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ONLINE VISUAL MERCHANDISING – STRUCTURAL ELEMENTS AND OPTIMIZATION FOR APPAREL WEB STORES

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Ivo Velinov Velinov, Ph.D.

To my daughter Alexandra,

and to my son Ivan.

With love.

Associate Prof. Hristo Katrandzhiev, Ph.D.

To all those who supported me - my family, my friends, and some of my colleagues.

I love you all.

Ivo Velinov, Ph.D.

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I. INTRODUCTION

The analysis of recent research on OVME (Online Visual Merchandising Elements) shows that they can be classified in five main groups: research in web graphics, web navigation, atmospheric elements, web registration, and product demonstration.

The first group of research studies web sites graphic design, not considering users' preferences.

The second stream of research, stressing on web navigation, is based on students' excerpts from favourite fashion web sites, projected to general online shops.

The third direction, focusing on "atmospheric" elements, groups OVME in two major sub-categories - LTRE (Low Task Relevant Environment – elements with low priority) and HTRE (High Task Relevant Environment – elements with high priority). It is generally theoretical and offers a conceptual model to describe the effect of the atmospheric elements of apparel online stores.

Studies in the next group of research cover web registration. Research is aimed to determine the level of security, safety and privacy protection and measures to be taken to improve online shopping experience in apparel online stores.

The last focus is on different techniques in product demonstration at fashion stores. The use of 3-D view instead of a 2-D one at the online stores for fashion clothing is limited in use for certain fashion brands.

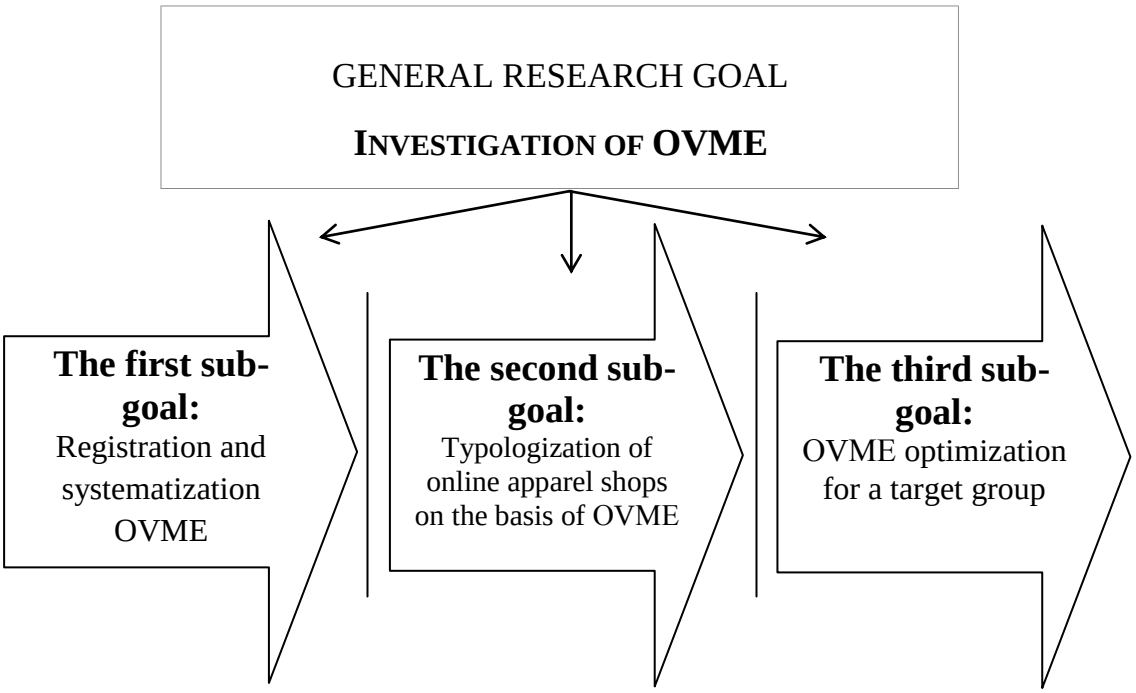
Online merchandising represents comparatively new and poorly studied research field. In-depth cross study of apparel online stores, combining OVME and online shopping behavior analysis, is crucial for "launching" an online store.

The purpose of this study is to build a substantial and relevant background for maintaining apparel online stores, comparing OVME with traditional off-line merchandizing elements to meet consumer expectations of fashion garments.

