP) in the May issue of IEEE Transactions on Communications Technology, , thanks to which the standards for data transmission have been defined. Shortly thereafter, DARPA funded three contracts to develop and implement the Kahn-Cerf TCP protocol described in their

[51] SATNET, also known as the Atlantic Packet Satellite Network, was an early satellite network that formed an initial segment of the Internet. It was implemented by BBN Technologies under the direction of the Advanced Research Projects Agency.

[52] Bolt Beranek and Newman – informatic consulting company based in the United States, Nowadays called BBN Technologies

paper, one at Stanford, one at BBN, and one at University College London (directed by Peter Kirstein and his students). Three years later, in 1977, Cerf and Kahn organised a major demonstration of their work, 'internetting' between the Packet Radio net, SATNET, and the ARPANET. Their messages went from a van in the Bay Area across the US on ARPANET, then to University College London and back via satellite to Virginia, and back through the ARPANET to the University of Southern California's Information Sciences Institute (computerhistory.org, 2020). This demonstration showed its applicability to international deployment.

4. 3 The Electronic Mail

The first major function that the ARPANET had conceived and built for was indeed the interchange of information. On some level, with information passing from a computer to another one through a net, it could be said that electronic mail, from now on referred to as email, was born with the birth of the ARPANET. Looking closely at history, some form of email system actually already existed even before the ARPANET. Probably the first email system of this type was MAILBOX, used at Massachusetts Institute of Technology from 1965. Another early program to send messages on the same computer was called SNDMSG (Peter, 2004).

Both the mentioned systems although, had a very significant limit which made them miss the title of first ever email system. The limit was related to two fundamental factors: first that, contrary to what we are used to today, computers were all used in a time-sharing modality, in which each terminal could be used by hundreds of users, and second, that the information interchange at that time didn't intercurred between user and user, but from terminal to terminal. Therefore, email could only be used to send the same information to various users at the same time.

Email remained like this until a few years after the ARPANET started working, when Ray Tomlinson started working on a system with which messages could be addressed with a sender and a receiver, a system that survived and lasts to these very days. The

starting point of Tomlinson was the SRI[53] “Mail Box Protocol” (still available at this url: https://tools.ietf.org/html/rfc196) of which the purpose was to “provide at each site a

standard mechanism to receive sequential files for immediate or deferred printing or other uses” (Watson, 1971). After analysing it, Tomlinson judged it as too complicated and too limited. The protocol in fact, had three major limitations: first of all, it was conceived only for receiving “sequential files for immediate or deferred printing or other uses” (Watson, 1971), the recipient of the message was not a specific person but a numbered mail box, and the files could be shared among a small number of users and terminals. Tomlinson especially focused on this part of the document: “At the head of the message or document sent to mail box number 0 there is to be an initial address string terminated by a form feed. This address string is to contain the sender's name and address, and the receiver's name and address formatted in some reasonable, easy-to-read form for a clerk to read and distribute. Comments could also be included in the address string.” (Watson, 1971). In Tomlinson’s vision, it was crucial to the success of an email system for its users to be able to send and receive messages without having to open the message in order to know who the message was sent for. In other words, the message needed to be inserted in a virtual envelope which contained the information about both who was sending the message and whom it was addressed to. He therefore put together some parts of the other project he already had been working on, a protocol for the transmission of files (FTP), combined them in order to adapt them for the transmission of messages, and finally came up with a solution that was able to divide the name of the terminal from the name of the user. To do so he used the “@” symbol as the separator, resulting ultimately in this format: name-of-the-user@name-of-the-computer. Using this addressing system, the communication switched from being machine to machine to begin from user to user. As little this change could seem, it actually brought a revolution to the internet communications.

Things developed rapidly from there. Larry Roberts invented some email folders so he could sort his mail, another big advance. In 1975 John Vittal developed MSG, the first

[53] Stanford Research Institute

modern email program. This software included new powerful features such as message forwarding, a configurable interface, and an Answer command that automatically created properly addressed replies. By 1976 email had really taken off, and commercial packages began to appear. Within a couple of years, 75% of all ARPANET traffic was made of emails (Peter, 2004).

Many scientific articles argue that it was indeed the email application the real promoter of the Internet. Being something that could be useful to the large public in general, it moved the Internet from being an academic type of tool, to a tool able to catch the attention and the interest of normal people. Some of the most important milestones in email's history are: 1976, Queen Elizabeth sends her first email through the ARPANET, becoming the first head of state to do so; 1996, HoTMail launches, founded by Jack Smith and Sabeer Bhatia; 1997, Outlook is born with the release of Microsoft Office 97; 1998, Microsoft buys Hotmails; 2004, Gmail launches; 2007, the first Iphone launches, incorporating mobile email for customer masses. (Desmond, 2015)(Gibbs, 2017).

