

## Chapter 17

# Technical and Hedonistic Variables of Online Visual Merchandising: Do They Influence Apparel Website Popularity and Attractiveness?

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### **ABSTRACT**

*This study looks for a correlation between visual hedonistic and technical variables and site success, simultaneously establishing whether there are any recorded evolutionary aspects of technical variables. A mixed method approach was adopted and the analysis was divided into the following phases: content analysis on technical and hedonistic characteristics; traffic analysis, analysis of the position of websites in relation to data traffic using a size reduction technique; cross-analysis of results obtained in the two previous phases to observe the cluster structure from a point of view of data traffic. The results state that there is no clear correlation between technical and hedonistic qualities of an e-commerce site in the apparel industry and the popularity and attractiveness of their site, and therefore, the authors cannot confirm the four proposed hypotheses.*

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### **INTRODUCTION**

There are certain fundamental factors in the retail mix, including; assortment, price, communication, and location. In particular, for in-store communication, visual merchandising plays a fundamental role. However, there has been a recent shift towards an omnichannel approach due to the need for retailers for greater integration between company areas, such as marketing, innovations, and customer services. Consequently, an important question is, ‘are the same factors involved in the success of both online and offline stores? More specifically, ‘is it possible to state that the role of visual online sales is the same as an offline sales point? Here, the authors looked for a correlation between visual hedonistic and technical variables and site success, simultaneously establishing whether there are any recorded evolutionary aspects of technical variables.

Recently, research has analyzed different variables that can affect the propensity of consumers to buy clothing online (Choi, 2016; Cho and Workman, 2015; Merle et al., 2012; Hagberg et al., 2016; Melis, et al., 2015; Sundström et al., 2019). According to Shala and Balay (2016), the success of online channels depends on their quality of service. The main factor that influences these authors is the perceived risk of consumers of the lack of “materiality” of stores. This, in turn, induces customers to buy online only based on knowledge of the product’s brand. The term “quality of service” refers to the value gap between consumers’ expectations regarding service and the actual perception of this service after the purchase experience (Parasuraman et al., 1985).

To measure the quality of electronic services, defined in the eTail Quality study, the following aspects were taken into consideration (Shala and Balay 2016):

- *Satisfaction/reliability*, the visualization, and accurate description of the product reassuring consumers to order what they want (Wolfenbarger and Gilly 2003).
- *Website design*, all relevant elements for a positive virtual experience, such as smooth navigation, information search, order processing, the possibility of personalization, and selection of products.
- *Customer service*, the care that online sellers show in offering consumers immediate solutions to problems that the customer may encounter while browsing (Wolfenbarger and Gilly 2003).
- *Security/privacy*, the security level of credit card payments, and consumer data protection.

Cho and Workman (2011) analyzed on the other hand, how consumers prefer to buy items of clothing in physical stores or online in relation to the need to touch products (need for touch), the aesthetic centrality of the product and genre. According to these authors, consumers who have a great need to have a tactile examination of the product will go exclusively to physical stores and will never be an online target.

From their study, it also emerged that:

- It is not just the image of an individual product that induces consumers to buy online, but also the appearance of the online store which affects their final decision;
- A potential consumer who comes across a store full of exciting and interesting elements could reduce their perception of risk and perceive the online shopping experience to be much more pleasant (Ha and Lennon 2011);
- Women tend to prefer purchasing in physical stores, and only very few make purchases online because of the absence of social interaction (Hasan, 2010). Furthermore, women shop for fun (Almaghrabi and Dennis, 2010).

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- Consumers who on the other hand, have a greater need for touch and/or higher aesthetic centrality, may prefer online shopping for convenience, impulse purchases or simply for fun, regardless of the characteristics of the site.

## **BACKGROUND**

Given, that online visual merchandising attempts to recreate the shopping experience online within the physical store (Baek, 2015), the stimuli produced by the online channel can be classified into two categories (Eroglu et al. 2001): high task-relevant cues and low task-relevant cues. High task-relevant cues are those characteristics directly linked to the commercial objectives of consumers (Kim et al., 2015) and include navigation, graphics, and how to present products (Katrandjiev and Velinov 2014). They include both verbal and visual description of the site, which represent essential elements of consumers' buying intentions. Verbal information about the product (description, prices, discounts, delivery, return policies, and images) and navigation support options (site map, search tool, menu bar).

The online store, in order to positively influence customer satisfaction, should have the following characteristics:

- Be easy to navigate: They should have an advanced search engine able to allow consumers to be free to juggle categories and provide useful and detailed information to make shopping more enjoyable (Koivumaki, 2001; Jang and Burns, 2004)
- Ensure comfortable shopping: designing a graphically attractive site and creating a pleasant environment is important because it increases the value of the portal and facilitates navigation (Bonera, 2011; Katrandjiev and Velinov 2014).
- Properly present the products, helping the consumer in their decision-making process by offering efficient systems capable of generating sensory or aesthetic information (Won Jeong et al., 2009).
- Offer different choices (menu options);
- Be interactive.

