

ADOPTION OF TECHNOLOGIES AND PRACTICES FROM GREEK E-SHOPS

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Περίληψη

Η τεράστια ανάπτυξη του Ελληνικού ηλεκτρονικού εμπορίου, έχει αλλάξει τις ισορροπίες στο Ελληνικό επιχειρήν. Καθώς όμως οι επιχειρήσεις προσπαθούν να εισέλθουν στον ηλεκτρονικό κόσμο του εμπορίου, υπάρχουν διαφορές στην ανάπτυξη των τεχνολογιών και των στρατηγικών που εφαρμόζουν με στόχο την αύξηση των πωλήσεων και της καθιέρωσης της ηλεκτρονικής τους παρουσίας. Σε αυτή την εργασία ερευνήθηκε η χρήση των τεχνολογιών, πρακτικών και στρατηγικών που χρησιμοποιούνται, από τα Ελληνικά ηλεκτρονικά καταστήματα. Η διαδικασία της αξιολόγησης πραγματοποιήθηκε με τη χρήση παραγόντων προερχόμενων από τη Διεθνή βιβλιογραφία, σχετιζόμενων με την εμπειρία χρήστη και μετρήσεων και αφορούσε 100 Ελληνικά ηλεκτρονικά καταστήματα. Τέλος, βάση των ευρημάτων, τα ηλεκτρονικά καταστήματα κατηγοριοποιήθηκαν με στόχο τη καλύτερη κατανόηση των εφαρμοζόμενων στρατηγικών.

Abstract

This thesis studies the level of adoption of factors and practices that are developed and used by Greek e-commerce websites. The study was conducted in order to evaluate factors that affect User's experience during the buying process, technological factors, tools and marketing practices that companies use to attract visitors and gain brand equity. The factors mentioned were collected by the literature and categorized into three sections, with the first one concerning the factors that affect UX and evaluated heuristically by criteria specifically formed for each factor. The second section contains technological tools and practices being used by the websites, and the third section records metrics about the website performance including SEO, speed of load, conversions, etc. After having evaluated all the factors, we examined the data by using statistical analysis tools and came up with the results that showed the usage level of each factor and the correlation between them. What we concluded is that, in general Greek on-line stores focus on providing the right guidance to the visitor to navigate their website while giving elaborate information concerning the company and the products used. Meanwhile the adoption level of technology is lower than expected as technological tools are not used by most websites. At the end we conclude that there are three approaches of marketing and visitor attracting practices that Greek e-commerce websites follow, with them being: price comparison websites presence, S-Commerce adoption and classic advertising.

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1.Introduction

1.1 Background

As e-commerce growth has led to new ways of conducting business activities and having “forced” the majority of SMEs and large enterprises to follow an on-line sales approach, new methods of marketing and web development have aroused. In a survey conducted by (SearchNode, 2021) 84% of e-commerce leaders, said that the competition in their market is extremely tough. This shows the challenging role of companies to remain competitive. (Bucko, et al., 2018) mention the importance of monitoring and analyzing their costumers’ behavior, as it has become difficult to maintain their on-line competitive advantage.

Consumers’ needs for products are studied based on a variety of approaches. Studies like (Liu, et al., 2013) focus primarily on unplanned spontaneous purchases and the factors that create the urge to buy products, that were not previously planned. While other studies, like (Gao, et al., 2012) approach a conscious / unconscious theory to determine informational factors that shape a user’s behavior. (Bell, et al., 2020) study the emotional factors that lead a consumer to cart dropouts and those that encourage a positive experience.

The (SearchNode, 2021) survey states that a 53% of e-commerce companies find an increase in both revenue and profit important vs the 47% which consider only one of these metrics essential. In order to increase these metrics, the need for a more personalized user experience has led on-line businesses to multiple technological sales channels. (Chopra, 2018) discusses the need for omni-channel presence that fulfills consumers’ requirements and thus, leads to higher revenues. As (Chaterjee, 2019) also highlights the absence of refined, personalized web context may make a company lack of brand equity and look unreliable.

That said, there is the need to understand what seems important to on-line stores. This study aims to evaluate Greek e-commerce websites based on the factors affecting the consumer’s behavior and the technologies that support personalization and optimization of user experience as long as customer attraction strategies.

1.1 Problem Discussion

Even though, Greek e-commerce is actively expanding during the last decade, the first Greek on-line store opened in 1998. Since then, many Greek retailers entered the on-line market because of the need for growth and competitive advantage. Some companies developed an on-line presence along with brick-and-mortar stores. Other companies invested in running exclusively on-line stores.

The 2020 coronavirus pandemic triggered a major traffic change in Greek e-commerce websites. With brick-and-mortar stores out of order, consumers’ needs’ had to be fulfilled through on-line ordering. The total revenue of e-commerce websites increased from a total of 5.8 Billion euros in 2019 to 10.7 Billion euros in 2020, the on-line marketing scene in Greece changed dramatically and even led more businesses to join the on-line world of commerce (Economistas, 2021).

As pressure is put on the retailers to keep their competitive advantage, new technologies and marketing strategies are used. This means that web retailers need to focus on increasing the number of visitors and loyal customers and thus, receiving more orders to be profitable and remain this way, in the upcoming years following the pandemic.

With a 47% of on-line consumers be willing to purchase from a store they had previously engaged with at least 10 channels (SearchNode, 2021), we see how important technology and omni-channel are. And while dramatic changes occur, we need to study how committed Greek businesses are to their on-line stores. What strategies they use for their costumers' satisfaction and what technologies they have applied on their website.

1.3 Purpose

Technological advances help design and develop on-line strategies that a part of the e-commerce retailers adopt while others seem to struggle in this digital revolution. It is vital for businesses to have the knowledge of what interests and concerns their customers to plan successful strategies of attracting new customers and building brand loyalty. All this know-how may ultimately lead to increased return of investment (Bucko, et al., 2018).

This thesis aims to evaluate Greek e-commerce websites by categorizing evaluation criteria deriving from the factors affecting consumer's behavior from the literature and log practices and technologies that they use in order to examine the adoption level of technologies and practices.

1.4 Research questions

The complexity of e-commerce websites and the concepts surrounding them, lead us to the following research questions:

- 1. How do Greek e-commerce websites use factors that affect user experience?**
- 2. What technological tools do they use?**
- 3. How do they practice marketing?**
- 4. How do they establish their on-line presence?**

1.5 Limitations

The current study faces some limitations that may have affected the final results to a certain point. The on-line stores that were examined during the research, were randomly picked from the list of Greca members as mentioned in chapter 4, but only companies that are active during the last 12 months and having a yearly revenue of at least 50000€ can join the association, which means that newly developed e-commerce companies or stores that have not managed yet to produce the revenue required have been excluded from the evaluation.

Another limitation that has affected the interpretation of our findings, is that we had no access for recording conversion rates, this stopped as from calculating the factors that affect consumers checkout out decisions.

Literature points the subjectivity of the evaluators. As mentioned by (Díaz, et al., 2016) and (Wahyuningrum, et al., 2020) the minimum number of evaluators should be 3. This number is ideal, as preferences and personal aesthetics may affect the evaluation score. Unfortunately, the evaluation conducted in this study was done by one person. My background and working experience have helped me to be as objective as possible to create a set of criteria that I rated accordingly.

This study focuses on evaluating factors prior to purchasing, we have not evaluated or examined factors concerning after sales customer satisfaction.

2. Literature Review

Literature mainly focuses on examining factors affecting customer's satisfaction.

After collecting evaluation factors and determinants based on the literature that are considered to be most important for influencing customers experience and satisfaction, we conclude to those which we believe to fit the research.

2.1 Factors overview

As the number of e-commerce businesses continues to grow worldwide, the literature surrounding this commercial revolution, gets bigger and more focused on certain aspects.

(Bell, et al., 2020) describe four components as crucial for obstructing consumers on-line shopping flow. These components are distrust, lack of resources, low availability of products, poor computer literacy.

To reduce these fears where possible, websites need to:

- ✓ Increase motivation and purchase intention
- ✓ Eliminate negative emotions that may occur during the purchase process
- ✓ Provide sufficient information

Some studies focus on the purchase intention of the consumer and how the on-line retailers can influence the intention to purchase. As (Di Fatta, et al., 2018) studied in their published article, they list the following factors as essential in e-commerce websites in gaining as higher revenue as possible:

- Navigation (Load speed)
- Web design – aesthetics
- Promotions
- Ease of use
- Context and content (information quality)

While (Bilgihan, 2016) mention the following factors as principal, leading to brand equity and creating a loyal ground to the consumer and thus increasing the possibilities of returning costumers:

- Creating a benefit to the customer
- Offering a well-designed web page
- Building trust
- Offering security reassurance
- Investing in user experience

(Abdullah, et al., 2020) summarize in their study, 6 categories of factors which they believe to be dominant in creating successful e-commerce websites. These categories are:

- Website reputation (Reliability of the brand)
- Products' and services' information (Readable and easy to follow information about each product with sufficient media and information about the company and the process of ordering)
- Incentive offers (Special discounts, vouchers, free delivery & returns)

- Security and privacy (Trustable environment, safe payment options, brand equity)
- Ease of use system (Easy navigation, user friendly & accessible website, easy product discovery)
- Convenience (Wider payment & delivery options, total time of searching)

(Moustakis, et al., 2006) concentrate the following criteria from the literature that emerge to better website quality that helps build customer's satisfaction for evaluation purposes:

- Content
- Navigation
- Structure & Design
- Appearance and Multimedia
- Uniqueness

By combining the factors from the literature as described above we conclude to a number of criteria as principal for a satisfactory consumer behavior that lead to high conversion.

2.2 Consumer's behavior

A consumer's buying decision process in the world of on-line shopping is characterized by the goals the visitor sets about an item he is interested in or a concept that leads to a purchase / conversion he would be willing to complete based on the importance of this object / idea. For example, a consumer buys a specific brand of baby's milk regardless its price and other factors that may affect his decision process. But if he is interested into buying something less important according to his needs, he takes some time to search for a product that pleases him (Bell, et al., 2020).

This concept should be taken into consideration during the design and planning process of a website.

There are different approaches in the literature for e-commerce buyer's decision process.

(Gao, et al., 2012) introduce a three-stage decision making process:

intelligence -> design -> process. During the first step, the consumers recognizes the problem and needs and begins to search for solutions to them. During the second step, the problem is structured, the criteria are formed, and the solutions get to be identified. During the last step, the consumer makes a choice and takes his final decision.

Opposing to (Bonastre & Granollers, 2014) who point the classic customer's buying decision process approach, based on which, they construct a list of heuristic evaluation criteria.

In order to convince the customer to purchase, retailers need to find ways and plan strategies to increase the buyer's motivation (Bell, et al., 2020). This can be achieved by convincing the consumer that he needs to buy now or with some given benefits. Possible applications might be timed coupon codes, limited discounts, etc. Another common practice is free shipping when spending a certain amount of money or a warning message that the item he is interested in has limited availability.

Such practices aim to create the feeling of urgency that leads to impulse buying (Gao, et al., 2012). While other practices aim to reassure consumers that the total value he gets to pay for the products do not exceed the value he would likely pay in physical stores. Common practices are the application of free shipping and free returns. These benefits help the customer feel more satisfied and thus lead to increasing conversion rates¹ (Di Fatta, et al., 2018).

¹ Conversion rates: The percentage of visitors that complete a certain action, usually, a purchase.

(Gao, et al., 2012) research focuses on three strategies that increase the decision- making process satisfaction of the consumer:

- Quality of information
- Decision support systems
- Specific goals

While (Bucko, et al., 2018) refer to trust and security as one of the factors that affect consumer's behavior the most, along with product description, photos, payment options and load time.

2.3 Brand trust

Consumers are hesitant to trust e-commerce retailers that they have had no previous experience or transactions before. This comes from the risks that internet shopping has. In order to avoid it, retailers have to convince consumers for their security. This can be done by building consumers trust towards the brand.

Trust is fundamental for e-commerce retail companies. Providing company information (address, physical stores, telephone number etc.), offering an appealing user interface and a well-designed navigation, nurtures consumer's trust says (Bilgihan, 2016), explaining that rich flow experience while on-line shopping enhances the recognition of that certain company in consumers' mind.

While (Bell, et al., 2020) qualify social presence as the outmost motivation to impulse buying and highlight the importance of the information given concerning the company and showing user reviews, as factors helping build trust.

Another factor affecting user's trust is the privacy of data. On-line visitors and customers are very distrustful towards companies as mentioned by (Wolford, 2020). A survey conducted by One European Commission shows that 92% of European citizens are worried about the privacy of their data, being collecting from mobile apps. The reality is that e-commerce companies are gathering a large amount of user's personal data without any consent. GDPR tries to regulate this by forcing retailers to collect these data only after the user has explicitly given his content to do so. This leads companies that have applied this regulation on their website to be more trustworthy and reliable.

(Bell, et al., 2020) relate perceived risk to cart abandonment and suggest the placement of security trust marks, privacy and security terms, along with GDPR compliance form, in apparent location to help build trust and thus, increase actual purchases.

2.4 User experience

User experience is defined as "Private events that occur due to encountering, undergoing or living through the interaction with the system" (Fukey & Sinha, 2020).

User's experience and well-being during on-line shopping are among the top influential factors on consumer's behavior. (Fukey & Sinha, 2020) focus on color, usability and aesthetics as important constraints that form a positive user experience. Based on their theory there are certain colors that can be used for specific actions. For example, red, orange and deep yellow, trigger excitement, extraversion and energy. If the case is an athletic store, red is the ideal color as it triggers energetic emotions that fit the brand's identity.

Summing these up, a great place to start is to recognize the company's identity & purpose and capture the essence of this in the website's design.

3 Evaluation criteria

In this chapter we interpret the literature mentioned above and try to extract individual factors that are important for e-commerce websites.

3.1 User Experience

3.1.1 Home Page

The Home Page is the first page that shows up when a web application starts. It is the starting point and the web page that is usually most visited. This makes it important as it creates the first impression to the visitor, and thus must follow some principles.