4. 4 The World Wide Web

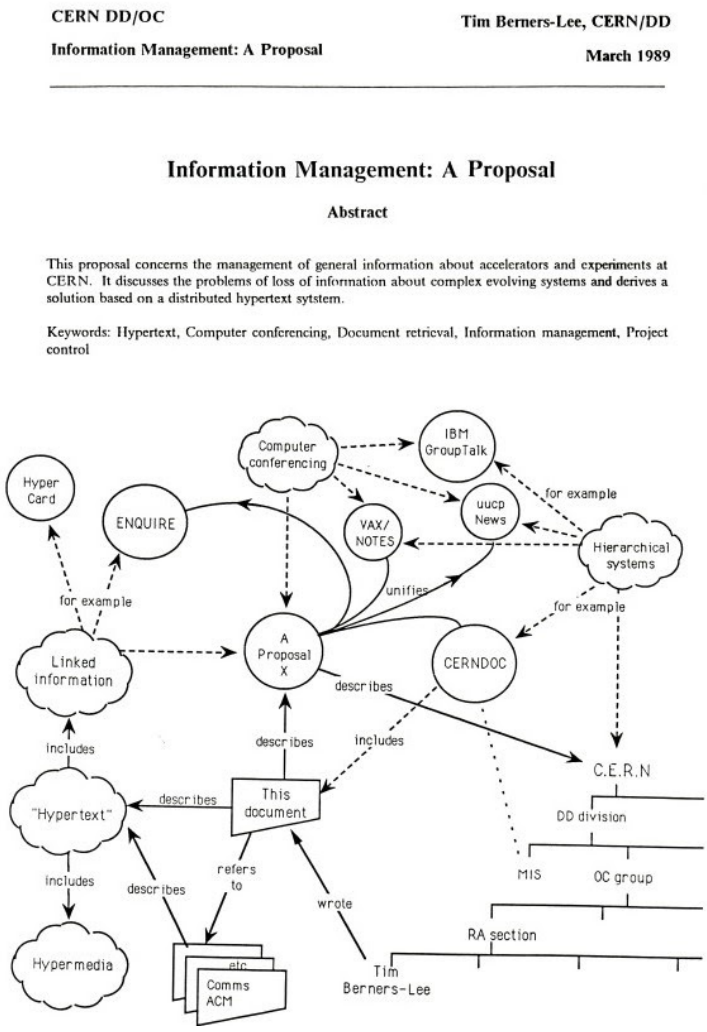
Although the ARPANET had laid the foundations for what today we call the internet, many years still had to pass for it to become a closer version for functioning, appearance and extension of what we are used to today. Even at its maximum extension, the ARPANET comprehended about a thousand users which had to alternate themselves upon about twenty terminals.

The second crucial milestone for the history of the Internet arrived in 1989, when in the laboratories of CERN[54], Geneva, british scientist Tim Berners-Lee presented the project for the World Wide Web, a network based on the existing technology, but working through hipertextual links. The starting point of Berners-lee work was slightly different from the one that firstly moved the scientists at DARPA. Working at CERN with the

[54] From French, Conseil européen pour la recherche nucléaire.

most powerful particle accelerators of the world, he experienced on a daily basis the sharing of information among scientists coming from all over the world to use them. But as he said, “In those days, there was different information on different computers, but you had to log on to different computers to get at it. Also, sometimes you had to learn a different program on each computer. Often it was just easier to go and ask people when they were having coffee…” (Answers for Young People, Berners-Lee, 1993). Being at that time the Internet a fast-developing technology, already connecting an impressive amount of computers among each other (that year alone Australia, Germany, Israel, Italy, Japan, Mexico, Netherlands, New Zealand and the United Kingdom joined the Internet), Berners-Lee saw in the combination of that technology and another emerging one, hipertextual links, the solution to this problem.

In march 1989 he presented a document entitled “Information Management: A Proposal”. His colleagues and boss weren’t impressed with the idea at first, but rather commented on it as “vague but exciting” (CERN, 2020). This was the first page of its proposal:



CERN DD/OC

Information Management: A Proposal

Tim Berners-Lee, CERN/DD

March 1989

Information Management: A Proposal

Abstract

This proposal concerns the management of general information about accelerators and experiments at CERN. It discusses the problems of loss of information about complex evolving systems and derives a solution based on a distributed hypertext sytstem.