Corvi and Bonera, (2014) tried to verify whether there was a correlation between the quality of technical variables of online visual merchandising and the success of sites measured in terms of traffic. However, they did not obtain any significant results. Here, the authors include the more hedonistic characteristics of an e-commerce site: i.e., low task-relevant cues. These include elements that can persuade the subject of purchase requests, differentiating e-commerce from competitors. Thus colors, background and frame texture, writing styles, animation, music, type of icons, decorative images, and quantities of white spaces are all examples (Eroglu et al. 2001).

According to Katrandjiev and Velinov (2014), low task-relevant cues include two groups of elements: atmospheric characteristics and registration within the website. Atmospheric features include the site home page, the presence of music both at entry and while browsing as well as the video, the choice of background colors, including default and in the product and text color tabs (Ha et al., 2007).

A website that has high aesthetic characteristics is perceived as being much more credible and able to provide greater satisfaction (Robins and Holmes, 2008). Previous studies show that different types of characters, the modality of expression and color combination affect the readability of the site (Hill

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and Scharff, 1999), while color and background design influence consumers' perceptions of product evaluation (Mandel and Johnson, 2002; Bellman, et al., 2006).

According to Lee and Hahn (2015), the tone of writing can also be considered an atmospheric element of the network. Indeed, based on the choice of terms, it is possible to attribute characteristics to the e-commerce social site that are similar to human ones, thus improving the shopping experience. Tone refers to the technique of composing texts and is transmitted both by choice of terms and by the narrator. An informal tone tries to give a text a colloquial expression, as in a dialogue between peers, using familiar terms, contractions and referring to the interlocutor in the first or second person. While formal tones rely on a precise structure and a particular phrasing, it rarely uses contractions and addresses the subject in the third person). It is normal to thi that within an e-commerce website, the tone used is usually informal in order to attribute characteristics similar to human ones to the social site.

Melodies can satisfy consumers as well as annoy them. Retailers, who are aware of this, offer the possibility to circumvent this service with specific buttons within site. If not available, the customer can directly adjust the sound of their device.

Presentation videos on the homepage are intended to communicate business values clearly and concisely. The images can portray the company and its collaborators, the core products, the testimonial, or represent precise promotional messages. For example, the company continuously updates its videos depending on whenever there is a new collection or seasonal sales. From our analysis, it was found that the choice of inserting the company video onto the homepage was not a common strategy. Video choice usual include static images that flow automatically, even if according to previous studies, visual information or visual information intended as video, is remembered much more easily and the combination of images and sounds increases customer understanding and memorization (Baggett, 1984; Kozma, 1991).

Finally, assigning the right color to a site is a delicate operation as each nuance is linked to a specific meaning that can influence human emotions. The color must correspond to the corporate communication objective. First of all, behavioral levels influenced by this choice must be understood, and Biers and Richards (2011) identified three: physiological, aesthetic, and psychological. Physiologically, color can make site navigation problematic or easy, and aesthetically, it is necessary to create a pleasant context for the shopping experience. Finally, psychologically, color is considered a non-verbal form of communication that can condition the purchasing process.

The most common background colors are white (clean, minimal and bright), black (sophisticated and elegant), red (vital and passionate), blue (elegant and reliable) and yellow (energizing and wise) (Katrandjiev, Velinov 2014). For any situation, it has been confirmed that products with blue or purple backgrounds are given a higher value than those shown, for example, with a red background (Bellizzi, Hite 1992; Biers, Richards 2011). Blue is the most common color on the web, and its meaning changes with the gradation used. Indeed, the lightest shades are considered friendly and social (Facebook, Twitter, and LinkedIn are an example), while the most intense shades are synonymous of elegance and reliability.

The second factor included among low impact stimuli concerns users' recordings at the e-commerce site. Katrandjiev and Velinov (2014) focused on privacy and security risks related to virtual shop signups. According to the Privacy & America Business research, 64% of respondents said they do not purchase online because of requests to enter personal data, and 67% avoid registration (Tsai et al. 2011). Subscribing to online stores can, therefore, be seen as a disturbance factor and violation of personal data. However, it also facilitates the process of purchasing and browsing within site, providing advantages in terms of purchase (visualization of promotions applied to the most consulted and/or purchased products) and service (creation of a personalized homepage).

*Technical and Hedonistic Variables of Online Visual Merchandising***MAIN FOCUS OF THE CHAPTER**

All this given, here the authors analyzed the hypotheses of relations between two types of variables of online visual merchandising in the fashion industry and the success of sites measured in terms of traffic, popularity, and attractiveness of the sites themselves.

Independent variables were identified in two macro-categories: hedonic variables and technical variables. The former can be traced to the low task-relevant cue elements, while the latter to the high task-relevant cue elements.

Hedonic variables include (Magrath and McCormick, 2013): presence of a video presentation in the website home page; information related to current trends; style tips; rewards for purchases, intended personality endorsements as a symbol of the store; the possibility to customize the product; sound; customer services clearly visible on the home page.

Technical variables refer (Corvi and Bonera 2014) to: product presentation techniques (presence of dummy, model or flat surfaces); technology used (multiple or 3D view, zoom, full view of the mannequin and/or model, fashion show); additional services (category filters, price range, designer choice); display of products similar or related to the target garment (Ha et al.,2007).