(Patel, 2015) suggests three essential elements to a more effective home page:

- Simplicity : A simplistic design with an abstractive approach of elements (banners, images, galleries) and content.
- Usability : A website's home page need to present a clear focus with no distractions, that makes the visitor eager to engage.
- Call to action buttons : It is crucial for websites to use CTA buttons as they are essential to increasing conversion rates.

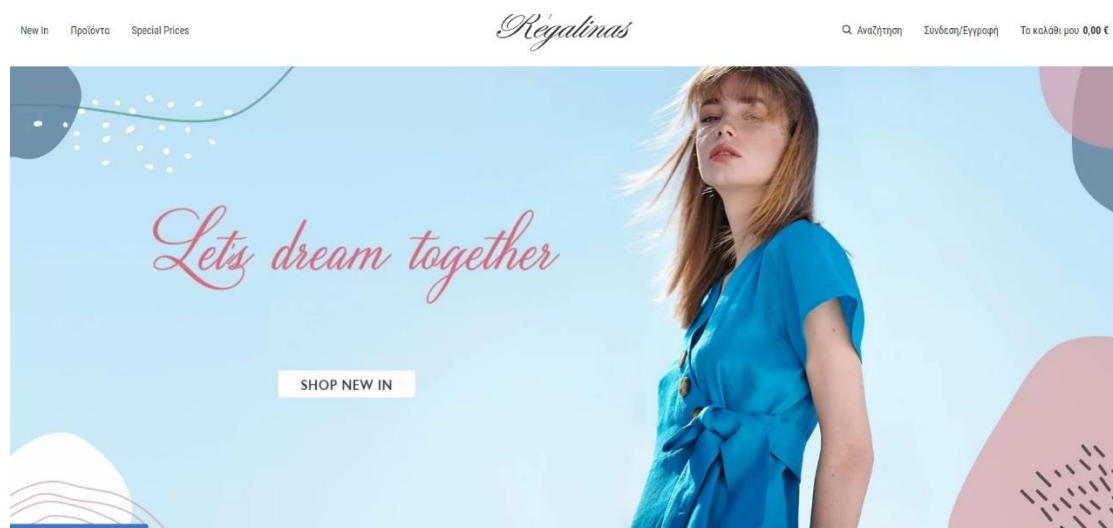


Figure 1 Home Page

The landing page usually refers to the webpage that opens up first when clicking to an outer link, marketing campaigns, email, or search engine result. It is very important for the decision making process, as it constitutes the first impression for the e-commerce website. Landing pages can help increase conversion rates by lowering other costs.

Landing pages can be categorized by two types:

- Reference : This type of page usually contains information directly relevant to the visitor, blocking any other content that may be distracting. Its purpose is to lead the visitor to take an action.
- Transactional : The visitor is asked to complete a transaction. To fill a form or to add his email on the mailing list.

The key difference between a landing page and a home page is that the landing page has a single focus, this means fewer links and content with a clear purpose. It is important for a landing page to

have a small amount of information, the volume should be small but direct, that makes it clear in less time for the consumer to be satisfied and to be convinced that this is what he is looking for, as proven by (Gafni & Dvir, 2018). They also highlight, the benefits of small information content, as it makes the consumer trust and willing to engage easier. Another factor that they point as important is the time and location. As they suggest, a landing page should be tailored, based on demographics and personal preferences.

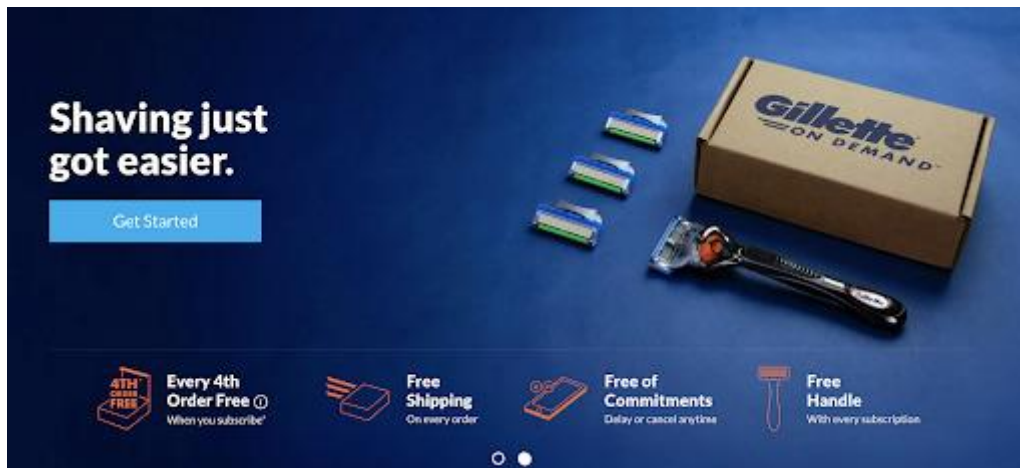


Figure 2 Landing Page

3.1.2 Design & Content

(Bilgihan, 2016) concludes that an aesthetically appealing website has a positive impact on a visitor's first contact with it. The overall design is where the visitor first focuses on and overlooks the content. A poor design quality may cost returning visitors. Use proper colors, fonts, animation and other elements can create better impression to the customer and make him stay for a longer period on the website. While (Liu, et al., 2013) highlight the importance of enjoyment during on-line shopping and the satisfaction that a rich quality content brings to the user. A statement where (Bell, et al., 2020) agree, citing that an appealing website leads the customer to impulsive purchases.

Product Page

The product page is where the customer forms his decision whether to add the product to the cart or not. It is very important that it provides all the information needed to help him without having any determination doubts.

Thus, a well-designed product page must include:

- ✓ Short but elaborate product description.
- ✓ List of attributes (Colors, sizes etc.)
- ✓ Clear pricing with distinct discounts
- ✓ Distinguishable add to cart CTA
- ✓ Rich media (High Resolution images, videos)
- ✓ Social proof (Reviews, Customer photos where possible)

The screenshot shows a product page for an HP 15s laptop. The main image shows the laptop open, displaying the Windows 10 desktop. Below it are smaller images of the laptop in different colors. The product title is "HP 15s - eq0020nv Laptop (Ryzen 5 3450U/8 GB/256 GB/Radeon Vega...)" with a price of 599,00 €. The page includes a star rating, a list of specifications (processor, RAM, storage, screen, keyboard, graphics), and a list of accessories like a carrying case and glasses. There are also options for financing and a "Add to cart" button.

Figure 3 Product Page

Company Information

This part of a website is often seen on the footer. It is very important as it forms trust to the visitor about the e-commerce company. It is the part where the customer is informed for the company, delivery, payments etc.

Key components are:

- ✓ A story-telling unique “About Us” page
- ✓ Contact form
- ✓ Contact details, with address
- ✓ Links to delivery, returns, payments information
- ✓ Social icons
- ✓ Privacy policy & Terms of use
- ✓ Trust marks

The screenshot shows the "Fresh Line" company information page. It features a large image of the store's interior, which is well-lit and filled with various products. The text describes the company as a Greek producer of natural health products since 1992, offering a wide range of items from personal care to health supplements. It highlights the company's commitment to quality and natural ingredients, and mentions its participation in various exhibitions and events. The page also includes a "TOP" button and a "MAΘΕΤΕ ΠΕΡΙΣΣΟΤΕΡΑ" link.

Figure 4 Company Info - about us page

Multimedia Resources

Visitors engage easier, when a high resolution photo or video, offers them detailed information about the product. The downside of on-line shopping is the lack of physical experience. The customer needs to touch and see a product up close in order to make a decision. Image is more effective and informative than a verbal description and when taken and used correctly can be an excellent alternative.

Using imagery content in a way that can affect the sales is difficult, some practices are:

- ✓ Multiple angles offer a detailed view of the product, especially using 360 videos.
- ✓ Modelling the products and placing them in the real world.
- ✓ Quality and speed load (images with correct dimensions that are not too large or too small – Using CDN technology)
- ✓ Placing images in the right place

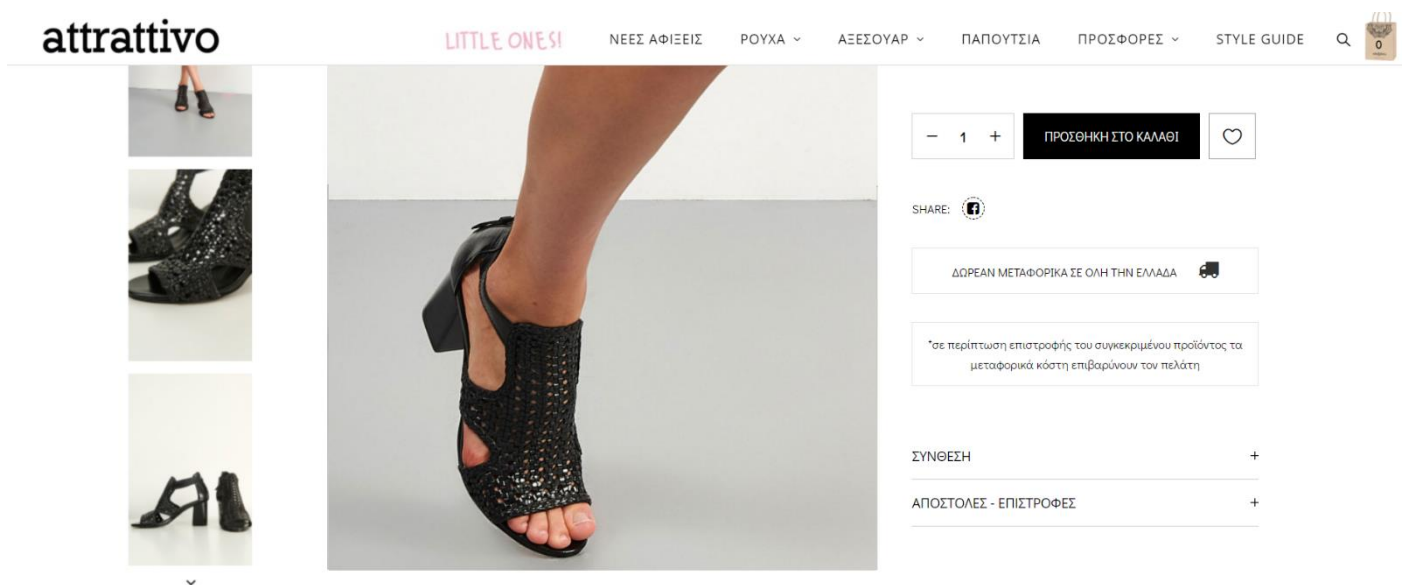


Figure 5 High resolution product images from different angles

3.1.3 Navigation

A good navigation design enables the visitors to navigate quickly and with ease through a website creating satisfactory feelings and apparently motivating them to achieve their goals.

Faulty or confusing navigation design has proven to be linked to negative emotions and subsequently to high bounce rates while positive emotions when generated by an appealing design and ease of use can lead customers to spontaneous purchases as introduced by (Bell, et al., 2020) (Bilgihan, 2016) highlights the importance of a structured flow and navigational ease, as it helps build customers trust and loyalty towards the website. Simplified navigation with a

The elements consisting a well-defined navigational design are described below:

Menus

A well-structured menu, with the correct hierarchy (clear, highlighted parent categories with subcategories) help the user reach the product he wants faster with no dissatisfaction. The main guidelines for designing a menu:

- ✓ Grouped categories
- ✓ Labeled clickable parent categories
- ✓ Quick access to key products
- ✓ Adaptive to mobile devices

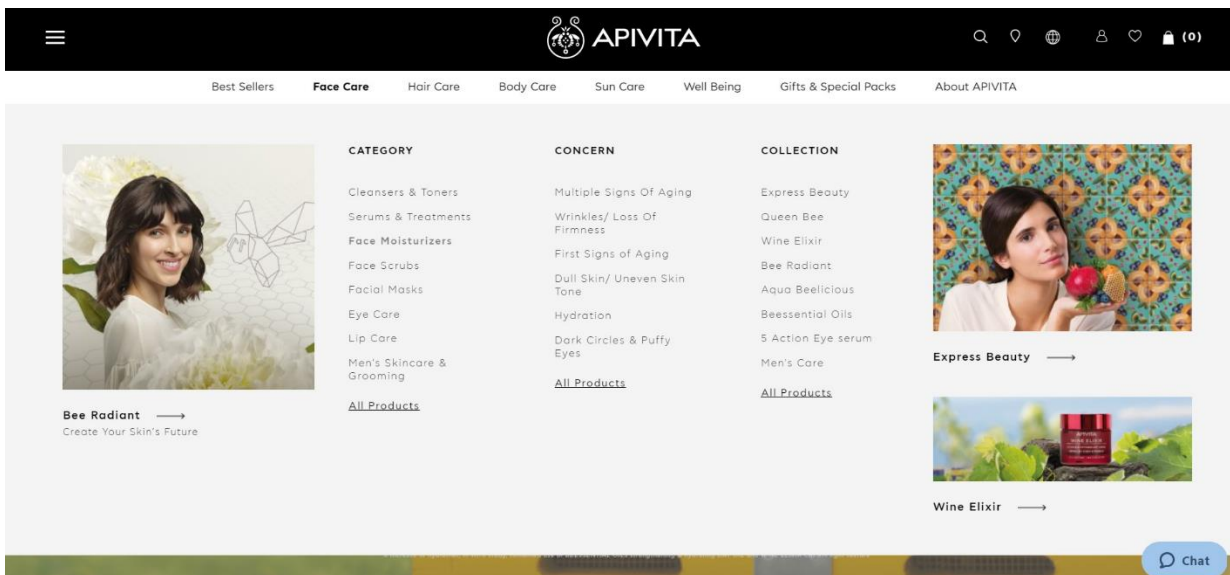


Figure 6 Menu

Product Discovery

A very important aspect of the navigation of a website as it helps returning visitors as well as new ones, explore and reach to products they possibly like. (Bell, et al., 2020) describe that boosting the online experience with recommendations, creates motivation to the customer that will lead him to an actual purchase.