Keywords: Hypertext, Computer conferencing, Document retrieval, Information management, Project control

Figure 8. WWW first proposal conceptual scheme

The project of the web was never an official one at CERN, but Berners-Lee boos, Mike Sendall, still let him manage his time so that he could have some to work on it. He started to designed and built the first Web Browser and the first Web Server, CERN HTTPd[55] [56], on a NeXT computer, one of Steve Jobs' early products. (CERN, 2020).

[55] CERN httpd is an early, now discontinued, web server (HTTP) daemon originally developed at CERN from 1990 onwards by Tim Berners-Lee, Ari Luotonen and Henrik Frystyk Nielsen. Implemented in C, it was the first ever web server software.

[56] In multitasking computer operating systems, a daemon is a computer program that runs as a background process, rather than being under the direct control of an interactive user.

On the 20th December of 1990 Berners-lee published the first-ever website, info.cern.ch, demonstrating his ideas. the three fundamental technologies on which the website was built were (World Wide Web Foundation, 2020):

- HTML: HyperText Markup Language. The formatting language for the web.
- URI: Uniform Resource Identifier. The web "address" that is unique and used to identify each resource on the web.[57]
- HTTP: Hypertext Transfer Protocol. Allows for the retrieval of linked resources from across the web.

The first Web page address was http://info.cern.ch/hypertext/WWW/TheProject.html. First of all, the website included: an explanation of what the World Wide Web was, an executive summary, a mailing list, policy of the website, a collection of November's W3's news, a Frequently asked questions section. Following was an explanation on how to navigate the website, the users could choose to browse by subject of interest or by type of service. The subjects that the users could find information about included: aeronautics, astronomy and astrophysics, bio sciences, computing, geography, law, libraries, literature, humanities, mathematics, meteorology, music, physics, politics and economics, reference, religion, social sciences. The page containing this list goes further than the mere presentation of the subjects, inviting users to mail www-request@info.cern.ch "if (they) know of online information not in these lists" (Berners-Lee, 1990). The content of the website goes on with a list of clients and servers related to the WWW, a "help" page, containing a guide for each browser existing at the time (Line Mode Browser, Viola, NeXTstep, MidasWWW), a list of components and tools contributing to the W3 project, a "Technical" page where users could find details about protocols, HTML formats, designs issues, implementation guidelines, coding standards, working notes and so on. The second part of the website's content focuses on referencing the project, being a list of pages about bibliography, people involved, and even a short summary of the history of the project. The last page

[57] Nowadays the URI is commonly called URL. There is actually a difference between the two words and their meanings, the first one being "Uniform Resource Identifier", an object the tells just the specific source, and the second one being "Uniform Resource Locator", telling also how to access the source (Miessler, 2020)

of the website is titled “Getting code” contains a short guide for downloading the code from an anonymous FTP[58].

The WWW described itself as following “The WorldWideWeb (W3) is a wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents.” (CERN, 1990).

The original website can still be navigated at this url: http://info.cern.ch/hypertext/WWW/TheProject.html. The CERN website even offers the possibility to browse it using a line-mode simulator, which recreates for modern visitors a realistic replica of what the website looked like when Berners-Lee and his colleagues were working on it. Following is a screenshot of the first view.