Therefore, the hypotheses of this research are synthetically the following:

**Hypothesis One:** As the quality of technical variables of online visual merchandising increases, the attractiveness of the site increases;

**Hypothesis Two:** As the quality of technical variables of online visual merchandising increases, the popularity of the site increases;

**Hypothesis Three:** As the quality of hedonic variables of online visual merchandising increases, the attractiveness of the site increases;

**Hypothesis Four:** As the quality of hedonic variables of online visual merchandising increases, the popularity of the site increases.

During verification of these variables, the authors found that some of these were either present or absent, for all analyzed sites. In particular, the authors noted that filters in the menu, the use of a model and zoom functions were standard features, while sounds, the use of a dummy and three-dimensional rotation of the product was not detected at any site. The following was, therefore hypothesized:

- Variables in each website can be defined as a standard and indispensable feature and so, irrelevant for the purpose of this analysis;
- The lack of sounds or three-dimensional screen may be innovative features that could be inserted into sites;
- The absence of dummies is explained by their replacement with real models.

The authors also evaluated, off-line points of sale, whether single-brand or multi-brand sites and the price range of membership: Luxury (400 \$ -1000 \$), Bridge (\$ 90 - \$ 200), Diffusion (\$ 50 - \$ 80) and Mass (\$ 5 - \$ 40).

In order to verify this hypothesis, a sample was chosen consisting of the top 30 most visited fashion e-commerce sites in terms of data traffic (table 1). Systat was the statistical program used, and the analysis was divided into the following phases:

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- **Content Analysis on Technical and Hedonistic Characteristics:** Use of qualitative variables and a technique of cluster analysis to form groups of homogeneous websites;
- **Traffic Analysis:** Analysis of the position of websites in relation to data traffic using a size reduction technique;
- **Cross-Analysis:** Cross-Analysis of results obtained in the two previous phases to observe the cluster structure from the point of view of data traffic.

The sample was identified with the support of the portal Alexa Internet Inc., a US company, belonging to the Amazon.com group, which deals with statistics on Internet data traffic. Alexa, for each website, stores, and analyses data related to all visits made by consumers and presents its analysis on traffic in a summary report. Alexa also estimates the popularity of each site by combining average daily visitors and pages viewed over the last three months.

The macro-category identified in Alexa was “Shopping”, which included 35 sub-categories. Of these, the “clothing” category was the final choice, as it includes accessories, casual wear, clothing for children, women, and men, shoes, formal wear, and much more. To further narrow the analysis, only the “casual” category was considered, as it is the most common type of clothing on the web (473 websites, for example, 143 for formal clothing).

The identified sample contained the first 48 websites, identified by Alexa, classified in an order from the most viewed to the least viewed. An analysis of Visual Merchandising characteristics was created considering one specific product: women’s dresses. This focus led to the exclusion of 18 identified websites as they did not process this product (Table 1).

To construct the data set necessary for the analysis, it was verified whether the thirty sites possessed the characteristics represented by the two variables (hedonistic and technical), indicating “1” the presence of the attribute and “0” the absence of the element.

The statistical technique used for the segmentation was the Cluster Analysis (CA) - Group analysis, exploration method in which N subjects, described through a p-dimensional quantitative profile, are divided into k groups as homogeneous as possible within them (internal cohesion) and non-homogeneous (external separation). In this case, the study variables were qualitative, so the distance that best represents the agglomeration is the so-called Minkowski distance, expressed by the following relation:

$$d \cdot (x_1; x_2)_r = r \sqrt{\sum_{j=1}^p |x_{1j} - x_{2j}|^r} \cdot r$$

If the value of r was equal to 2, this formula would correspond to the Euclidean distance that is not recommended as it measures the distance between the points in a space, not identified in our case.

To obtain an appropriate result, the authors decided to assume  $r = 1$  to arrive at the sum of the number of discordant profiles. Profile speeches were the only possible result because, if  $x_{1j}$  were equal to 1 (or 0) and  $x_{2j}$  were also equal to 1 (or 0), the sum would be 0; while with  $x_{1j}$  equal to 1 (or 0) and  $x_{2j}$  equal to 0 (or 1), the result would be positive and the sum would have a result, i.e., the sum of the discordant profiles.

The Cluster Analysis is divided into two techniques, non-hierarchical methods and hierarchical methods. In our analysis, the authors applied the hierarchical agglomeration method. The peculiarity of