Good practice of product discovery is:

- ✓ Recently viewed item list on every page
- ✓ Product recommendations on product page and cart
- ✓ List with compatible products – sets
- ✓ What's new / Offers category

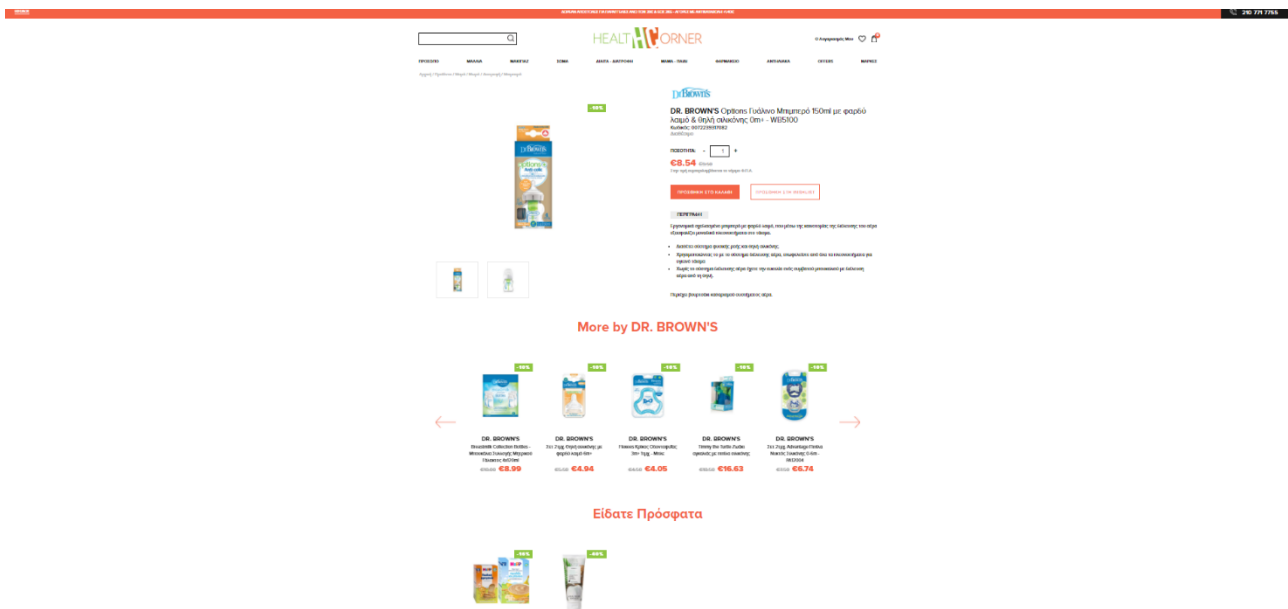


Figure 7 Product discovery

Call to action buttons (CTAs)

CTAs are buttons designed to help the customer explore or take an action. Commands are often used to tell the customer which action to take next. Effective use of CTAs is achieved, by:

- ✓ Placing CTAs in multiple and prominent locations across the whole website
- ✓ Using simple texts with clear verbal (e.g. Add to cart, order now)
- ✓ Designing them with prominent, solid colors, so they stand out
- ✓ Placing them after the information

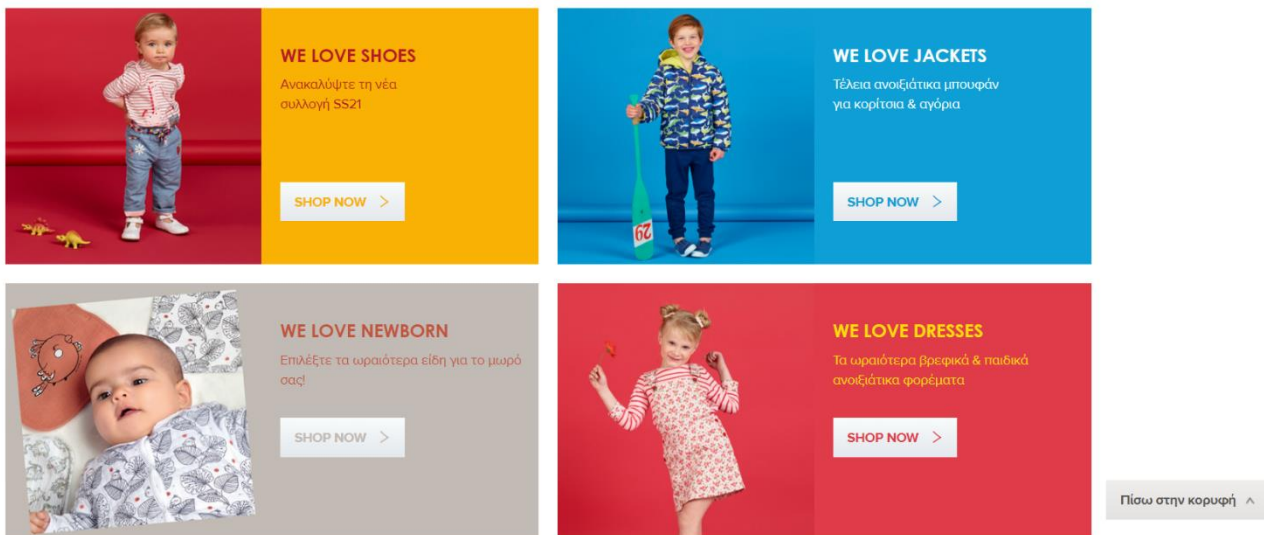


Figure 8 Call to action buttons - best practice

Search bar

Beside the general shopping idea of navigating through pages and finding what fits us best there is the kind of shopping where the customer is searching for a specific item. The primary way of searching for a specific product in an e-commerce website is through its navigation bar according

to (Trotman, et al., 2020) . The optimum way of searching has put web retailers in test in order to create a search bar that actually helps customers find what they are looking for. Search optimization can be achieved by following the below:

- ✓ Placing search bar on a prominent location preferably the navigation bar.
- ✓ Autocomplete search with responsive design
- ✓ Using a button named “search” or an icon
- ✓ Easy to find on mobile devices
- ✓ Actual results

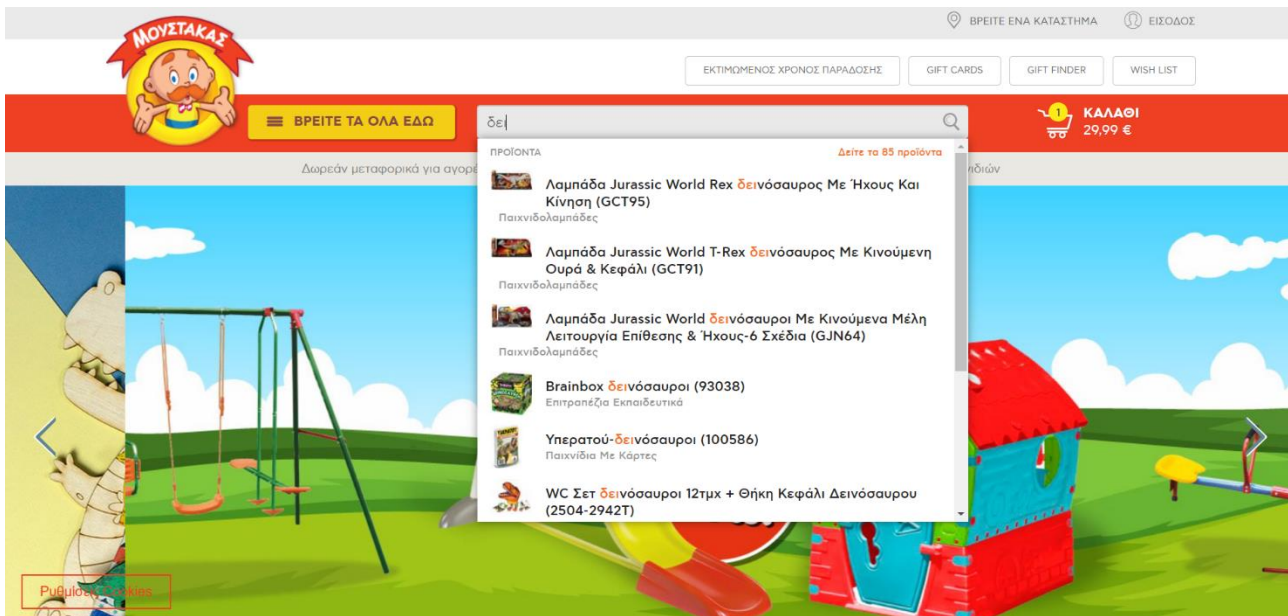


Figure 9 Search bar with suggestion

Filters

Customers may have specific product needs and in order to save time, they need filters to eliminate a product catalog to show fewer items that actually meet their criteria. Filtering also showcases attributes and specialties of products that need to be highlighted in order to raise awareness to the customer.

The key to create navigational ease by using filters is to use:

- ✓ Important filters on top
- ✓ Multiple selection
- ✓ Reasonable number of filters
- ✓ Promotional Filters (eg. On sale, new etc.)

3.1.4 Pricing & Promotions

The pricing strategy of an e-commerce retail company is fundamental, as it can persuade customers to engage faster and if combined with social media can lead to a bigger interest among the audience (Elena V. Pogorelova, 2016).

Incentive offers & special discounts can induce impulsive purchases to experienced customers, as they have a positive impact on trust and satisfaction (Abdullah, et al., 2020).

(Di Fatta, et al., 2018) note the importance of pricing and promotional factors that lead to higher conversion rates. The satisfaction to the customer is caused by a lower or same price of the product he gets to pay on-line compared to a physical store. This ranks the pricing factors at the top of decision making factors, according to (Bucko, et al., 2018).

(Di Fatta, et al., 2018) also mention the positive impact of discounts on conversion rates. Especially when special discounts and free shipping are brought together, they have greater effects on a consumer's shopping cart, which ultimately generates additional sales. They also prove that additional sales may not be caused by the number of orders, but mostly from a greater increase to the total items placed per order.

Free shipping and free returns are the factors that affects consumers the most, as (Bell, et al., 2020) note, it is associated with cart dropout. A consumer needs to be informed along the whole process of buying about the total pricing. Possible extra costs calculated during the checkout process lead to cart abandonments.

Finally, the customer must always be aware of the total amount he gets to pay. This means that, displaying extra costs and discounts along the way to order completion is highly important as the opposite is cart abandonment risky.

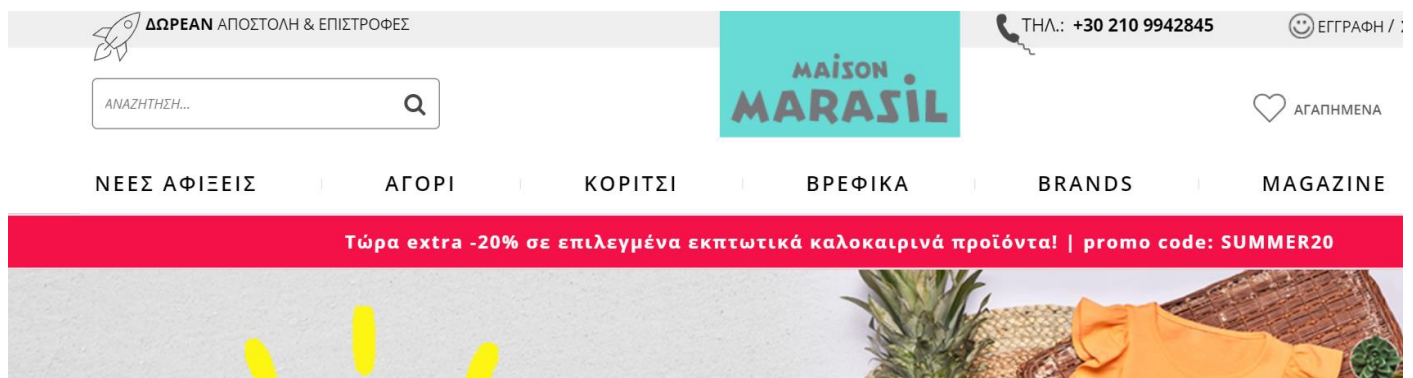


Figure 10 Promotions

3.1.5 Shopping Cart

The shopping cart constitutes the link between the customer's decision making and the actual purchase. Retailers are challenged to design a shopping cart that complies to customers' needs and expectations and avoid cart abandonment. A shopping cart should inform the customer about the products he adds and the additional costs, as he wants to be aware of the total amount he gets to pay. Shopping cart also favors retailers, as this web page can be tracked through track conversions and acquire a deep knowledge of customer's decision making process.

Ideally a shopping cart includes:

- ✓ A clickable list of the items added in the cart with images.
- ✓ Editable items (add, decrease, remove buttons).
- ✓ Clear and appealing CTA to the checkout page.

- ✓ Estimated Shipping costs.
- ✓ A sum with all costs.
- ✓ Estimation of delivery time.
- ✓ Product recommendations.

A user friendly shopping cart is:

- ✓ Accessible and visible in all pages.
- ✓ Informing the customer when a change occurs.
- ✓ Able to quickly add items in category pages.