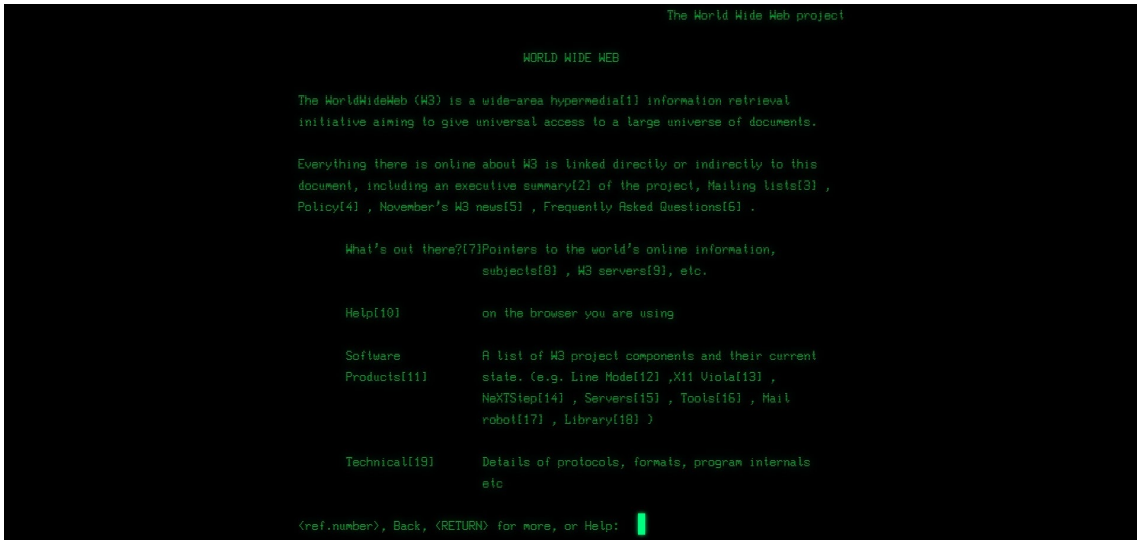


Figure 9. Screenshot of the first view of the WWW website

The World Wide Web overcame European’s borders in 1991, thanks to the efforts of Paul Kunz and Louise Addis, which put online the first Web server in the US at the Stanford Linear Accelerator Center (SLAC) in California (CERN, 2020).

On the spread of the usage of the WWW, it had a huge impact the release of the source code available on a royalty-free basis in 1993. Even the creator of WWW himself, Tim Berners-Lee, advocated for the release of the source code as free software, and commented: “Had the technology been proprietary, and in my total control, it would

[58] File Transfer Protocol

probably not have taken off. You can't propose that something be a universal space and at the same time keep control of it." (World Wide Web Foundation, 2020).

Making the software free, the CERN encouraged the research community to join the small team, and several individuals wrote browsers, mostly for the X-Window System. Among those the most notable were MIDAS by Tony Johnson from SLAC, Viola by Pei Wei from technical publisher O'Reilly Books, and Erwise by Finnish students from Helsinki University of Technology. (Connelly, w3.org, 2000). By the end of 1993 there were over 500 known web servers, rising to an impressive ten thousands, two thousands of which were commercial, and 10 million users by the end of 1994 (CERN, 2020).

On a less technical note of the WWW history, the World Wide Web Foundation[59] website underlines how the web community introduced some revolutionary concepts that impacted society and culture all around the globe far beyond the technology sector. Among these are:

Decentralisation: No permission is needed from a central authority to post anything on the web, there is no central controlling node, both on the side of freedom of posting as well as freedom of censuring.

Non-discrimination: If someone pays to connect to the internet with a certain quality of service, and someone else pays to connect with that or a greater quality of service, then we can both communicate at the same level. This principle of equity is also known as Net Neutrality.

Bottom-up design: the code was developed in open view to everyone, first by a small team of people but soon joined by a whole community, free to add their contribution without being controlled by anyone, encouraging maximum participation and experimentation.

Universality: For the WWW to be a network in which everyone can post and read anything they want, all the computers involved have to speak the same languages to each other, no matter what different hardware people are using, where they live, or what cultural and political beliefs they have. In this way, the web breaks down

[59] The World Wide Web Foundation was co-founded by Tim Berners-Lee and Rosemary Leith in 2009 with the objective of "fighting for the web we want: a web that is safe, empowering and for everyone." (World Wide Web Foundation, 2020)

communication boundaries and differences between its users, while still allowing diversity to flourish.

Consensus: For universal standards to work and be successful in their spreading, everyone had to agree to use them. Berners-Lee achieved this consensus by giving everyone a say in creating the standards, through a transparent, participatory process at W3C.

4. 5 The factors that shaped the Internet growth

Only ten years after the first-ever website had been published, in 2000, 5% of the world population were using the World Wide Web, and by 2007 17% (Berners-Lee, 2014). In June 2020, this percentage has grown till 62% of the world population (www.internetworldstats.com, 2020).

From its very birth in the 1960s, the Internet has passed from being primarily a tool for the Department of Defense, to a network of universities sharing information for research aims, to a global network sustained and brought forward by scientists all over the world. Finally, the main promoter of the spread of the Internet was of course its commercialisation. In its journey to becoming the fundamental part of everyone's life nowadays, the Internet underwent three major phases. The first phase, the one that has been told since this point of the thesis, it's its invention. The second phase of the Internet evolution is its transformation from an invention to an innovation. Innovation could be defined as the act of turning invention into something useful. The third phase of the Internet evolution is finally its commercialization. Commercialization could be defined as the process of translating innovations into valuable products and services. Innovation and commercialization must connect to each other in order to produce the result of a successful spread of their subject, because both involve market activities, such as building the production and distribution processes to deliver a new service to customers. As Shane Greenstein argues in its book "How the Internet became commercial", the process of how the Internet was commercialised and therefore