**Technical and Hedonistic Variables of Online Visual Merchandising***Table 1. The Sample*

<b>Brand</b>	<b>Web site</b>	<b>Store/Store and E-commerce</b>	<b>One brand / Multibrand</b>
Gap	www.gap.com	S&E	Multi-Brand
Forever21	www.forever21.com	S&E	One Brand
JCrew	www.jcrew.com	S&E	One Brand
AmericanEagleOutfitters	www.ae.com	S&E	One Brand
Llbean	www.llbean.com	S&E	One Brand
LandsEnd	www.landsend.com	S&E	Multi Brand
Abercrombie	www.abercrombie.com	S&E	Multi Brand
OldNavy	www.oldnavy.com	S&E	One Brand
Levi	www.levi.com	S&E	One Brand
Eddiebauer	www.eddiebauer.com	S&E	One Brand
Aeropostale	www.aeropostale.com	S&E	One Brand
Tedbaker	www.tedbaker.com	S&E	One Brand
Bananarepublic	www.bananarepublic.com	S&E	One Brand
JJill	www.jjill.com	S&E	One Brand
TheWetSeal	https://www.wetseal.com	S&E	One Brand
Guess	www.guess.com	S&E	One Brand
Luckybrand	www.luckybrand.com	S&E	One Brand
BuckleInc	www.buckle.com	S&E	Multi Brand
Athleta	www.athleta.com	S&E	One Brand
JackWills	www.jackwills.com	S&E	One Brand
TrueReligion	www.truereligion.com	S&E	One Brand
Agjeans	www.agjeans.com	S&E	One Brand
Esprit	www.esprit.com	S&E	One Brand
Bostonproper	www.bostonproper.com	S	One Brand
Jbrandjeans	www.jbrandjeans.com	S	One Brand
JoesJeans	www.joesjeans.com	S&E	One Brand
Maxstudio	www.maxstudio.com	S&E	One Brand
AprilCornell	www.aprilcornell.com	S&E	One Brand
TerritoryAhead	www.territoryahead.com	S&E	One Brand
Ragstock	www.ragstock.com	S&E	One Brand

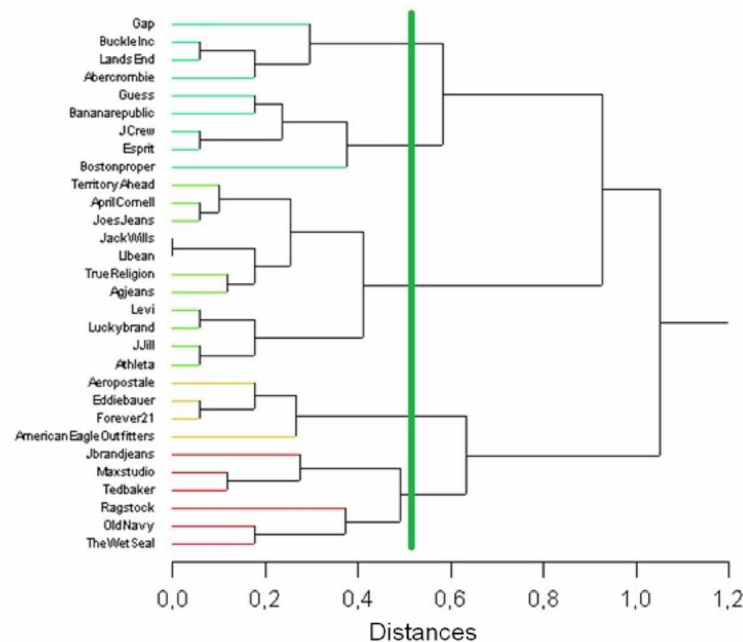
Source: Authors elaboration

this method is that the subject performing the analysis decides the choice of the “optimal” level of agglomeration and so the number and composition of the resulting clusters depend on this decision. The distance between the groups was calculated using the Ward method, which combines at each stage of the process, the two groups from which the minimum possible increase of variance within the groups derives from the union. The result of this analysis is represented by the dendrogram or cluster tree (Figure 1),

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Figure 1. Dendrogram or Cluster Tree

Source: Authors elaboration



which is essential to understand at what level to stop the agglomeration. The green line represents the level in which it was decided to interrupt the aggregation, thus identifying five distinct groups.

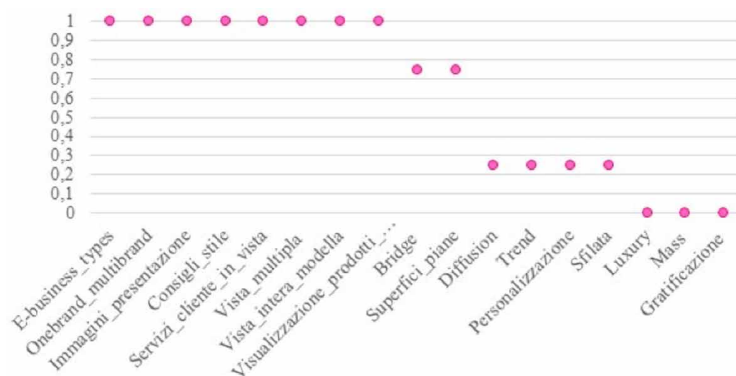
Let us now consider in detail the description of the five groups.

The sites belonging to the first cluster (Figure 2) included Gap, LandsEnd, Abercrombie, and BuckleInc. These sites are characterized by both having an online store and a physical one and are multi-brands. Three brands out of four belong to the price range Bridge, while the fourth belongs to the Diffusion range. They have excellent visual merchandising characteristics as they have short presentation images of the brand on their homepage, the customer services are clearly visible, providing customers with style advice, while only Abercrombie notifies customers of current trends. The products are presented with different images and with a complete view of the model. Three out of four also use flat surfaces to present products, and only Gap also has a video of the model's fashion show, a feature that is still somewhat unusual. None own any endorsement which represents them.