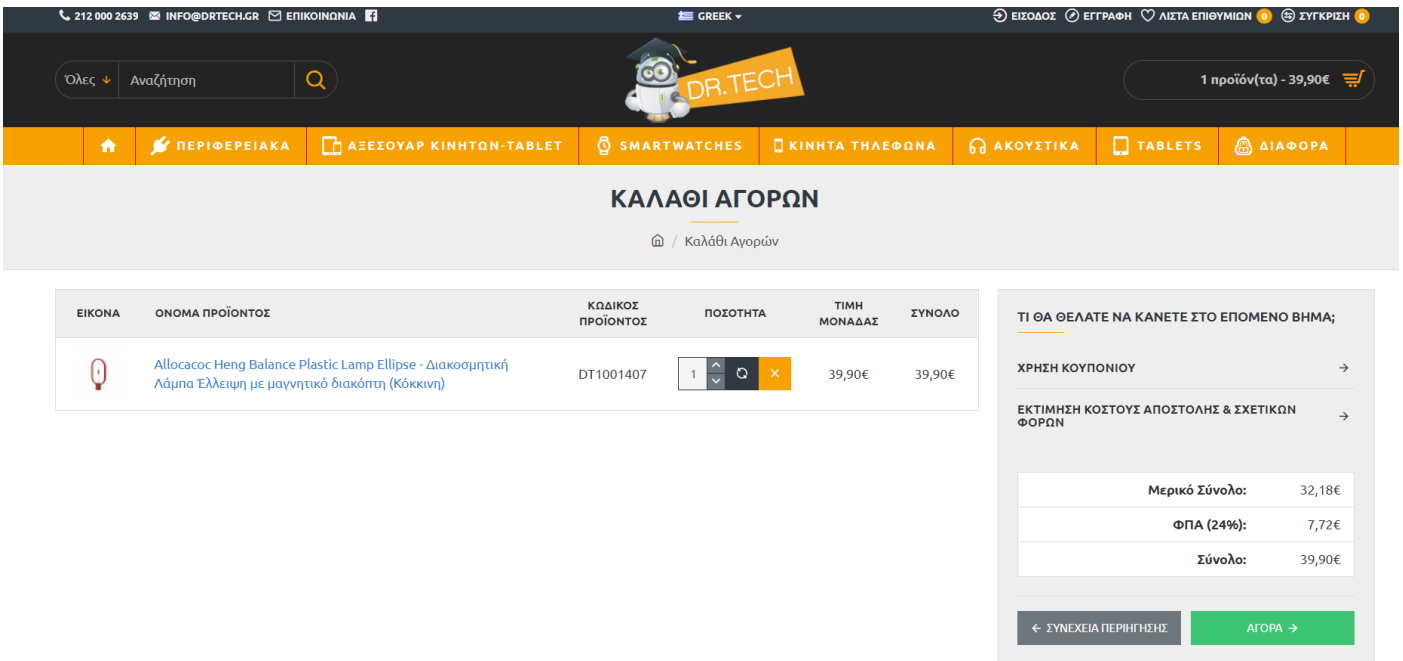


Figure 11 Shopping cart

3.1.6 Checkout

Checkout Initiation

(Bell, et al., 2020) concludes that cart abandonment occurs more often during the final steps of the purchase, as the customer is asked to fill lengthy and repeated forms or having to register for an account in order to complete the purchase. Being able to complete the checkout process with a minimum delay, asking the customer as minimum information as possible, lead to less cart abandonment.

A customer seems to feel more positive over a simple one-click checkout process with no hidden pricing or unexpected delays, or informing the buyer about the time needed to complete the purchase.

In order to avoid cart abandonment during the first steps of the checkout process:

- ✓ Adding a smart label or indicator of time left to order completion.
- ✓ Guest Checkout – Benefit of registration
- ✓ One page checkout
- ✓ Discounts & Delivery Reminders

Checkout Process

If a customer has no control over the review of his order and the updated total pricing based on his selection, it is more likely to dropout his cart. A quick checkout is very important. Shockingly, many websites have a very high load speed during the selection of payment/delivery options or inside the payment gateway. Also the customer needs to feel secure during those steps, in any other case, he is most likely to abandon. After the order completion, it is very important to keep the customer satisfied with a nice thank you page and a satisfaction questionnaire.

A checkout process can be satisfactory when:

- ✓ It is explanatory and simple
- ✓ Offers a variety of shipping options
- ✓ Offers a variety of secure payment options
- ✓ Includes security labels and trust marks

3.2 Marketing strategies

3.2.1 Marketplaces

(Pogorelova, et al., 2016) state that marketplaces and comparison websites create strategic points of on-line store placement that contribute to successful e-commerce marketing mix. (Kawa & Wałęsiak, 2019) praise marketplaces, as their advantages seem to benefit on-line retailers for promoting products or their brand name, and demanding lower costs comparing to a standalone e-commerce store while helping develop user's trust and the overall satisfaction.

3.2.2 Social media

Social media's eruption during the last years has caused a massive promotional wave. S-commerce makes it easy to generate content and influence customers due to their accessibility (Hajli, 2014). Brands can promote their products in a variety of ways. By advertising products, posting new content daily or influencer marketing. (Hajli, 2014) remarks the importance of s-commerce, which by building trust and by its perceived usefulness, affects the intention to buy.

3.2.3 Email and content marketing

E-mail marketing is a way to increase traffic and reach to customers that already have visited the website at least once. It is a way to remind the existence of the brand while informing about promotions and receiving feedback about the consumer's actions, as well as attracting customers to land on certain pages, as mentioned by (Hudak, et al., 2017). Though, restricted due to GDPR regulations, it is an effective way of brand building, improving relationships with customers and getting customers back.

Content marketing also referred as blogging or vlogging, is a way of attracting and retaining audience through posting content relevant to products targeted to specific audience. This is a way to advertise products that helps ranking on search engines.

3.2.4 Direct Advertising & Affiliate marketing

Direct marketing focuses on advertising specific content to a targeted audience, while affiliate marketing is used by posting links on other websites or social media. It is mostly used by advertising by influencers and third party blogs.

3.3 Important metrics

3.3.1 SEO

As mentioned by (Google, n.d.): *“Search engine optimization is the process of making your site better for search engines”*

Managing to create a search engine optimization strategy that helps customers find and reach their on-line store is essential. Customers use search engines to search for products they are interested in or search by attributes or price, SEO can increase brand equity, market share and product awareness, says (Bansal & Bhandari, 2018).

3.3.2 Conversion Rates

Conversion rates act as the numerical imprint of specific actions made by visitors. It is the number that shows the percentage of visitors that completed a conversion, usually referred to purchases. It is a helpful metric that shows how successful marketing strategies are and how user’s behavior has formed based on user experience factors. Improving conversion rates is a good indicator that all the above mentioned work (Di Fatta, et al., 2018).

3.3.3 Speed of load

The website’s load speed is a very important factor that forms users positive behavior and emotions. A website that its pages load fast, linked to higher conversion and bounce rates. (Di Fatta, et al., 2018) claims that speed of load boosts ease of use and therefore customer’s satisfaction. It is also an indicator of things not working properly. Tools like Google’s PageSpeed Insights, beside from ranking each page’s speed, shows a list of the elements that are blocking the website from loading fast. It is thus, essential for websites to gain a know-how and develop fast loading pages.

3.3.4 Other analytics metrics

There are various metrics that are used in analytics and express in numbers the traffic, actions, dropout or landing pages which help in evaluating a store’s performance.

All these metrics help form strategies to attract customers or manage to increase purchases and total items ordering.

(Ghandour, et al., 2011) list the following as performance measures for website usage:

1. Number of visitors
2. Repeat visitors
3. Visitor to customer conversion
4. Page views
5. Time spent on website
6. Navigation behaviour tracking
7. Customer profile

8. User environment
9. Referring website
10. Reach
11. Bounce rate

The quality of a website and its technological impact can be measured by the metrics mentioned above.

4. Methodology

4.1 Research Strategy

For the current thesis a three-phase research was conducted in order to gather factors affecting the user experience and evaluate them. The three-phase research included:

- I. Literature Review
- II. Usability Evaluation
- III. Statistical Analysis

The purpose of those steps is to gather factors and criteria based on the literature and by using a website evaluation method, to conclude to what Greek e-commerce websites focus mostly on and which factors are considered most important.

The research questions that need to be answered are the following:

1. How do Greek e-commerce websites use factors that affect user experience?
2. What technological tools do they use?
3. How do they practice marketing?
4. How do they establish their on-line presence?

4.2 Literature Review

During the first phase a qualitative research approach was conducted in order to collect a set of evaluation criteria. The papers that were used for this purpose, were searched in Google scholar by using the terms “website heuristic evaluation”, “factors affecting user experience” and “on-line decision making”. As e-commerce is growing fast, we selected the papers that were published during the last decade and papers that were published in reputable scientific magazines and universities. It is highlighted at this point that there are no studies having examined the importance of each factor, meaning that each one is equally examined.

(Abdullah, et al., 2020) summarize six categories of evaluation factors that lead to successful e-commerce stores. They highlight each factor as proven to be positively correlated to satisfaction and positive emotions.

- a) brand trust and loyalty
- b) product and service information
- c) incentive offers
- d) security and privacy
- e) ease of use
- f) convenience

(Choshin & Ali, 2016) among other non-evaluable factors, summarize customer satisfaction in four main categories:

- a) Security of personal information

- b) Customer trust
- c) Ease of access to information
- d) Time and location barriers removal

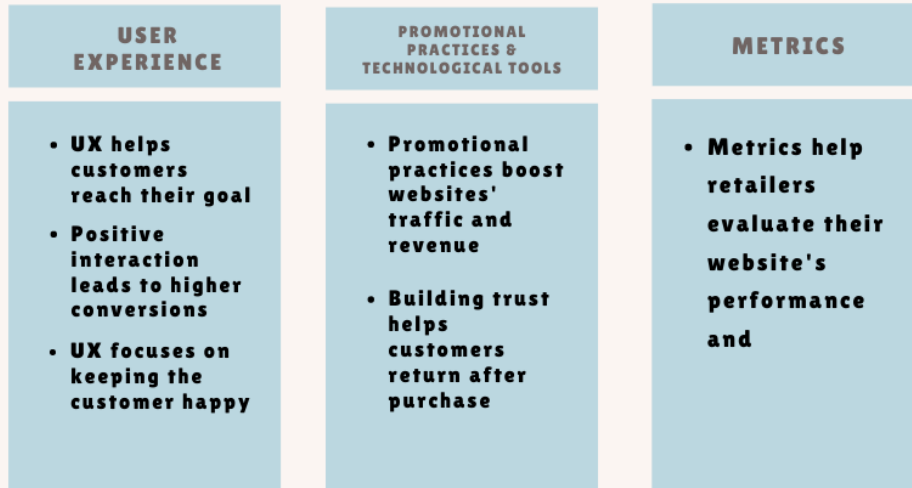
(Madinios & Theodoridis, 2010) highlight the importance of the examination and usage of various metrics for generating successful e-commerce strategies. Based on a classification of four categories of on-line stores attributes, they summarize seven attributes which they believe contribute to the success of a web store. These attributes are:

- a) Product information
- b) User Interface
- c) Service information
- d) Overall purchasing process
- e) Security
- f) Product attractiveness
- g) User's participation - time spent

(Moczamy, et al., 2012) collected the following essential criteria that according to their research can cause positive emotions and thus having positive impact on the decision-making process:

- a) User interface
- b) Load speed
- c) Supportive tools
- d) Engaging content
- e) Ease of use
- f) Easy to-understand content
- g) Visual appeal
- h) Navigation

THREE FACTOR SECTIONS



Combining the above factors and criteria, we concluded to:

- 14 usability evaluation criteria - factors that based on the literature, affect user experience.

Evaluation criteria

Menus	<p>The application of the menu bar across the on-line store.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Grouped categories ✓ Labeled clickable parent categories ✓ Quick access to key products ✓ Adaptive to mobile devices
Navigation	<p>The application bar and the buttons that ease the navigation across the website.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Easy to find navigation bar with clear menus ✓ Easy to navigate back and forth through webpages ✓ Conventional navigation design or Easy & clear intuitive one ✓ Important information in prominent locations

Product discovery	<p>How the website supports product discovery in product page or during checkout and the presentation of related or compatible products.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Recently viewed item list on every page ✓ Product recommendations on product page and cart ✓ List with compatible products – sets ✓ What's new / Offers category
Company information	<p>How the store represents itself in the “about us” page the contact information, how they offer ordering information and trust marks.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ A story-telling unique “About Us” page ✓ Forms ✓ Links to delivery, returns, payments information ✓ Trust mark
Product page	<p>The total representation of the product, the description, the attributes of the product, pricing and the existence of any social proof.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Short but elaborate product description with products attributes ✓ Clear pricing with distinct discounts ✓ Rich media (High Resolution images, videos) ✓ Social proof (Reviews, Customer photos where possible)
Multimedia Resources	<p>The quality of the media used to show a product or a promotion and how they are placed in the website.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Multiple angles or 360 video ✓ Real world placement ✓ Quality and speed ✓ Prominent location
Search	<p>The placement of the search bar in a prominent location, if it's easy to use, if it returns actual results and the advanced features of it.</p>

	<p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Search bar on a prominent location ✓ Autocomplete search with responsive design ✓ Easy to find on mobile devices ✓ Returns actual results
Filters	<p>The number of the total filters, if they are effective and how they manage to reinforce product discovery.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Important filters on top ✓ Multiple selection ✓ Reasonable number of filters ✓ Promotional Filters (eg. On sale, new etc.)
Shopping Cart	<p>Visibility of the cart across the website, if the items are editable, the total pricing, advanced features like estimation of shipping date.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Clickable list of the items added in the cart with images. ✓ Editable items (add, decrease, remove buttons). ✓ A sum with all costs. ✓ Product recommendations.
Pricing	<p>Total pricing as shown across the website, including delivery and payment fees, coupons and discounts and possible expiration of them.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Labels and banners for promotions ✓ Product's pricing and discount in prominent location ✓ Clear pricing policy across the webpages ✓ Informative checkout steps about total costs
Checkout initiation	<p>The part of the checkout steps where the customer needs to fill his personal info. If the store offers guest checkout, one page checkout or time indicator, gdpr.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Simple and easy checkout ✓ Guest Checkout – Benefit of registration ✓ One page checkout

	<ul style="list-style-type: none"> ✓ Discounts & Delivery Reminders
Ordering process	<p>If the ordering process is simple, variety of shipping and payment options, trust marks, secure environment.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Explanatory steps ✓ Variety of shipping options ✓ Variety of secure payment options ✓ Security labels and trust marks
Call to action buttons	<p>Multiple and prominent locations. Are they clear with a solid design that triggers the visitor to click them? Are they placed in a position that makes them effective (after the information)</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ CTAs in multiple and prominent locations across the whole website ✓ Simple text with clear verbal (e.g. Add to cart, order now) ✓ Solid colours and design that stands out ✓ Information and details prior to the CTA
Home Page	<p>Clear home page with a pleasant product placement and informatics delicately shown.</p> <p>The resulting rating is based on the presence of the following elements (Absence of each element removes one point with 0: best practice and 4: complete absence):</p> <ul style="list-style-type: none"> ✓ Simple and well-structured design with no fuzz and outdated style ✓ Simple menus & navigation to categories ✓ Important information and content ✓ Clearly defined products

The scaling system that was used to evaluate the website with the above criteria was based on heuristics evaluation as mentioned in (Sherry Y. Chen, 2005).