acquired more and more importance in societies, was not driven by one or few major players, but rather from the relevant experiences span multiple generations of participants from a varied set of backgrounds. This type of process is defined as innovation from the edges, a concept coming originally from communications markets, that could be described as the experimentation of new technologies where the impact is - typically - small, but the discretion to experiment is large. In the case of the Internet evolution, the main characters of this innovation process were those suppliers who lacked power in the old market structure, who the central firms regarded as peripheral participants in the supply of services, and who perceived economic opportunities outside of the prevailing economic view. The reason this type of innovation was possible in the first place resides in the Internet architecture itself. Being thought of and designed as a platform of shared knowledge, even the very earliest components of the network were designed to combine and be compatible one with another, reducing technical variety by embodying specific choices for standards that all applications use. This design technique is called modularity. Modularity also allowed for changes in one component of hardware and software without changing another.

Another important principle to underline when understanding why the platform structure was determinant for the innovation at the edges process, is the fact that the "end-to-end" principle (Saltzer, Reed, & Clark, 1984) played a central role both as design and governance of it. End-to-end networks can be described as networks that place the computing applications at the devices and clients rather than at the servers, and this, simply put, means that the applications in one location might work in another because nothing in the middle of the network - the servers - altered the data as it traveled between the ends. This property was well known to engineers in the phrase "The intelligence resided at the edges of the network" (Quant, 2020), and it is well explained in this retrospective look: "When a general- purpose system (for example, a network or an operating system) is built and specific applications are then built using this system (for example, email or the World Wide Web over the Internet), there is a question of how these specific applications and their required supporting services should be designed. The end- to- end arguments suggest that specific application- level

functions usually cannot and preferably should not, be built into the lower levels of the system— the core of the network." (Blumenthal & Clark, 2001). This principle translated into the fact that the chances that administrators at the edge would add new applications increased a lot, because deploying applications did not require coordinating with the carriers of the data. This system not only suited well for a growing field in which inventive minds could augment the overall value of the innovation by adding their contribution without having to ask for someone permission, opinion or approbation, but it also suited a network with diverse and dispersed investment and management. At the same time, the innovation process would auto-regulate itself, in the meaning that it was the network itself deciding whether to pick a new application and turn it into a standard, or leave it to disappear in history's course. Again this process is well described by the thought of David Crocker, in which he describes the failure of the proposal of a protocol: "Eventually, the specification stabilised and we published it. A few people decided to implement but it soon died away, in spite of his publishing a revision a bit later. [...] Almost no one knows of this protocol today, but I consider it a superb example of the real "decision" process of the Internet community. Someone suggested an idea. Some others fleshed it out. Still more people tested it. No one complained about authority or scope of responsibility, or following a particular process. No one worried about egos or power. The focus was on the problem and its possible solution. The problem was serious enough and the idea appealing enough to get some people interested in exploring it. The idea failed, but it failed on its merits" (Croker, 1998). The rise of standards was also a natural process once a new functionality was adopted by enough individuals, since it made sense for any other individual to follow them in order to remain compatible with the network. New developments were also self- reinforcing. Computer scientists could work and specialise in one part of the system, and then leave it to others to do complementary efforts in other parts of the system. This process as a whole is also responsible, it could be said, to have produced the best Internet version possible, and this because it's the results produced by the technical meritocracy over many many years.

Another very important, more practical, event for the long-term shaping of the creation and evolution of the computing and communication market was the settlement between the United States Department of Justice and the American Telephone and Telegraph society. The AT&T was the largest telephone company in the world, practically managing and controlling the entire telephone services industry in North America since its creation in 1887. The AT&T operated through the Bell System, a system of companies all led and owned by it in a vertical monopoly. Initially the system had grown naturally with no explicit intent of becoming a monopoly, but as it turned out to be, many Americans were unhappy with its existence: they questioned whether giant firms like AT&T should be allowed to exist, regulated or not. (Tein & Galambos, 1987). The movement against it resulted in an antitrust case filed against it in 1974. Long story short, in 1982 the case was closed with a settlement that stipulated that the firm would break itself up into eight organisations. This decision brought the structure of the market back to a situation of competition, and the lack of a dominant firm in computing or communications would have a crucial importance for the future Internet's growth: not only it eliminated the possibility that impactful decisions could be made by a single boardroom, but the fragmentation of AT&T spread many of the decision makers of the sector in relevant commercial arenas. To sum it up, it accelerated steps toward a new era marked by decentralised decision making, where multiple organisations had discretion to act (Greenstein, 2015).