The second cluster (Figure 3) includes websites that have both physical and virtual stores, which belong to the diffusion price range and are all single-brand stores (Forever21, American Eagle Outfitters, Eddiebauer and Aeropostale). On their homepage, they show initial presentation images and customer services are well highlighted. They are not very attentive to product presentation. Indeed the only feature that unites them is their multiple vision of their products. The other visual merchandising technical variables are limited: only two sites show models and similar or related products on the product sheet, while none are provided with a parade option. Even from a hedonistic point of view, there is a lack of attention. They offer no service regarding the personalization of products or forms of gratification. Three sites offer style advice, and only American Eagle Outfitters also gives information on current trends.

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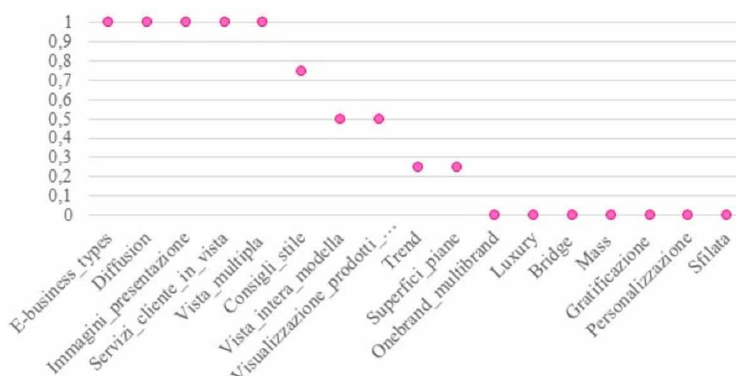
Figure 2. Cluster 1  
Source: Authors elaboration



Cluster 3 (Figure 4) consists of accessible luxury mono-brand sites, except for Guess, which also has prices in the Luxury category. All sites also have physical outlets, except Bostonproper, which only has an online channel (JCrew, Bananarepublic, Guess, Esprit, Bostonproper). They have acceptable visual merchandising characteristics: all present a complete model, and four of the five use flat surfaces, offer a multiple view of products and indicate similar or correlated goods within the product. However, none present a model’s fashion show. The particularity of this cluster is that all sites have an initial page full of presentation images, inform the consumer about current trends, and offer style advice. As in the previous cluster, no customization services are offered. Finally, cluster 3 includes the only two brands represented by a widely known person, namely Maria Belén Rodríguez for Guess and Oliva Palermo for Bananarepublic.

The sites belonging to cluster 4 (Figure 5) (Llbean, Levi, JJill, Luckybrand, Athleta, JackWills, Tru-eReligion, Agjeans, JoesJeans, AprilCornell, and TerritoryAhead) are distinguished by being all single-brand sites, converging in the bridge price range. The brands are all present both online and in real sites.

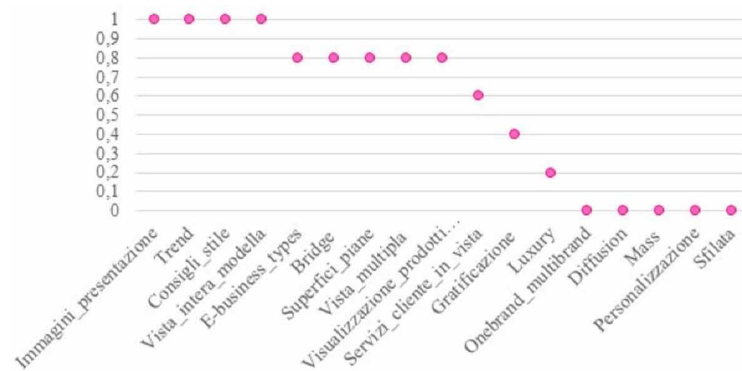
Figure 3. Cluster 2  
Source: Authors elaboration



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Figure 4. Cluster 3

Source: Authors elaboration



On their homepages, customer services and initial presentation images stand out very well. The visual merchandising technical characteristics are however, rather mediocre. Few show the model entirely, and they use flat surfaces even less so, none have a model show, and most product sheets do not contain similar or related products.

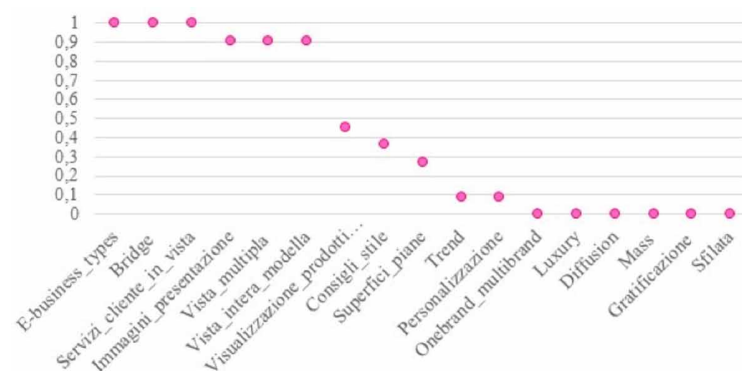
The same situation is valid for the hedonic variables of visual merchandising. Current trend information is provided only by Agjeans, style tips are available at four sites out of eleven, and there are no endorsements.