They describe the scaling system as follows:

- 0: Not a usability problem at all.,
- 1: Superficial problem—fix if enough time available.,
- 2: Minor problem—low priority.,
- 3: Major problem—high priority.,
- 4: Usability disaster—imperative to fix.

The Nielsen's criteria and scaling system is an approach that is widely used across the literature for usability studies.

(Wahyuningrum, et al., 2020) in their heuristic evaluation use Nielsen's ten criteria which are evaluated by three rules for each criterion that must be checked giving a point for each one. (Díaz, et al., 2016) also used Nielsen's criteria for website evaluation and the following scale for usability problems:

- Catastrophic (5): This issue is critical to the success of the system.
- Major (4): This problem should be solved.
- Minor (3): A solution to this problem is desirable, but not essential.
- Cosmetic (2): This is a minor problem
- Not a problem (1)

A similar approach was used in (Hamid, et al., 2020) for a usability evaluation, while for their accessibility evaluation, they used known tools conformed to WCAG guidelines.

In order to be as subjective as possible, we needed to create a scaling system that would rate each factor, so by combining the above usability rating we concluded to 4 elements for each factor. The complete absence of each element or major UX problems, adds one point. For example, if a Home Page is well-structured with clear menus that offers navigational ease, presents and places the product in a prominent way but is not informative enough or the content is not clear and elaborate the usability score would be 1.

After having evaluated all the subjects we exported the average of all factors for each evaluated subject. This overall score is calculated to help us have a clear view of the overall usability of each website, as there are websites with no or little usability issues opposite to a few that have major problems across each factor.

Next, we summed up 14 practices that are mainly used for attracting customers and building trust based on the literature of Chapter 2.

- 14 practices that assist in building customers trust and are used as strategies to attract customers based on a yes/no scaling system.

Promotional & trust practices and technological tools (yes/no)

Free delivery
Free returns
Loyalty system
Gdpr compliance
SSL
Responsive layout
Adaptive design
Content marketing (Blogs)
Social media marketing
Social media shopping
Email marketing (Newsletters)
Environmental Friendly
Physical stores
Store pick up
Comparing websites
Review system

Wishlist
Messaging tools
Comparing tools
Progressive web apps (PWA)

(Ghandour, et al., 2011) list some performance metrics that measure website usage. Considering them we record the ones we have accessibility to. This metrics will help us lead to a conclusion about the success of the tools and practices reviewed during the previous steps. In this stage we also wanted to record speed of load and SEO, two tools that will help us understand to what extend the technological application of the websites affect user’s experience. For example usage of big images with no usage of CDN causes load delays and thus negative user’s emotions. There are multiple implementations that can be used to record traffic data and users steps and preferences with the most popular being google analytics which can be integrated easily using the Tag Manager.

- Website and analytics Metrics

Load speed	Scale: 1-100
Search engine optimization score	Scale: 1-100
Tag manager integration	Yes/no
Analytics integration	Yes/no
Bounce rate	Numerical
Visits	Numerical
Referrals	Numerical
Referrals from comparison websites	Numerical
Social media Referrals	Numerical
Branded Search	Numerical

4.3 Usability Evaluation

During the second phase, we needed to conduct the research by evaluating a total number of 100 Greek on-line stores that were randomly picked from the Greek e-commerce association members list that is found on-line (<https://www.greekecommerce.gr/gr/members/lista-melwn/>).

The selection was made by picking randomly 3 websites from each page of the 33 of the list by the end of the selection we had to eliminate 4 cases, where they did not match e-commerce website criteria.

We made sure that from the list, we had examined at least 5 subjects from the following categories:

- Electronics and appliances
- Apparel & shoes
- Optics
- Home & Furniture
- Books
- Sporting goods
- Building and garden
- Health

- Beauty
- Food and beverage
- Jewelry

The above categorization was made due to differentiation in practices and marketing strategies based on the brands main focus and the need for recording as many approaches as possible.

After evaluating the websites, we used “*Similarweb*” and “*Semrush*”, tools that estimate the traffic and other metrics of websites for mainly competition purpose, and recorded the average of the metrics of these two websites in order to secure the integrity of the data.

The data collected from Similarweb & Semrush:

Monthly visits	The total number of single visitors per day.
Bounce rate	The percentage of visitors landing in a page and continue browsing in other pages.
Referral traffic	The number of visits that come from links on other websites.
Referrals from comparison websites	The number of visits that come from comparison websites.
Social media referrals	The number of visits that come from social media
Branded search	The percentage of search terms that included the brand of the website.

4.4 Data analysis

During the third and last stage of this research we analyzed the data gathered in the previous two stages. The tools used to analyze the data was IBM’s SPSS and Microsoft office excel. At the time of the evaluation we had recorded the websites to be evaluated on an excel spreadsheet and wrote down the evaluation score for each factor – criterion. After having completed the evaluation, we used the data from the spreadsheet and imported them in IBM SPSS.

5. Results and analysis

5.1 Data analysis methodology

The data collection was recorded and adapted in Microsoft excel. IBM's SPSS software was used to analyze the data gathered. In order for the questions formed in chapter 1 to be answered, we performed descriptive statistical analysis and factor analysis. The aim of the descriptive statistical analysis is by using the mean, the spread out of the data (standard deviation) and the extremes, to form the tendencies, trends and averages of the Greek on-line stores, while the factor analysis, will give us an insights into correlated factors that can interpret some tendencies and strategies of the on-line retailers.

5.2 Brand / Trust build

After examining the results of the descriptive analysis, we see the variable that stands out, by having the greatest average among all, is the company information, this shows a great performance of Greek on-line stores (a vast majority of 52% with excellent practice) on providing information concerning their brand, ordering information (shipping, payment, etc) and any trust insurance or mark they may acknowledge (trust marks, etc). This contributes to the 100% of the websites that use SSL in order to secure all transactions. Contrary to this, only a 41% of Greek on-line stores are GDPR compliant, even though the regulations are very strict. The majority of them use outdated cookie consent mechanisms that are only informative rather than asking for user's data collection allowance, as determined by GDPR.

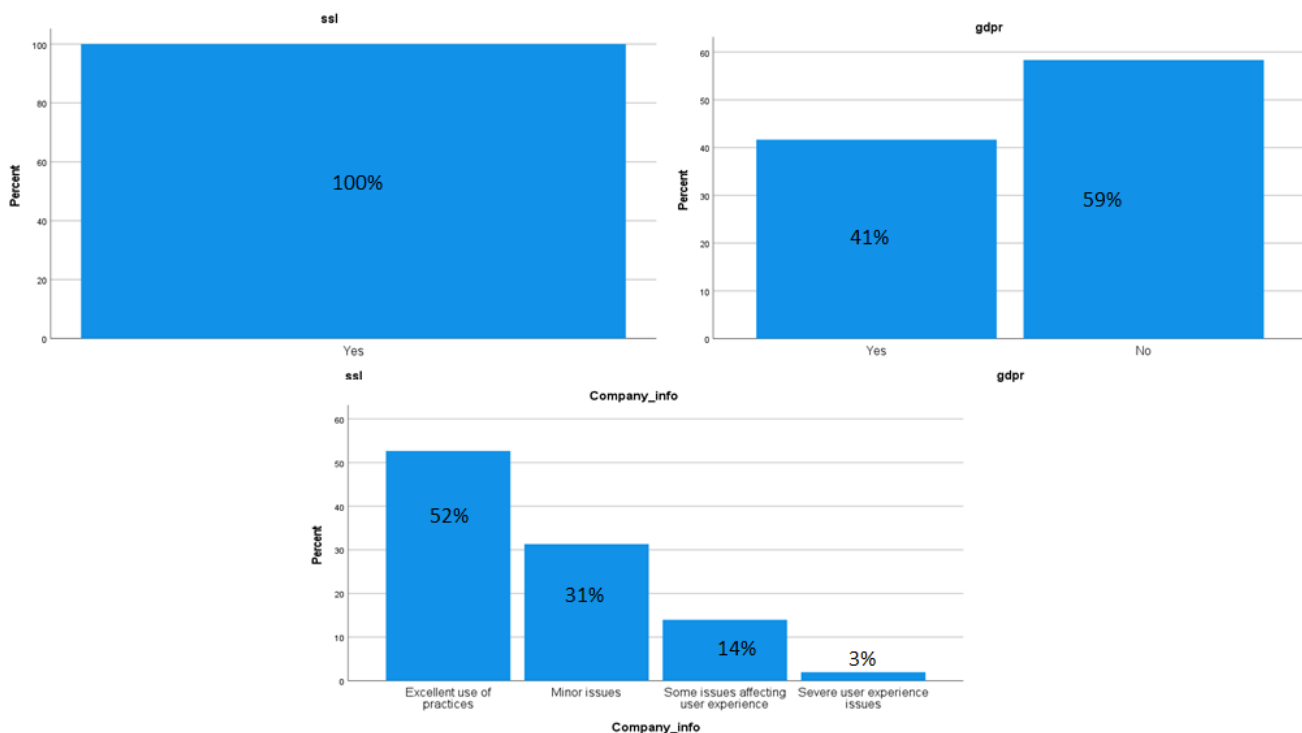


Figure 12 Statistics SSL, GDPR, Company information

Concluding with the factors that affect trust building of the consumers towards the on-line stores, is the multichannel approach. Brick & mortar presence is a major element of this approach to be successful. We witness the majority of e-commerce stores, already retailing in physical stores. The

75% of the examined brands, retain physical stores. This means that performing a multichannel strategy can be possible, but only less than the half (41%) of the stores offer store pick up during the checkout delivery options.

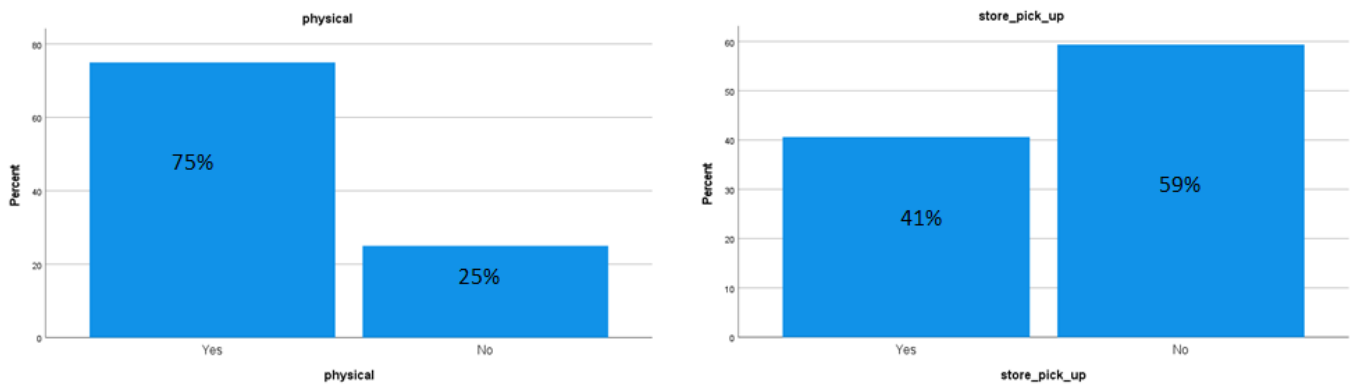


Figure 13 Statistics - Physical stores, Store pick up option

Multichannelling is enhanced with the efforts to focus on mobile devices, which is proved by the thrilling 94% of websites that have responsive design and the encouraging 47% that use adaptive mobile versions.

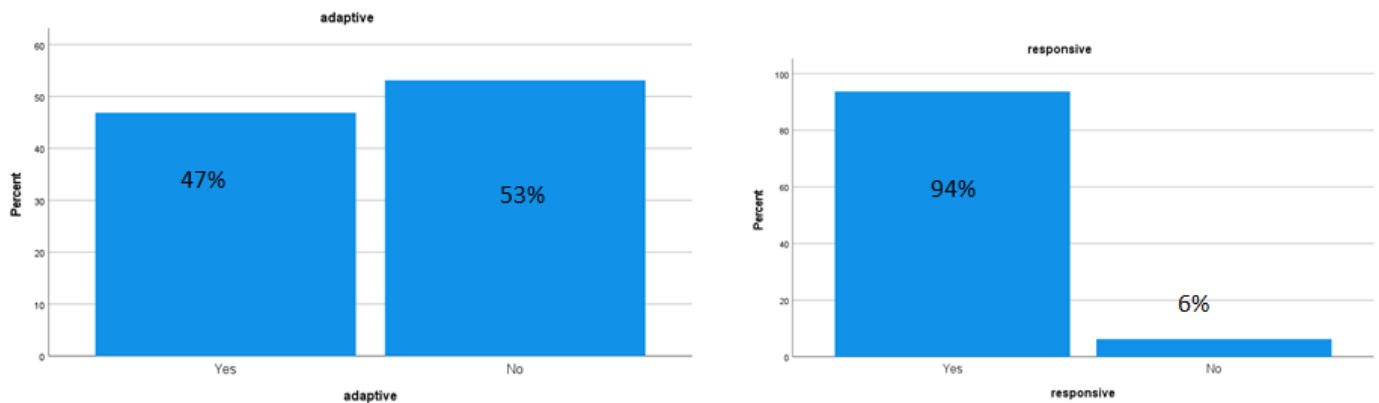


Figure 14 Statistics Responsive & Adaptive

5.3 User experience

5.3.1 Navigational ease

Greek on-line websites are targeting to clear adaptive menus that are easy and accessible by all devices, as 67% of the websites are using excellent menus. Most of the websites offer hamburger menus accessible via mobile devices, while desktop's favorite seems to be the classic sticky menu with dropdown elements, though in many cases a vertical twist seems to gain popularity especially among electronics and home furniture retail on-line stores. Websites scoring low on this factor usually use outdated design with minimal ease of use and no responsiveness towards mobile and a few cases where menus were not even present.