1. RESEARCH GOALS, TASKS, OBJECTS, AND SUBJECT

Current research pursues the following basic goals (fig. 1):

Figure 1. Research Goals



The objectives of the study will be achieved through the following tasks (fig. 2):

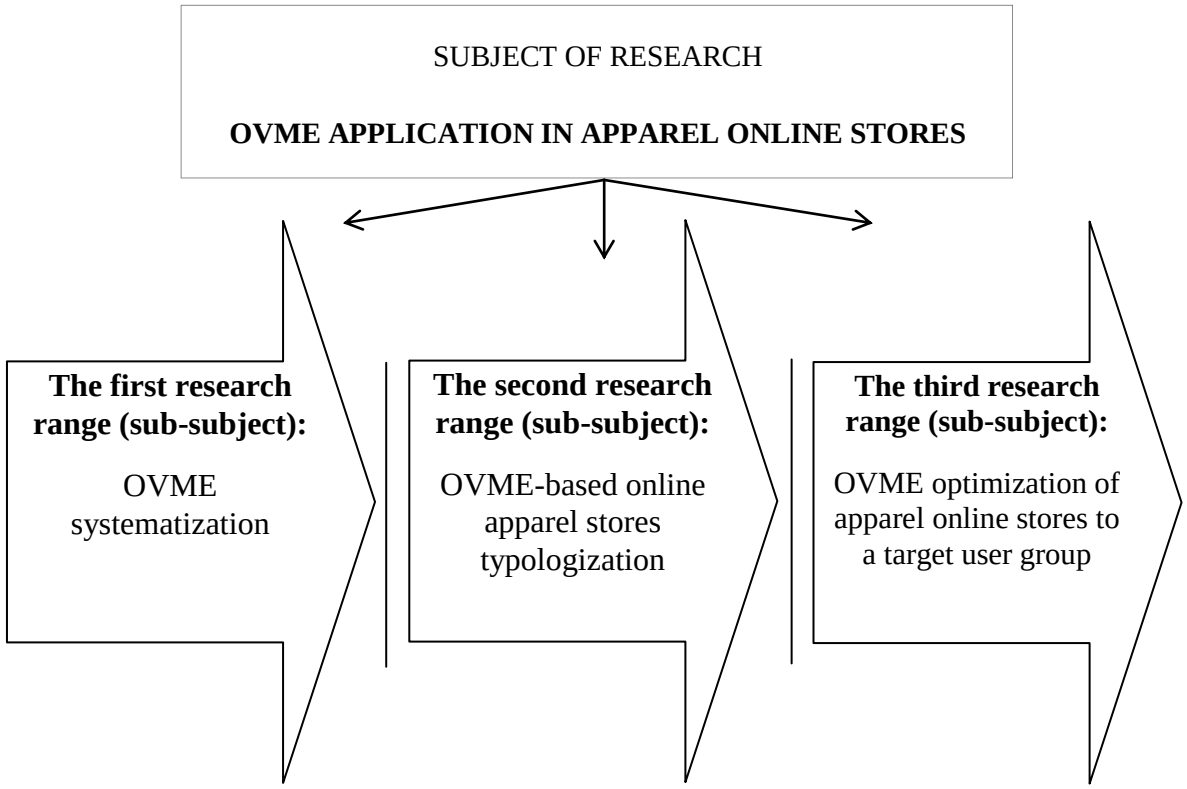
Figure 2. Research tasks

• Previous research on OVME • OVME categorization • Defining the most important and less studied aspects of VM in online environment • Compiling a registration form of OVME availability/non-availability • OVME coding • Data collection to check availability of OVME • Data analysis and results interpretatione	• Determination of the typology criteria • Choice of cluster methods • Typologization of apparel online stores • Interpretation of cluster content • Cluster profiling/types of apparel online stores	• Identifying the appropriate number of attributes and their levels • Creating of experimental stimuli • Detecting the type of the input data • Choosing a conjoint method • Designing and applying a practical approach to achieve an optimal combination of VME, according Bulgarian clients preferences • Results interpretation

The subject of this study is the application of OVME in online environment. Due to the complexity of the study, as well as due to its relatively wide range, the subject of the study is decomposed in three separate research ranges (sub-subjects) within the frame of the general survey subject, namely (fig. 3):

- **Systematization of merchandising elements in online environment.**
- **OVME-based fashion online stores typologization.**
- **OVME optimization of apparel online stores to a target user group.**