Cluster 5 (Figure 6) consists of OldNavy, Tedbaker, TheWetSeal, Jbrandjeans, Maxstudio, and Ragstock. These are all single-brand sites, and more specifically three sites (OldNavy, TheWetSeal, and Ragstock) belong to the Mass price range, while the remaining three (Tedbaker, Jbrandjeans and Maxstudio) to the Luxury range.

They are not distinguished in terms of excellent visual merchandising characteristics. Indeed, only the complete view of models and displays of different images for individual products are common to all these sites. This cluster includes the second and last site that feature model fashion shows in the product sheet, i.e., OldNavy.

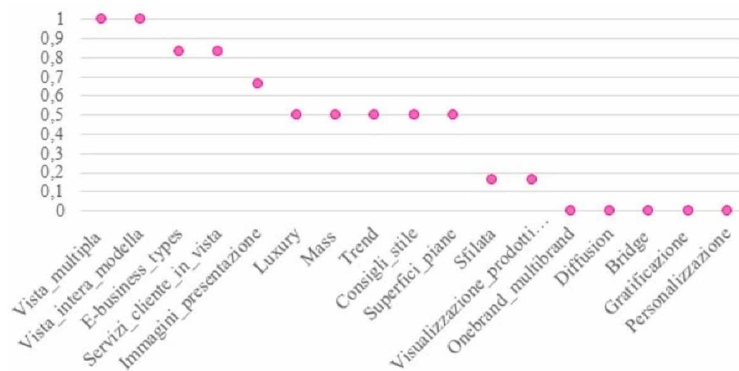
Figure 5. Cluster 4

Source: Authors elaboration



**Technical and Hedonistic Variables of Online Visual Merchandising****Figure 6. Cluster 5**

Source: Authors elaboration



At a hedonistic level only, OldNavy, TheWetSeal, and Jbrandjeans offer customers style tips and information concerning current trends, while the remaining three websites do not provide any information at all. Personalization and gratification services for purchases are absent.

The second phase of the empirical analysis looked at the position of these thirty e-commerce sites using the statistical technique called the Principal Component Analysis - Principal Component Analysis (PCA).

Analysis of the Principal Components is adopted when the analyzed elements (products, brands, consumers, in this case, websites) are considered as points in p-dimensional hyperspaces defined by a set of statistical variables for positioning or segmentation. In this case, the variables represent the traffic data for each website. For the purpose of interpretation, it is useful to construct a Scatterplot of these points, which is not possible immediately due to the large size of the space. Indeed, unlike Alexa, which determines website ranking according to the relationship between average daily visitors and pages viewed on the site over the last three months, the authors took into account other variables, creating a six-dimensional space in analysis of traffic:

Our case had a six-dimensional space:

- Rank of global trade (TRAFFIC\_GLO);
- Rank of American traffic (TRAFFIC\_US);
- Rebounds, i.e., the number of subjects who visited the site by mistake (RIMBALZI);
- Daily time spent on the site (TEMPO\_GIORN);
- Number of pages visited daily by visitors (N\_PAG);
- Number of incoming links (links) coming from other sites (LINK);

The Principal Component Analysis is also used to reduce the size of a quantitative p-dimensional variable. Given the 30 subjects on which these 6 quantitative variables were observed, the authors intended to determine q new variables ( $q < p$ ), which contained a large amount of the information contained in the initial p variables. The objective, therefore, was to perform a proper synthesis of the p-dimensional variables in a smaller dimension.

Reducing size inevitably leads to information loss, but the PCA operates in such a way that the synthesis retains most of the information contained in the initial data. The Y variables that result from this

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process are identified as the Principal Components of the initial X variables and replace the original variables in the analysis.

There are two main problems with this process, i.e., 1) the determination of the synthesis' quality, understood as a percentage of the information held back by the projection and subsequent evaluation of the convenience of this projection. In order to make a decision, the eigen values and the screen-plot must be analyzed; 2) The interpretation of the main components in projections is satisfactory. This phase is critical as the main components are the new variables to be analyzed, therefore it is necessary to give them their correct meaning. This decision reflects the examination of the factor loading plot.

Determining the quality of the synthesis means analyzing the eigenvalues and the screen-plots. The eigenvalues (or latent roots) represent quantities connected to the algebraic procedure of orthogonal projection in the subspace, and each eigenvalue can be interpreted as the amount of information held in every single main component. The screen plot, on the other hand, is the broken eigenvalues.

In this case, the first two principal components hold 78.7% of all information. The reduction in dimensionality is considered complete since only 21.3% of information has been lost. To increase the information further, the third principal component could be taken into consideration, thus achieving 90.4% of the information. Undoubtedly, the result would be more complete, but attempting a problematic interpretation with only 11.7% more information is not appropriate.

The next phase of the analysis consisted of the interpretation of the two main components. To attribute a meaning to the two bivariate, the so-called loadings (scores) attributed to the initial variables had to be analyzed to express the contribution that each offer had to the overall meaning of the PCs (Table 2). The loadings were coefficients of linear correlation between the variables, and the main components and understanding of the meaning can be seen in the graph to PC scores, the factor loadings plot (Figure 7).