Navigating through the website by using navigation bar seems quite easy as the 20% has done an excellent job and the 42% has some minor issues.

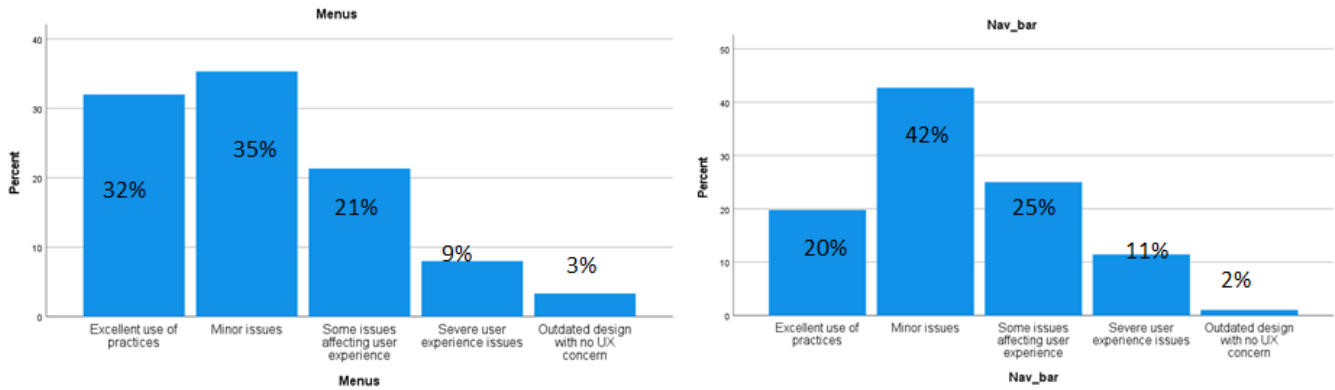


Figure 15 Statistics Menu, Navigation

The application of search bar and the technology behind shows excellent practice by the 35%, while the 8% has some severe issues and a shocking 4% has no search bar at all. Filters perform about the same percentages, where 28% practices excellent filtering and 10% using no filters at all.

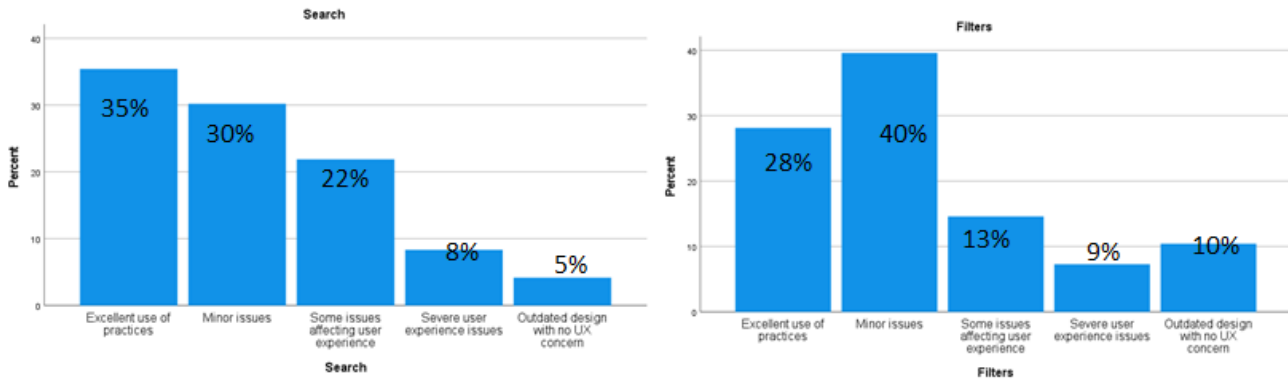


Figure 16 Statistics Search, Filters

29% of the websites have a clear pricing display across the website, as they inform the visitor about pricing and extra costs in apparent locations and only a 4% having some severe issues and 22% that affect user's awareness about the total amount the customer gets to pay.

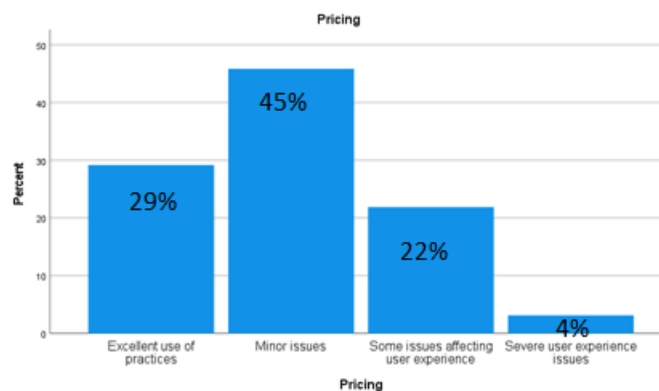


Figure 17 Statistics - Pricing

Most of on-line stores home pages have some design issues or displaying too much information, that is hard for customers to keep up to, with a 29%, offering a user-friendly home page. Call to action buttons are used correctly and universally across the websites by only 18%, with some cases using insufficient design or verbals or not using them wherever needed.

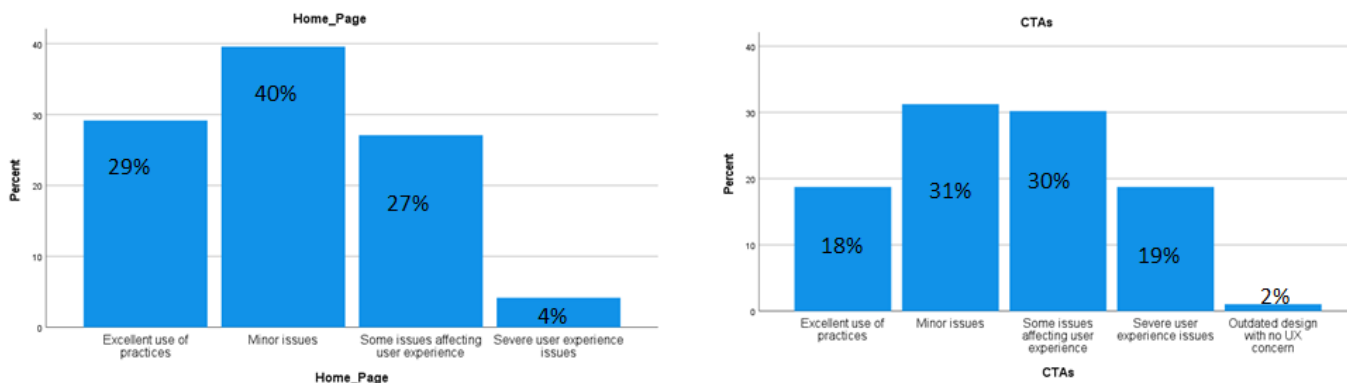


Figure 18 Statistics Home page & CTAs

5.3.2 Post cart addition

Analyzing features that affect consumers post cart addition behavior, we measure the factors: shopping cart, pricing, checkout steps, checkout initiation. The performance of these factors is generally good, and proves that Greek on-line stores are mostly carefully designed with concerns for good user experience and the need to avoid cart dropouts.

35% of the Greek e-commerce websites feature a great shopping cart, displaying informative elements like pricing, discounts, extra costs estimation, with easily editable items, accessible within every page and quick add to cart. While some of the websites have some flaws only two had major issues that affect the shopping procedure.

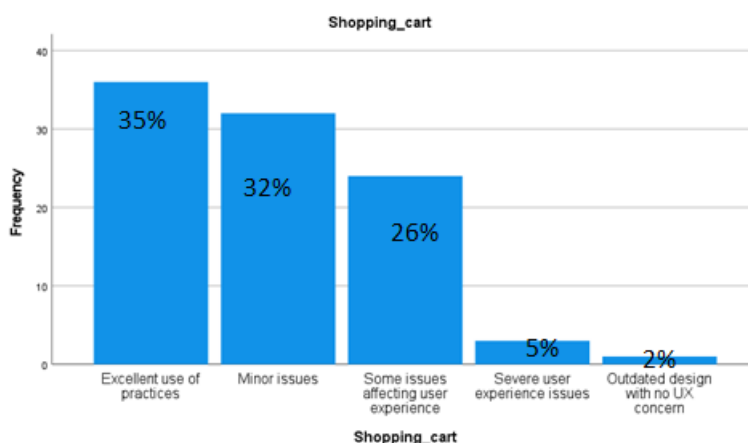


Figure 19 Statistics – shopping cart

74% of the websites seem to have adapted to trends and user experience practices during the checkout, where half of them practice an excellent one page checkout with guest checkout option

and clear pricing, while a smaller percentage requires sign up or has a more complex checkout process.

During the checkout steps, the biggest percentage of stores has an adequate performance (32% with excellent practice and 30% having some minor issues). The stores that offer a variety of payments and delivery options while offering a trustful environment is more than 25%, with an 18% not being able to offer all mentioned and 4% having some severe issues.

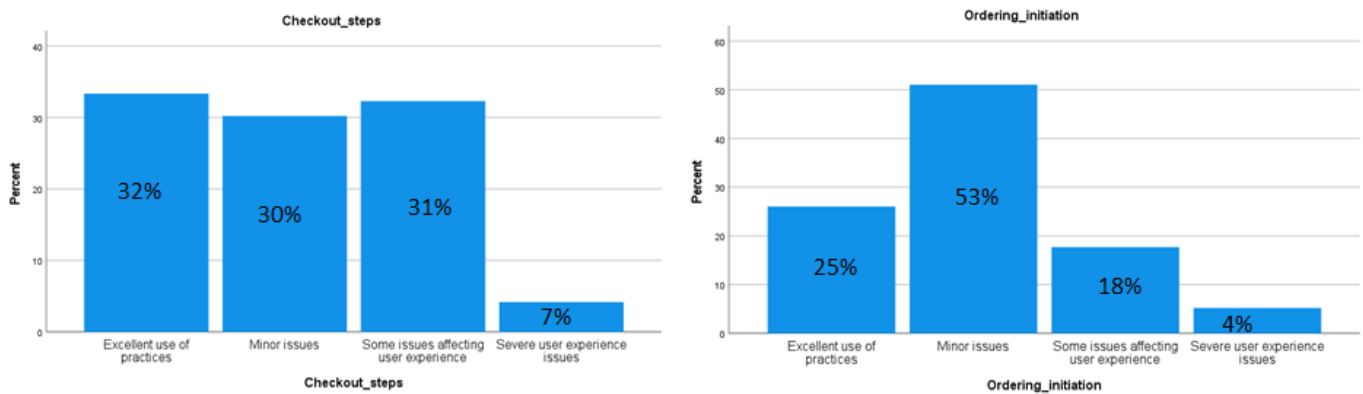


Figure 20 Statistics Checkout

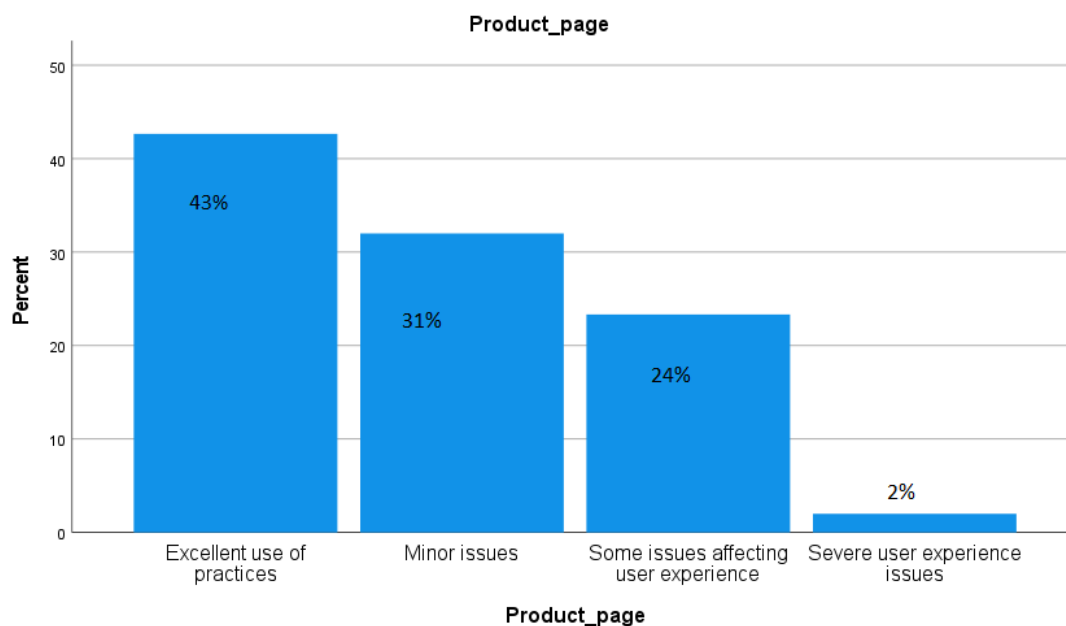


Figure 21 Statistics - Product page

Greek e-commerce websites perform excellent product page design. The 43% displays the product with sufficient information, images, description, pricing, delivery information and other product suggestions. While there is a mere 2% of websites that offer no information about the product whatsoever, besides the title.

5.5 Technological tools & technology

Unfortunately, technology adoption and AI tools in Greek on-line stores seems to be the problematic aspect.