4. 6 The Internet privatisation

As already told in the previous paragraphs, the invention of the Internet was a collective invention, an invention that developed slowly throughout the 1970s and 1980s, accumulating small contributions and capabilities from a large number of contributors. Researchers with government sponsorship contributed some of the primary innovations, while plenty were borrowed from the active private sector (Cambell-Kelly & Garcia-Swartz, 2013). A very critical step of this initial phase was the development of

the NSFNET[60]. Born as a project motivated by the interest in supercomputing, the NSFNET was developed in two stages, the first one involving interconnecting five NSF supercomputer centres and the second one involving constructing a high-speed backbone to link together various campus networks across the United States (Rogers, 1998). By 1986 the NSFNET was ready and operating, connecting more than 200 colleges and universities together via the regional networks, which in turn connected to smaller local networks and various federal networks such as the Department of Energy's ESN[61] and NASA Science Internet (Office of Technology Assessment, 1993). In the late 1980s, as more and more institutions connected to the NSFNET, it became clear that, while adequate for educational purposes, a rising movement to privatise the NSFNET backbone was acquiring great importance. By the early 1990s, telecommunications policy for both political parties was based upon notions of deregulation and competition (Olufs, 1999), and the NSFNET could make no exception. In fact, the privatisation of the Internet became seen as virtually inevitable for two reasons, the first one was the desire to send private, non-governmental traffic across it, and the second was the wish of telecommunication companies to sell connectivity or infrastructure (Kesan & Shah, 2007). A turning point for Internet privatisation was when Stephen Wolff was asked to manage the Internet for the NSF[62]. Being an engineer Wolff took the privatization of the Internet as a pragmatic matter (Greenstein, 2015). He eventually concluded that private firms probably could handle all the relevant tasks. Wolff made an educated decision, guessing that the costs for universities and researchers could be lower if private providers supplied services to both his constituents and private users. The budgets for many networks also could improve if there were multiple sources of revenue (Wolff, 2008). Wolff was not only weighing internal and external elements in order to make the best decision possible for the Internet's future, he was also driven by the NFS Acceptable Use Policy (AUP), which stated that the NSF had one grand purpose: to stretch the frontier of science and aid the institutions of discovery. As an implicit rule,

[60] National Science Foundation Network
[61] Energy Sciences Network
[62] National Science Foundation, is the United States governmental agency that supports research in all scientific fields that are not medical.

NFS should remain distant from starting an industry that could compete with others already in existence. In this optic, privatisation was not only a pragmatic choice, but a necessary one as well: the growth of the Internet under the NSF management would have severely limited by that principle and would have exposed its weakness. Since the US government paid to set up the infrastructure, as it did with the NSFNET, carrying the aforementioned commercial traffic would be interpreted as a violation of the NSF's AUP. It was at the same time quite clear that economies of scale was the easiest and fastest way to achieve as much traffic as possible over the backbone lines. The privatisation process started in 1985, when the NSF decided for a form of private/public partnership to upgrade the speed of the network to 56K. For the public part the NFS received a budget from the Congress, and for the private part it solicited bids in the private sector of communication. In 1986, the NSF selected a joint bid from MCI[63] and IBM[64] with MERIT[65] as the managing contractor. These organisations had a valid range of assets and experience. MCI was the telephone company providing the long- distance lines to carry the data from point to point. IBM provided the computer equipment and software to make the network work. The staff at MERIT had experience with operating a network for the research and educational community in the state of Michigan to operate one for the entire country. The motives of management fluctuated for years between non monetary and monetary issues in a lucky balance, until the profit-making and non-profit-making goals came into conflict. The conflict arose around 1988, at the same time with another awareness, about the fact that the NSF backbone was so intensively employed that an upgrade would have become necessary in a short time. As a consequence, in 1989 the then-chairman of the Senate Subcommittee on Science, Technology, and Space, Al Gore, conducted hearings about upgrading the Internet backbone. The hearings led Gore to sponsor the High- Performance Computing Act in 1991. The act provided a framework for funding the NFS efforts to upgrade the Internet backbone and support use of supercomputers in universities. These efforts directly produced a key advancement in Internet history, the realisation of its first long distance