Figure 3. Decomposition of Research Subject

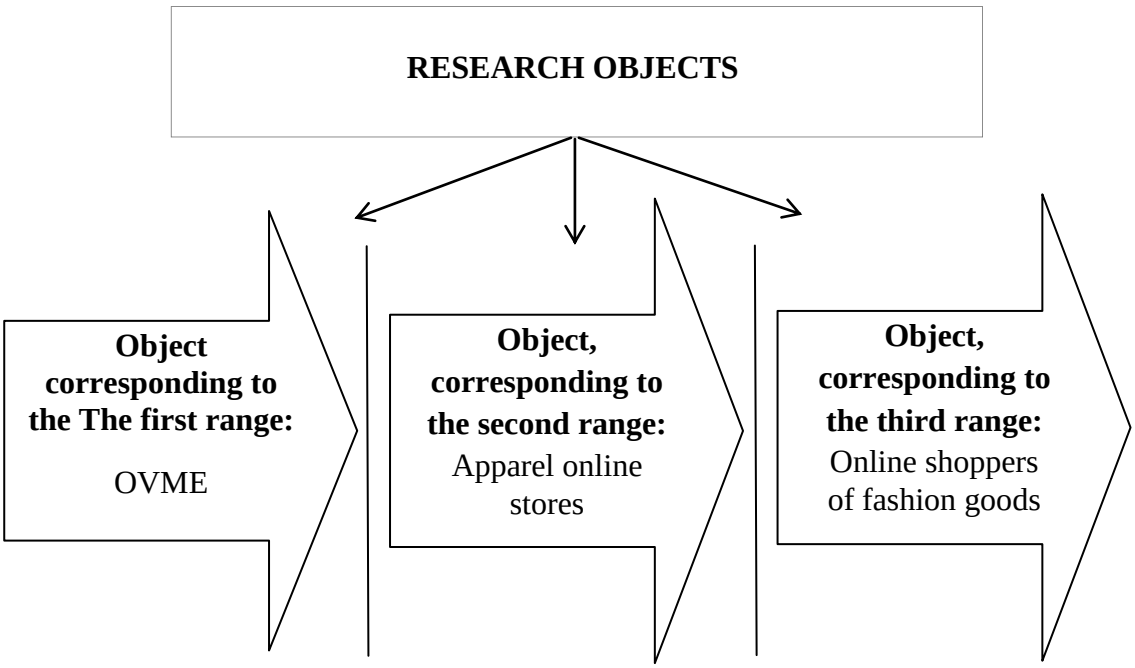


The objects of the current study are also three:

- **OVME.**
- **Apparel online stores.**
- **Online shopping consumers of fashion goods.**

Each of the three objects of the study corresponds to one of the three ranges as shown on fig. 4.

Figure 4. Research objects



2. RESEARCH LIMITATIONS

The main constraints of this study are two and they are related to financial limitations.

The first constraint is that the sample is representative only of the population of Sofia. The decision was cost-considered – in a nationally-scaled sample data collection costs would increase significantly. Major theoretical and methodological conclusions, displayed in the current study, are proved generally valid. This leads to the idea that the theoretical and methodological model, grounded in the present study, could be applied both regionally and nationally. What is more – data collecting tools could be adopted from organizations with diverse activity. The questionnaire suggested in part two could be used as separate section in the frame of a larger poll, to study: the consumption (or lack of it) of the company product, the consumption (or lack of it) of competitive products, the attitudes to the company product and the competitive ones, the perception of the advertising line of the company product and, respectively of the competitive ones, e.g. in similar cases the different user groups could be profiled in details, where the level of profiling suits company managers needs.

The second constraint in this development refers to the number and depth of the questions, included in the questionnaire to retrieve data on consumer preferences. In a cost-effective manner only basic questions, studying consumer preferences are included in the questionnaire. In a corresponding research, supported by an interested body, a series of complimentary questions could be added. For example, adding more questions to identify the structure of consumer preferences towards the visualization and functionality of a commercial site for particular brand would have a significant impact on future developments. To actually answer that important issue two factors

should be taken into account: to develop larger and more detailed questionnaire and thus to guarantee greater volume of the sample. Both preconditions predefine allocation of more financial resources for conducting the research.