The importance of media resources is not captured in the examined websites. A significant amount makes usage of poor quality media resources, while only a 7% uses high resolution images or videos that can help visitors have a clear insight about the product they are interested in buying. Reviewing systems that can also prove product's quality, are again not accepted by the majority of the websites, where only the 14% makes use of such systems. Complementing the absence of technological tools, chat bots and comparing tools are neither massively used with the percentage of usage being 22% and 20% respectively. On the other hand, on-line retailers seem willing to assist visitors through their shopping experience by offering wishlists and other product saving techniques that help the visitor access their favorite products whenever they need. 17% of the cases are Progressive web apps.

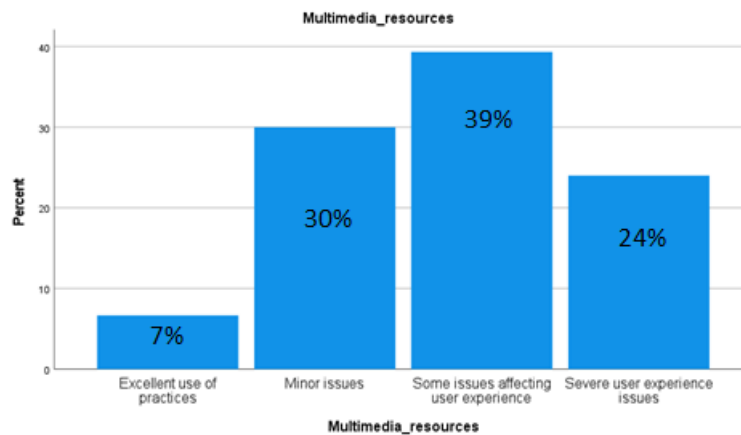


Figure 22 Statistics – multimedia resources

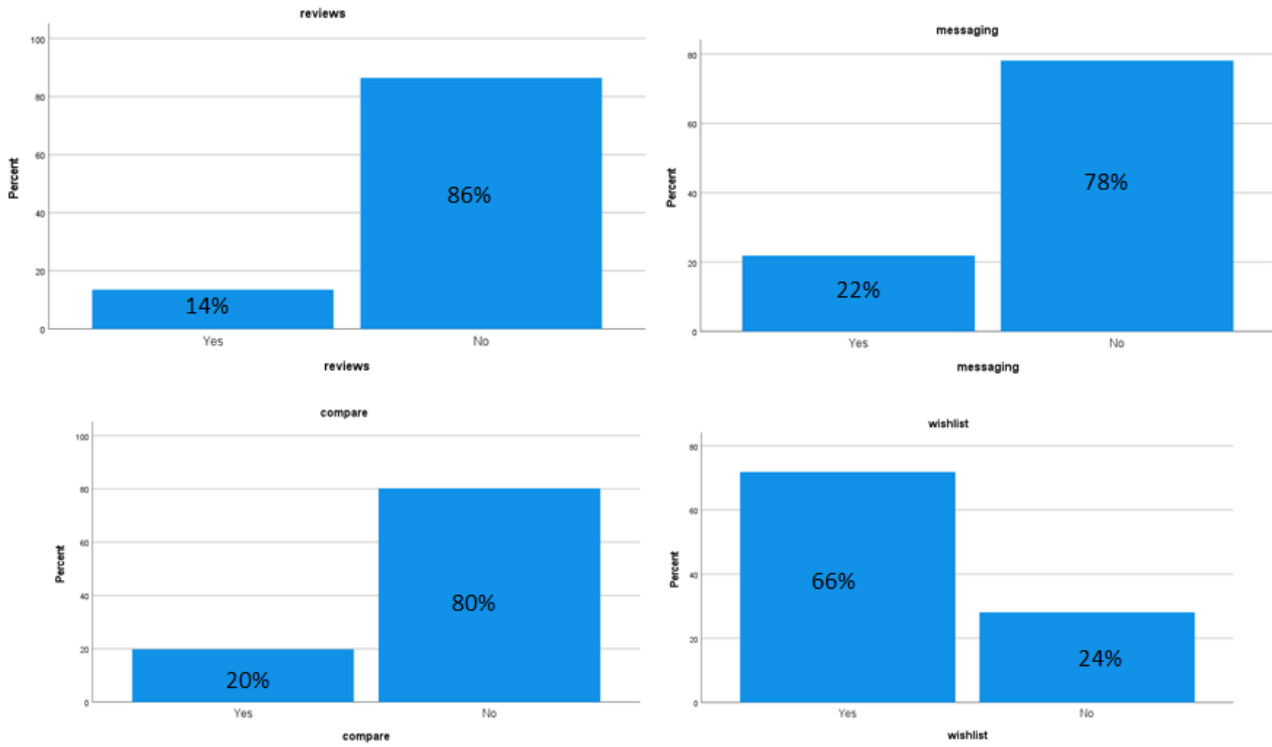


Figure 23 Statistics Reviews, Messaging, Compare, Wishlist

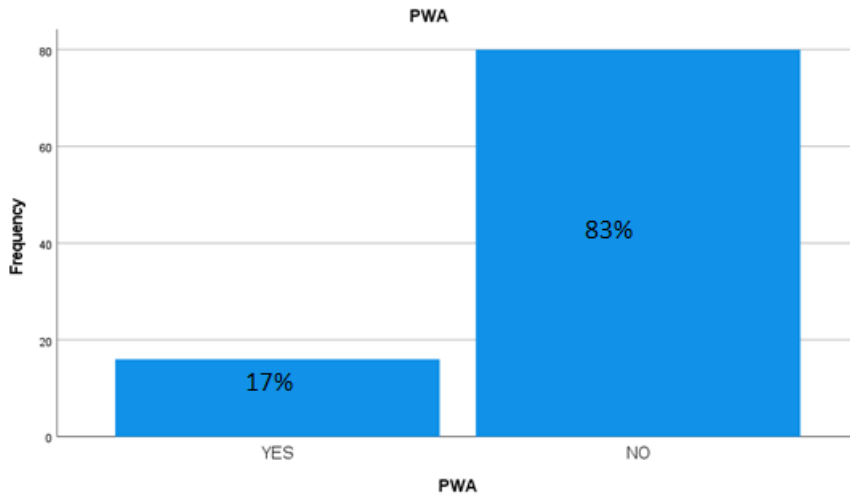


Figure 24 Statistics PWA

We notice a high negative correlation between platform and some technological tools. Usage of such tools is more frequent in platforms like opencart, prestaShop, drupal etc. With the 50% of the e-commerce stores build with custom CMS platforms, this can be explained by high costs and complication of developing tools that are custom made.

platform

N

%

Custom	48	50,0%
Magento	13	13,5%
WooCommerce	13	13,5%
Opencart	11	11,5%
PrestaShop	6	6,0%
Drupal	4	4,0%
Nocommerce	1	1,0%

Figure 25 Statistics Web platforms

Even though technology and quality design offer great user experience possibilities, bad practice and lack of know-how lead to low load speeds. We measured load speed using Google's PageSpeed Insights. The result speeds vary between 1 to 100, with the mean speed of load being close to 30 and the majority of websites being around 20 on mobile devices. This shows problems around the technical development of the websites. Having a more detailed look, we noticed that among the websites with the lowest scores, there is a lack of caching², no usage of CDN³ especially storage for images, bad coding and application of developing techniques (large images with no use of thumbnails, high server response time), poor design quality (image format and encoding) and bad practice of javascript and placement of third party coding integration across the code. These consist some of the reasons that a website is slowly loading with significant delays. Such low load speeds affect SEO (google ranking) but not to a high degree, as we notice mediocre to good performance. Specifically, websites' SEO scores vary between 42 and 90 with the average being 65, and the majority having scored around 60.

5.6 Promotional strategies

Social media seems to be preferred by on-line retailers, as the 75% have an active presence in Facebook and Instagram, the majority of which, post new content daily or multiple times in a week. The contents of the posts, usually refer directly to objects which may be linked to the products page, the social media shopping which is preferred by half of the brands that already use social media platforms for promotional purposes.

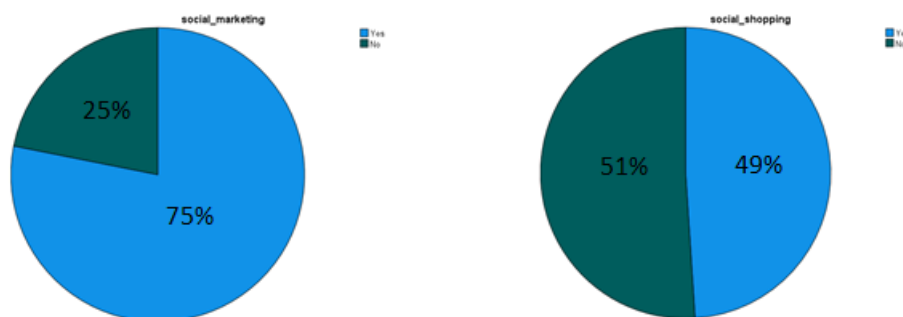


Figure 26 Statistics - Social media

² Web caching is used by temporary saving to storage images, pages etc. in order to decrease the loading time of content.

³ CDN minimizes the distance between the client and server by caching and thus helps with loading time.

On-line retailers are willing to assist unconscious buying as shown by the 97% of them that makes use of promoting products through product discovery, where the 25% does so in an excellent way by promoting products while helping the visitor reach to products they possibly like faster.

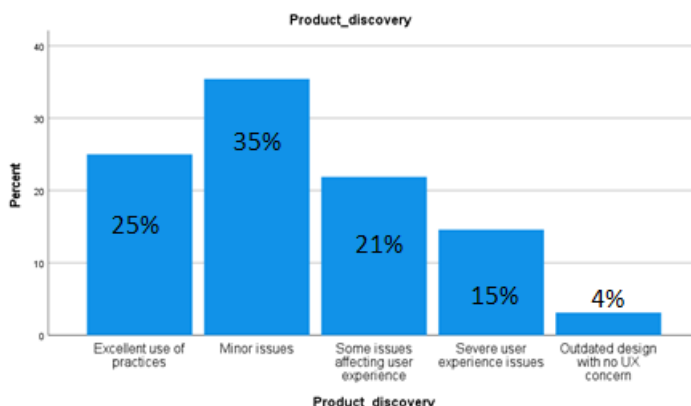


Figure 27 Statistics - Product discovery

Email marketing is one of e-commerce's favorite promotional approach with the 74% preferring to approach possible customers via newsletter by promoting sales, seasonal items and some by sending email reminders about previously added products.

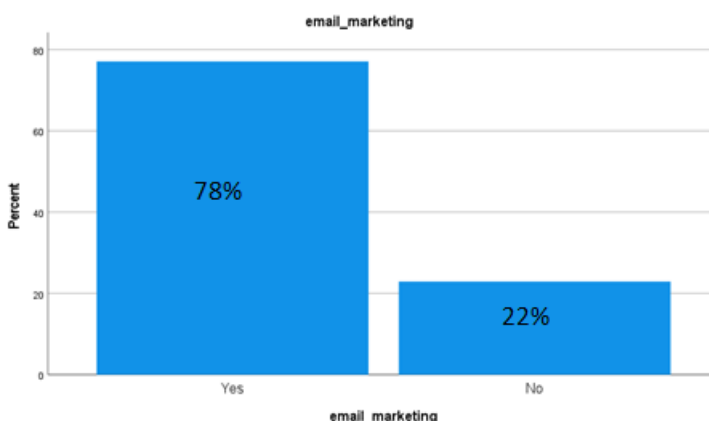


Figure 28 Statistics - Email marketing

A most popular marketing technique is offering the customer some benefits that offer them the ability to shop with no further fees. Such techniques are free delivery and free returns. Free delivery is offered by the majority (73%) of retailers when spending a certain amount of money in most cases while only the 32% offer free returns.

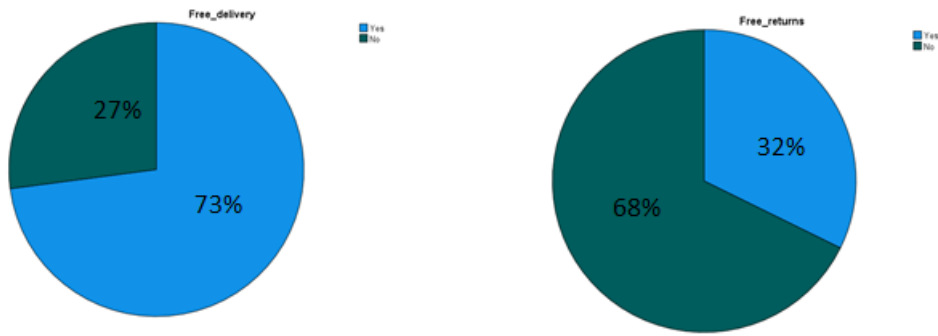


Figure 29 Statistics - Free delivery & returns

Content marketing (blogs) and social responsibility / environmental friendly are not massively adopted by e-commerce companies as only the 38% and 17% respectively, practice such strategies.

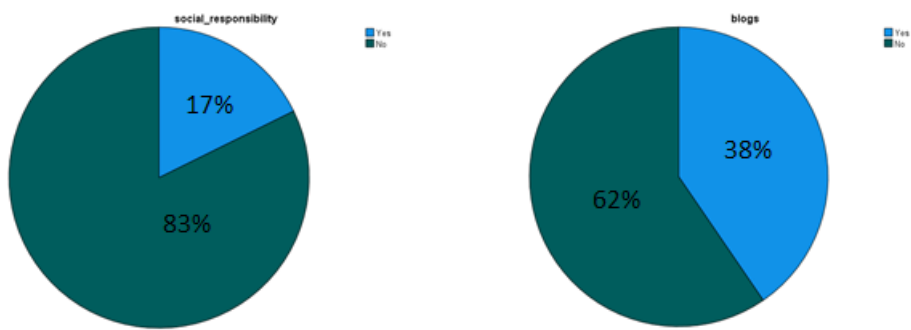


Figure 30 Statistics - Social responsibility & content marketing

Concluding, promotional strategies and marketing are better applied when there are visitor preferences insights, like analytics. 81% of the e-commerce websites are using tag manager and analytics, while the 75% is using advertising platforms or affiliate marketing programs.