[63] Microwave Communications of America, originally Microwave Communications, Inc.
[64] International Business Machines Corporation
[65] Michigan Education Research Information Triad

high- speed lines. Meanwhile, Wolff's plan to privatise the NSFNET backbone extracting it from NFS had become particularly complicated, since at that point IBM, MCI, and the other private organisations operating the Internet backbone had gained a competitive advantage, while several other firms also had staked out commercial positions, and they did not want the transition to provide IBM or any other insider in the soon-to-arrive competitive world where the NSF would have no longer been a player. Particularly important among these competitors were three entrepreneurs, William Schrader, Martin Schoffstall and Rick Adams, that in 1989 had started two new companies, PSINet[66] and UUNET[67]. The two companies both followed the non-profit trait of most of the companies in the field at first, but when they forecasted a new growing market in the near term, they quickly abandoned the non-profit sector to enter the commercial one. What they did was buying assets from the state of New York and NYSERNET, and renting services back to the very same customers that they had before, only that way the services had turned from public to private (Cerf, 2000). This simple business move produced a very important consequence: IBM could no longer expect to be the sole beneficiary of privatisation of the Internet. A competitive market had been created where up until that point the market could have only turned into a monopoly. The competition stood not only for the economic point of view, but also for the policies making one. In answer, IBM created ANS, Advanced Network Services, as its commercial division for the private Internet. Through legal actions ANS managed to ensure the exclusive utilisation and licensing of the NFS's backbone for itself. Reacting to ANS de facto monopoly, PSINet and UUNET took action creating their own interconnection policy. They contacted Susan Estrada, who operated CERFNET[68], based in San Diego, with whom they established the Commercial Internet eXchange, or CIX (Chinoy & Salo, 1997). CIX was composed by a router placed in Washington, DC which served as the centre for a series of interconnecting lines. The deal at the base of the network was easy and effective: all the firms participating and using CIX's lines to

[66] Performance Systems International
[67] The company takes its name from the UUCP protocol. UUCP is an acronym of Unix-to-Unix Copy. The term generally refers to a suite of computer programs and protocols allowing remote execution of commands and transfer of files, email and netnews between computers.
[68] California Education and Research Foundation

transmit traffic would pay a flat rate in order to cover maintenance costs of the infrastructure, and at the same time agree not to charge the other firms on the basis of the volume of traffic they delivered. Only one year after its creation CIX opened another router in Santa Clara, and another in Chicago a year later, quickly coming to cover the needs of the private industry in the entire country. CIX offered a solution to support interconnection between local networks, and doing it it went all the way opposite to ANS's model, which charged in proportion to volume of traffic, putting all the costs in fixed fees and none into volume pricing. In a matter of six years all commercial providers had joined CIX, everyone except for ANS, which at that point was isolated and had lost its negotiating leverage. In 1992 it surrendered, agreeing to interconnect with the CIX. This single event established once for all the relationship between the multiple local providers of data services in the US national network.

In 1993 the plan for NSFNET privatisation was finally ready: first it presented a timetable for turning off the NSFNET, effectively transferring the assets to IBM and MCI, and secondly it established institutions that helped the commercial Internet operate as a competitive market after the NSFNET shut down. Various firms were chosen to implement parts of the plan, and eventually in spring of 1995 NSFNET was shut down. The market structure at the time of the shutdown was composed not only of ANS, UUNET and PSINet, it actually had a much broader number of competitors, among which were seven regional Bell companies, three long-distance services plus many small firms, a large geographically dispersed local telephone company (General Telephone and Electric), and many local telephone companies (Greenstein, 2015).

As final consideration on the Internet privatisation process, it should be said that while in the United States a complex and probably lucky series of events had brought the country to privatise a carrier industry for data using TCP/IP protocols, in other countries, despite having the United States as a possible model to follow, a competitive market came in shape much later. Most of the countries that had a public network handed it over to the national telephone company, turning it into a monopoly for many more years.

4. 7 The Internet commercialization and the raise of e-commerce

The subsequent step that naturally followed privatisation of the Internet, being its commercial use one of the main reasons in the first place, was the emergence of the commercial Internet access market built around browsers. This process had a much faster course than the privatisation did.

The first browser ever as told earlier was in fact a free access and free usage one, but it was mainly used by skilled programmers and researchers of the field (Gillies & Calliau, 2000). Commercialization of the Internet began when browsers started to be licensed by leading-edge software organisations, such as Spyglass, JavaSoft, Microsoft, and Netscape (Cusumano & Yoffie, 1998). The first ever licensed web browser was Netscape Navigator by Netscape, co-created by Marc Andreessen and Jim Clark. Two other significant web browsers were Mosaic, licensed by Spyglass, and closely next in terms of release Internet Explorer by Microsoft. The majority of these browsers were very much inspired by the Berners-Lee WWW in an open and non-hidden way (Kesan & Shah, 2004), they were based on the WIMP style, which stands for windows, icons, menus, pointer, and they were licensed as applications, functioning regardless of which operating system was running on the computer. The winning strategy of browsers licensing was a mix of free licensing and paid licensing. The first one would be offered to households and the second one to businesses.