The factor loading plot shows that the first major component was positively correlated to the rank of American trade and the number of rebounds. As such, the first variable was defined as "website popularity". The second principal component was positively correlated with the daily time spent on the site, and the number of pages visited daily per visitor, while it is negatively correlated with the number of incoming links. This component was defined as the attractiveness of the website. The global trafficking rank is a variable that was positively correlated to both variables, with a minimum margin of difference that attributes it to the second variable. This information was called latent.

Although website popularity and attractiveness were the two main components, they were uncorrelated variables. This means that the popularity of the site did not follow the attractiveness of navigation

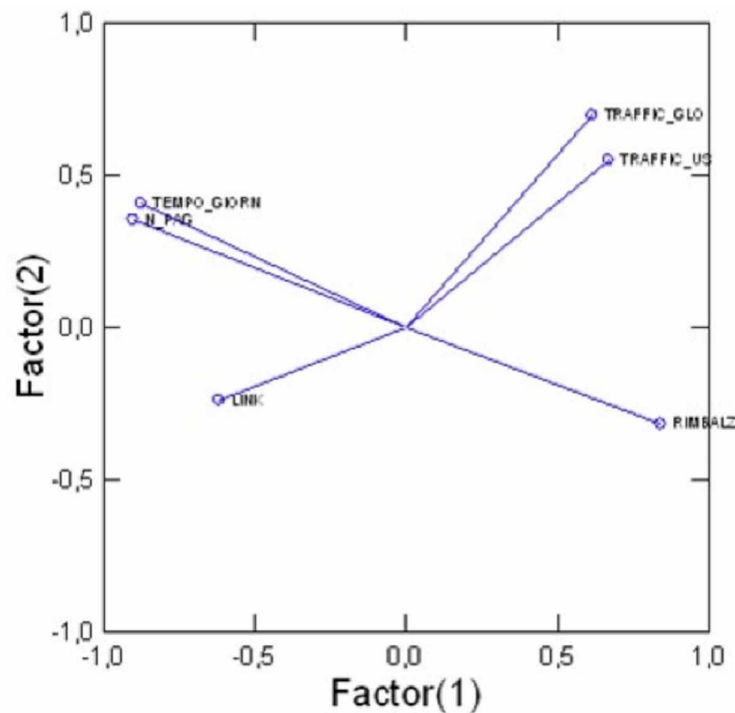
*Table 2. Loadings*

Original variables		Loadings 1	Loadings 2
Range of global traffic	TRAFFIC_GLO	0,614	0,696
Range of US traffic	TRAFFIC_US	0,668	0,548
Rebounds	RIMBALZI	0,842	-0,318
Daily time on sites	TEMPO_GIORN	-0,874	0,406
Number of pages visited daily per visitor	N_PAG	-0,901	0,354
Link	LINK	-0,617	-0,239

Source: Authors elaboration using Excel

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Figure 7. Factor loading plot  
Source: Authors elaboration



or that the popularity of the site did not specify that it was also attractive. Figure 8 shows the scatterplot of the positions of the 30 websites.

The last phase of the analysis consisted of crossing the data collected in the two previous phases and determining the behavior of clusters in terms of traffic size. To create the second factor loading plot (Figure 9), the authors calculated the means of the two main components (popularity and attractiveness) associated with each site included in the reference cluster (table 3).

## SOLUTIONS AND RECOMMENDATIONS

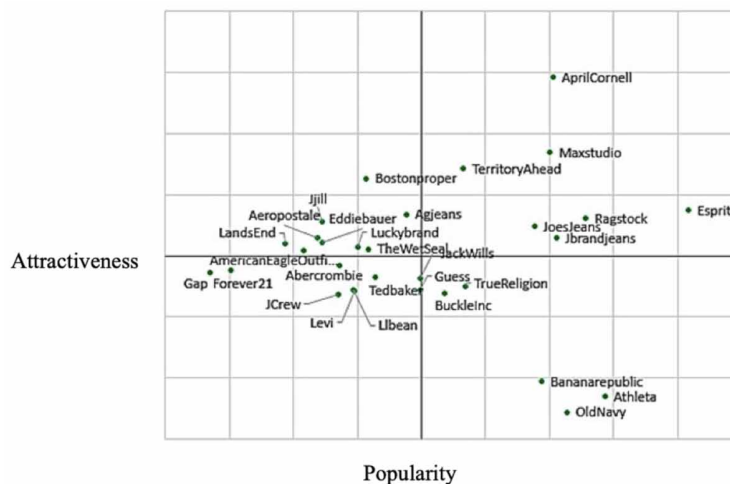
The cross analysis shows a particular picture, as three of the five clusters had negative values both for the attractiveness and the popularity of the websites.

Cluster 1, which included websites with good technical and visual merchandising hedonistic features, was very low in terms of popularity and attractiveness. More precisely, analyzing individual sites, the authors noted that Gap, Abercrombie, and LandsEnd had unsatisfactory levels in terms of global and American traffic, while BuckleInc's data were good. In this case, good visual merchandising characteristics did not pay off in terms of popularity or attractiveness of the site. Vice versa, the bad position of cluster 2 had limited technical and hedonistic features of visual merchandising of sites in this cluster.