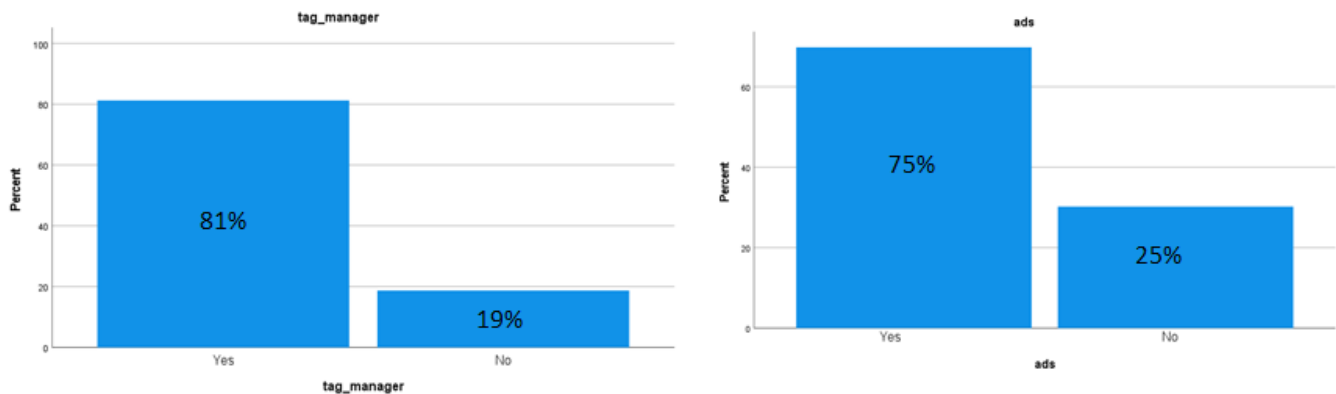


Figure 31 Statistics - Tag manager & advertising

5.7 Comparison websites

After performing factor analysis, we notice a high correlation between comparison websites and visits. We then recorded the websites' monthly visits and the referral ⁴visits that come from comparison websites. We notice that in the cases where the on-line stores are listed in comparison websites, the average percentage of the referrals coming from those is 89%. The average of the total comparison websites referral visits is 9% while the total percentage of social media referral visits is 1.7%.

The average percentage of branded searches⁵ is 42% and in most cases is negatively correlated with comparison websites referrals. In other words, on-line stores that have higher comparison referrals have lower branded searches.

We also notice the variables, "CMS platform" and "SEO score", being medium correlated, which means that CMS platforms and the tools they offer may help optimization of search engine. Based on the above findings, we conclude that, some on-line stores depend on comparison websites for traffic and the majority of their monthly visits are referred from such places, opposing other stores that have developed their brand name and customers are specifically looking for their brand.

⁴ Referral visits: Visits coming from external sources (e.g. adverts, affiliates, other websites).

⁵ Branded search: Search engine searches with terms that include the brand name.

6. Discussion

6.1 The overall picture of Greek e-commerce based on our findings

The research conducted on this thesis focuses primarily on aspects that affect consumer's behavior and intention prior purchase.

Based on our findings, we notice a general good performance of Greek on-line stores especially on principles that focus on developing trust towards the brand. Safety seems to come first, when using trust marks, secure payment environments and SSL. Omni-channel retail strategy is at its baby's steps in Greece, though there are positive indicators. The usual concept of on-line retailing demands the business to already own a physical store, rather than running exclusively an e-business. In only a few cases physical stores relate to the digital store, either by showing availability or by reservation. Also, all stores offer phone ordering options.

Greek on-line stores are developing three marketing approaches. The first approach focuses on S-Commerce, by daily posting new content on social media like facebook and Instagram and by using influencers to post content on behalf of them. 5 out of 10 on-line stores offer direct selling in social media. Also, in some cases, brands use content posted by customers, a way to implement the marketing strategy "word of mouth". The second approach focuses on comparison websites' presence. An approach that is mostly applied by electronics stores and pharmacies. In this case dynamic pricing is used to increase visibility in products listings. E-commerce stores apply the third marketing approach by advertising in other websites or by affiliate marketing, with the majority using remarketing. Though, there are a few cases, where on-line stores do not use any of the marketing strategies mentioned above, and rely exclusively on their brand name. Such cases are rare and refer to on-line shops with a minimum of 10 years of operations.



Figure 32 Digital marketing strategies

Greek e-commerce shops usually use free delivery service when spending a specific amount of money, in order to convince consumers to purchase.

They also, prefer practicing e-mail marketing, even though in many cases, the compliance for GDPR is insufficient, daily emails informing about promotions, seasonal items. There are even some cases where reminders are sent for items previously added to cart.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Average_usability	96	,21	2,79	1,2121	,51700
Valid N (listwise)	96				

The above table shows us each website's total evaluation score. With the mean being 1.2 and the standard deviation 0.5, we see an overall good performance of Greek e-commerce in User experience with some performing extraordinary while some having big issues. We notice that based on the retail category there are certain design principles. For example, pharmacies and drugstores have many similarities in the home page, catalogue page and product page, with a variety of banners and promotional products while selling a big amount of products. On the other hand there are retail clothing stores that based on their concept we see differences in the design and content. There are a few on-line stores with product centric design. They focus on the product with high resolution images that display it with high aesthetics.

We also notice the majority of websites using tag manager as an easy way to add third party scripting code, especially analytics. This means that most of them analyze data to evaluate and form strategies that will ultimately help them attract more visitors and convert them to actual purchases.

Drop shipping is gaining popularity among Greek electronic shops, mostly among the ones that traffic comes from comparison websites and by selling low priced products.

Subscription services are not popular in Greece with the percentage of websites offering this service being 1%.

The findings concerning technological tools and the developing know is disappointing. With about half of the cases being developed on custom CMS platforms, bugs and errors are very common and even visible to the visitor. Javascript and PHP are used catholically on CMS platforms like Prestashop, Wordpress, OpenCart and Magento, while custom make use of other programming and scripting languages.

Some websites use tools like comparing or messaging But none of them uses any other tool or Augmented reality.

Most on-line stores offer a variety of payment options with the most popular being credit card, payment upon delivery and transfer through bank. Less popular options are paypal and digital wallets. Among the cases, there was none that had cryptocurrency payment as an option.

Shipping options mainly focus on delivery through courier services, with most of the stores offering pick up options. During the pandemic, courier services went through rough times, as the catholic shut down of stores led to a massive wave of on-line ordering. This led some companies to hire employees for delivering orders the same day.

6.2 Research Answers

1. How do Greek e-commerce websites use factors that affect user experience?

Examining the data calculated by SPSS, the average Greek e-commerce websites tend to develop and design User experience principles to a sufficient level. Displaying information about their company and the products they are selling seem very important while the images being used to display the products are poor in quality with little information expressed by visualizations and multimedia. Call to action buttons is widely used, but their implementation along with filters and product discovery mechanisms lack know how. We notice an even distribution of excellent practiced factors among highly visited Greek websites. We notice that unfortunately in only some cases, most factors are implemented exceptionally. While in only a few there are severe problems with User experience, where modern design principles are not considered at all.

2. What technological tools do they use?

The adoption level of technology among Greek on-line stores is mediocre. The majority do not use technological tools for GDPR compliance or make use of outdated tools that do not comply with the regulations. Similarly, other tools like messaging, comparison and product saving lists are also moderately used by Greek e-shops. While security protocols are prioritized, as all the e-stores have SSL installed and offer secure payment gateways. Greek e-commerce stores are reluctant to change and technological improvements are not easy to follow. Even though the majority of websites have responsive layouts that work on all types and sizes of devices, adaptiveness and usage of PWA are still not massively used.

3. How do they practice marketing?

There are multiple marketing strategies and principles that Greek websites use to increase traffic and conversions. The massive installation of tag manager means that these stores, are using google analytics to monitor traffic, conversions, use remarketing etc. This means that there is a need to create marketing strategies based on these data. Main marketing principles for attracting customers like free delivery, social media active presence, traditional advertising are preferred by Digital marketers.

4. How do they establish their on-line presence?

Combining all the data, we interpret them as follows:

- Big enterprise companies with an established customer base and fine brand equity have an exceptional on-line presence with user friendly design, implementing most of the technology and technological factors mentioned on the previous chapters in an outstanding way.
- Small companies that have managed to maintain on-line presence for several years do not seem eager to change and advance their website.

- On-line companies have developed three main marketing strategies:
 - i) Websites whose traffic depends on comparison websites (skroutz, bestprice, etc).
 - ii) Websites that have developed a significant brand equity exclusively through social media or influencing sources (Instagram influencers, youtube, etc).
 - iii) Affiliate marketing and traditional advertising.

6.3 Greek e-commerce compared to Global trends

Globally, we notice some differences on the way e-commerce is developing in other countries comparing to Greece.

Voice commerce is rising in the global market, where based on (SearchNode, 2021) 10% of North American and European on-line retailers are already using it, where none of the Greek cases had such ability.

Progressive web apps on the other hand perform much greater in Greece where the 17% of websites use PWA, while only the 8% of European and North Americans do.

14% of the foreign cases examined by (SearchNode, 2021) offer subscription service contrary to 1% of the Greek. On the contrary, we notice that programming languages and security technologies that are used globally, are the same that are used by Greeks.

There are also design trends and principles on the global e-commerce markets that are miles beyond Greek design trends.

Greek e-commerce lacks innovation and outstanding technological practices. There are many practices and examples where AR/VR is used globally. For example some Furniture stores make use of AR that can help their customers make a purchase decision, by viewing the items they're interested in, in their apartment. Another example is using the same technology to view paint colors on the walls. While some use AR for products like sunglasses or makeup. None of this technology has been applied on the cases reviewed for this study.

Comparing foreign ecommerce websites to Greek, we notice the differences in product pages. There are many of foreign websites that focus on product's details and unique features by using close up images and placement of the item in the real world. This product-centric approach is not very popular among Greek website, though there are cases already using it.

A more effective way of increasing the return of investment is to keep customers coming back again and again to make a purchase. By offering customers advantages through loyalty programs many foreign websites have benefited, while only 19% of Greek on-line retailers offer loyalty programs.

Payment upon delivery is an option that is mostly preferred by Greek retailers, as it is a popular method among local consumers, while the majority of global retailers do not even offer such methods. On the global on-line market, paypal is dominating among others, while cryptocurrency usage has some fans.

6.4 Comparison to relative studies

There are only a few relative studies conducted for Greek e-commerce stores.

(Stefani & Xenos, 2003) in their research conducted 18 years ago, where, evaluation factors being essential at that period, focus on user experience.

- Multimedia: 50% of Greek e-shops offered product presentation by using images, where 19% of them and 13% had zoom in capabilities and showed multiple angles respectively.

- 33% of websites offered advanced search at the time, while 77% used simple one-term search.
- 47% of the on-line stores offered discounts and special offers.
- On-line stores offered various payment options.
- 76% of the websites offered adequate company information.
- 50% of them required member registration prior purchasing.

In another research conducted in 2012 for e-museums and e-Tourism websites from (Lazarinis, et al., 2012) the following findings were pointed:

- 60% of the websites used static Technology (native HTML)
- 20% of them used Flash for multimedia presentation
- Some of the websites did not make use of contact forms, offering only an email address for contacting.
- Purchasing option was not available in all websites.
- At the time there were no sign of responsive or adaptive layout.
- Most of the websites did not offer search or product discovery.

Comparing to our study, we notice a significant upturn towards multimedia usage and the quality of them. This can be explained by the technology advances and the CDN technologies that enable usage of High resolution media easily with little resources.

Search, has not changed drastically during the last years, as there are still many websites using simple search, yet there are features and UX elements added.

There is definitely a classification between companies, applying discounts and offers, as the majority use such practices to attract visitors and gain more conversions, yet there is still a little number of websites, that do not use offers all year long but only occasionally or at all.

Payment options remain at the same levels, with payment upon delivery, credit card and bank transfer being the essential options, while there are only a few cases where other options are used like paypal or wallets, though on-line payments have significantly changed during the last years concerning security issues.

Traditionally we see that Greek website offer information about the company and the ordering processes.

Member registration policies have also changed, as guest checkout is an option in most cases. Member registration requirement is discouraged mostly due to User dissatisfaction and GDPR policy.

Purchasing was not available in every website at the time, today's e-commerce websites all offer purchasing while in many cases there are advanced features, linking to omnichannel.

Technology has significantly changed, as all of today's e-commerce websites are built using dynamic Technologies. JQuery and PHP are the most common technologies in use, with React and Ruby gaining popularity. Of course, the application and development of technology and tools are platform dependent, as almost half of the stores examined in our research have been developed on CMS platforms.

7. Conclusion

This thesis focuses on what are considered to be promising and important aspects of E-commerce in Greece, as it has gained a significant level of adoption during the last years, especially during the covid-19 pandemic. This thesis attempted to evaluate and review 100 Greek on-line stores, by combining factors collected from the literature that focus on User experience, technological tools and marketing practices. The purpose of the research was to have a deeper insight into the level of Greek technology and practices adoption.

Overall, small and medium sized Greek companies with on-line presence do not seem determined to practice an omnichannel approach for a more unified customer experience. This approach is mostly practiced by big enterprises where communication, selling, marketing and distribution is executed separately by teams of experts.

The key point of this thesis is the categorization of the approaches Greek on-line stores use to attract customers. We categorize them, as stores using price comparison websites, stores that build that use S-Commerce and stores that build their brand name through advertising and affiliate marketing.

7.1 Suggestions for future research

The current research has provided findings on Greek e-commerce websites that are currently working. A future research could potentially focus specifically on practices and adoption level by each retail category on both e-commerce stores that are already successful and to those that are currently starting. By conducting such a research, it would be interesting to examine how companies plan their on-line strategies, what factors influence their decisions and how affective this strategies are. Also, how determined companies are to succeed in the on-line market and by what means are they willing to advance.

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