II. METHODOLOGICAL FRAMEWORK

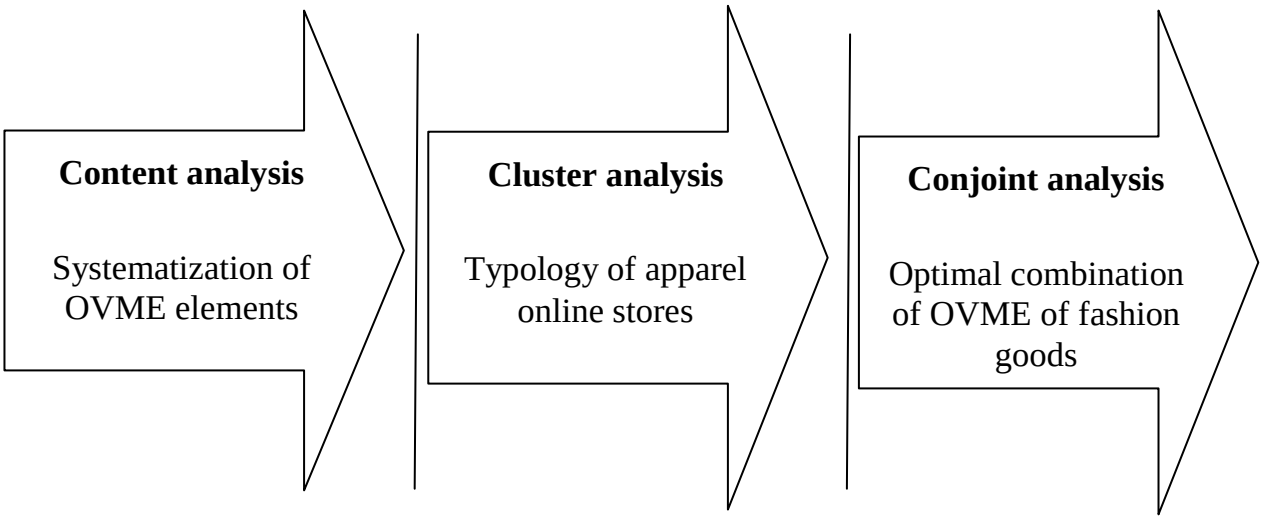
1. RESEARCH LOGIC AND TECHNOLOGY – THE NECESSITY OF A THREE-STEP RESEARCH PROCEDURE

The methodology is based on a three-step research approach (content-analysis, cluster analysis and conjoint-analysis). The consecutive application of the three analyses would help to acquire higher level of integrity and compatibility in achieving main goals, marked in the study (fig. 1):

- Systematization of OVME of fashion goods in online environment through content analysis. Thus features of elements were defined in online environment.
- Development of methodological framework for and measuring of OVME with the help of content analysis.
- Design of functional matrix for OVME of fashion goods in online environment.
- Typologization of apparel online stores, using the cluster analysis.
- Test and application of functional approach to optimize the OVME through conjoint-analysis.

The three-step research approach is represented accordingly:

Figure 1. Algorithm of the three-step research procedure, adopted in the study



2. THE FIRST STEP OF RESEARCH APPORACH – CONTENT-ANALYSIS OF APPAREL ONLINE STORES

The content-analysis is a set of systematic procedures applied to determine the objectivity of media reported news. The analysis of written and electronic media is used as the basis for content-analysis. The analysis shows exactly what was published or broadcasted, disregarding the interpretation of the news.

The analysis of apparel online stores investigates the mechanisms through which the good is "spaced" in the virtual environment of the studied store. In this respect, **the aim of content-analysis in the presented study is to investigate and design functional matrix for OVME in online environment**.

Berelson defines content-analysis as "a research technique for the objective, systematic and quantitative description of the manifest content of communication." Content of apparel online stores is better exposed by the use of visual elements that strategically position the brand, attract online shoppers and facilitate online purchases.

Content is crucial for the communication inquiry. Hence, **the aim of the content-analysis could be defined as the identification and typologization of elements of apparel online stores.** This is done in order to describe the communication characteristics, answering the basic questions - „What? ", „How?", and „Who?".

Content analysis object is the analysis of OVME for fashion goods.

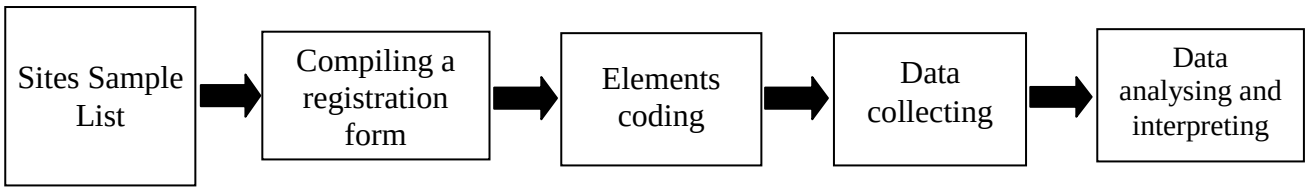
As a technique the **content-analysis** uses several specific procedures for data processing (fig. 3).