Cluster 3 also had a bad position in terms of traffic, although as in the case of cluster 1, it had good visual merchandising characteristics. This was an additional confirmation of the absence of a link be-

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*Figure 8. Scatter plot of the 30 websites*  
Source: Authors elaboration

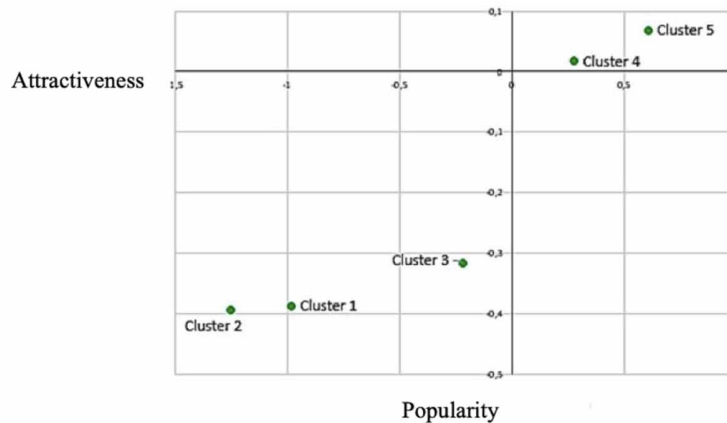


*Table 3. Factor loading*

Cluster	average popularity	average attractiveness
Cluster 1	-0,984586728	-0,386979162
Cluster 2	-1,2541953	-0,392803898
Cluster 3	-0,221173352	-0,314887587
Cluster 4	0,273852289	0,017726801
Cluster 5	0,603947258	0,068932967

Source: Authors elaboration

*Figure 9. Factor loading plot of clusters*  
Source: Authors elaboration



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tween good visual characteristics and popularity of the website. Cluster 4 and 5 had positive scores for both variables. Cluster 4 was entirely composed of sites belonging to the “Bridge” price range, that is of accessible luxury, although their visual characteristics were not satisfactory. The only components detected with greater diffusion were the presence of the whole view of the model and use of multiple images that depicted products, while all other visual merchandising variables were absent or sporadic. Their success was probably tied exclusively to the recognition of their brand.

Finally, the success of cluster 5 can be explained by two considerations. Of the six sites belonging to this cluster, three belong to the Luxury price range, while the remaining three to the Mass range. Immediately, there was a clear distance between the two categories, although the popularity of Luxury brands compensated for the lack of visual merchandising characteristics, and their acceptable visual characteristics together with low price allowed the Mass brand brands to be successful.

## **FUTURE RESEARCH DIRECTIONS**

Finally, it should be noted that the most successful sites mainly included single-brand sites also present offline for some time. One may wonder, therefore, whether their success was perhaps not related to strategic marketing choices taken in the past. If this were true, it would be reasonable to suggest to managers of new commercial enterprises 4.0 to use those skills related to so-called strategic marketing (targeting, positioning, branding) to avoid success based only on technical and/or price variables. In this way, it is possible to have short term performance, but without value creation over the long term.

It should, however, be noted that this analysis is not generalizable, as it was carried out considering only a specific type of product that led to the exclusion of several sites well positioned in terms of traffic and restricted to the American market.

## **CONCLUSION**

These results substantially confirmed that there is no clear correlation between technical and hedonistic qualities of an e-commerce site in the fashion industry and the popularity and attractiveness of their site. Sites with little attention to visual merchandising techniques were well positioning in terms of attractiveness and popularity, while others with better visual characteristics, had a worse ranking. This would imply that the quality of online visual merchandising is a necessary but not sufficient condition for a successful retail mix.

As in the case of offline sales points, the brand (reputation, reliability, innovation) and an integrated and targeted communication on the target with the addition of services, which can compensate for the lack of human contact, are critical variables to achieve a unique and distinctive positioning not based on economic advantage for the consumer (the sales page is still the most visited in each site).

Considering our data, it is also possible to affirm that even big online retailers still have much technological potential to implement in order to improve customers' shopping experience. More advanced techniques, such as a virtual dressing room, to understand the size that best suits the physicality of customers, was not identified in any sample site.

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## **KEY TERMS AND DEFINITIONS**

**Atmospheric Characteristics:** Are used to create differences in retail environments to maintain a competitive advantage, they refer to the online store environment that influences consumers' emotional and cognitive states.

**Cluster Analysis:** The classification of similar objects (people, companies, etc.) into groups.

**Content Analysis:** A research technique for the systematic examination of communicative material.

**High Task-Relevant Cues:** Include the web features, such as verbal and pictorial information, that facilitate and enable the consumer's shopping goal accomplishment.

**Low Task-Relevant Cues:** Such as colors, borders and background patterns, fonts, animation, music, icons, pictures for decorative purpose, have a high impact on the overall image and atmosphere of the website but are not strongly connected with the purchasing goal.

**Omnichannel Approach:** The synergetic management of the numerous available channels and customer touchpoints.

**Online Visual Merchandising:** The strategic staging of a company and its products to interest consumers and facilitate purchasing.