Commercialization was so much faster than privatisation that by 1995, the same year the NSF's backbone had been turned off, already more than half the US adult population was using a computer regularly (Statistical Abstract of the United States, 2007. The National Data Book), more than one third of the households owned one (Statista.com,

accessed in 2021) and thanks to BBSs[69] supporting and delivering pornographic material the spread of Internet reach arrived even in the smallest and isolated towns which national companies had no interest in covering with their businesses (Campbell-Kelly & Aspray, 2004). Both the size and price tags of PCs[70] at that point in history had diminished enough, if not to make them a commodity, at least to make them accessible for the middle class. Also, because most of the PCs were running on Intel Pentium processors, had built-in CD-ROM drives and operating Windows 95, their usage was no longer reserved to researchers, programmers and field's fanatics, but it was accessible and usable by the general public. As PCs and Internet usage had reached such a remarkable spread, in that very same year, 1995, two marketplaces were launched on the Internet, their names were Amazon.com and Ebay.com (initially launched with the name AuctionWeb).

In a matter of years, by 2002 e-commerce revenues had surpassed the number of Internet users in the United States and were closely following in Western Europe with a total estimated market value of over 838 billions dollars, including B2C and B2B (United Nations Conference on Trade and Development, 2002).

The growth of commercial Internet and e-commerce usage never stopped since its very birth, and nowadays, in 2021, e-commerce is projected to generate commercial transactions for 4,5 trillion dollars (WPForms, 2021). In order to provide an overview of the size and importance of e-commerce in our society, following are some of the most significant statistics regarding the current state of e-commerce usage, spread and recurring behaviours:

- 65,2% of global internet users have purchased products online (Statista, 2021).
- The previous statistics rise to 78% when considering the age group going from 16 to 54 (Eurostat, 2021).
- By the year 2040, it's estimated that 95% of all purchases will be through eCommerce (Nasdaq, 2017)

[69] Bulletin Board Service
[70] Personal Computer

- ➢ The eCommerce industry is growing 23% year-over-year, yet 46% of American small businesses still don't have a website (Bigcommerce, 2021).
- ➢ Mobile commerce accounts for 45% of total e-commerce transactions in the United States with a value of 284 billion dollars in 2020 (Business Insider, 2020).
- ➢ 59% of Millennials will go to Amazon first when online shopping (Inviqa, 2018).

Table 17 Online store traffic divided per source of fourteen fashion e-commerce websites

Brand name	Website url	Mobile sessions	Desktop sessions	Sessions from other sources	Tablet sessions	Sessions total	Mobile sessions percentage
Brave Kid	bravekid.com/	14623	8398	706	119	23846	61,32%
Gas Jeans	www.gasjeans.com/	163236	72949	6772	1985	244942	66,64%
Anti-do-to	www.anti-do-to.com/	39279	15611	603	262	55755	70,45%
Manebì	manebi.com	2080383	329350	25076	30319	2465128	84,39%
Plan C	plan-c.com/	106087	23365	1517	2436	133405	79,52%
A better mistake	abettermistake.com/	70170	12749	490	352	83761	83,77%
Coperni (EU)	coperniparis.com/	79343	40097	1040	825	121305	65,40%
Coperni (US)	us.coperniparis.com/	49719	22684	1249	597	74249	66,96%
Lanificio Colombo	/it.lanificiocolombo.com/	35045	16204	1141	1217	53607	65,37%
Valentino Shoes	valentinoshoes.com/	45883	2810	413	112	49218	93,22%

Agnona	agnona.com/	31007	19547	1246	801	52601	58,95%
Colville	www.colvilleofficial.com/	24054	19254	1112	539	44959	53,50%
Spada Roma	spadaroma.com/	375579	117540	7542	10838	511499	73,43%
Amen Style	amenstyle.com/	39963	8904	815	318	50000	79,93%
						Average	71,63%

The fetched data are included in a period of time going from 01/01/2021 to 12/09/2021. The numbers refer to the online stores' single sessions divided by traffic source. The data was collected from the internal analytics of the Shopify's back end of each website with the consent of the web agency managing the websites.

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