The data represent observation outcomes, but they are also an integral part of the selected procedures when using content-analysis. With their help the researcher will answer specific questions relating to the status of OVME in the sample online stores. The steps needed to conduct a research project are called research design. It constitutes of procedural steps applied in the sequence design studies –design logic. Overall, this logic relates to the efficiency of the procedural steps and the speed in data processing (to prevent the favourization of one outcome over another).

Fig. 2 shows a simplified model of the content-analysis design pattern, stressing on its realization through adaptive and analytical steps:

- compiling registration form of OVME in online environment;
- elements coding;
- sample list of online stores;
- data analysing and interpreting.

Figure 2. Content-analysis adapted scheme of components



Adapted by Krippendorf, K. Content Analysis: An introduction to its Methodology, second edition, SAGE Publications. 2004.

Recent study cites only part of the achieved results for the purpose of the current examination. The content-analysis provides data to be processed and examined in other respective types of analyses.

Another method, used to present and analyse the content-analysis outcomes is the multi-dimensional scaling. It helps to draw correlations between many variables in projected environment with fewer dimensions, where data could be interpreted with minimal loss of relevance.

3. THE SECOND STEP – CLUSTER ANALYSIS AND ITS PURPOSE IN THIS STUDY

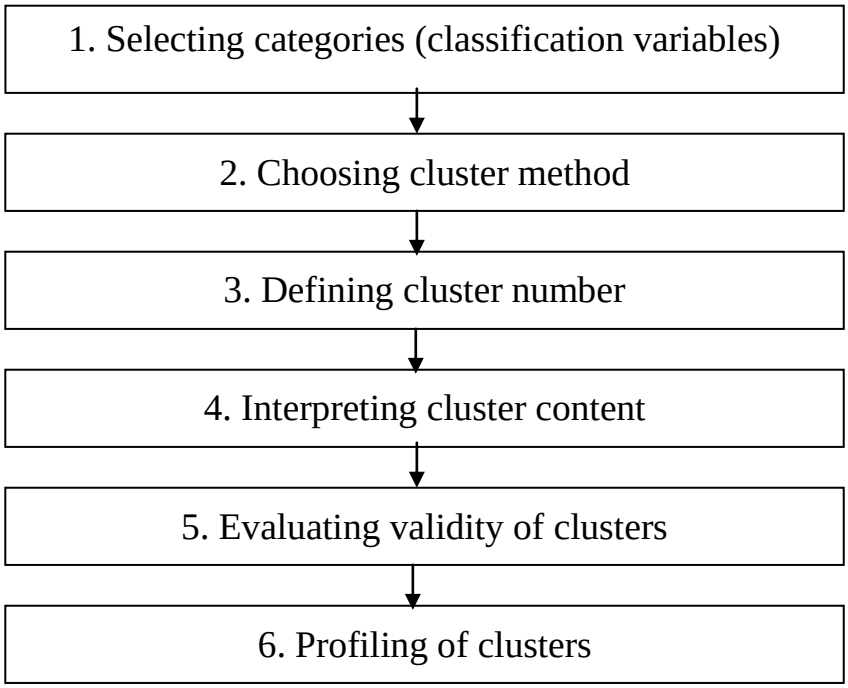
The categorization method is very useful in developing marketing strategies, focusing on market segmentation. Each institution (following a differentiated marketing strategy) is trying to categorize online consumers in groups (segments) on criteria as needs, preferences, brand loyalty, age, income, sex, life-style, etc. It works with clients but could be also adopted to evaluate and categorize online stores. Accurate representative results could be derived, when the cluster analysis is adopted in online stores typologization. The outcomes from online stores clustering in groups, based on their similarity, shows which stores are more similar (relevant) competitors to the respective stores of the same group and which stores are most vulnerable to the changes in similar ones from the group. Cluster method, in this case, would consider OVME in launching apparel online store.

Three basic phases in cluster analysis could be marked in this connection:

- choice of appropriate objects, variables and methodology;
- application of selected methodology;
- evaluation of results.

In regard to the practical implementation of cluster analysis, its three basic phases will be fully depicted in six-step procedure, as shown on fig. 3.

Figure 3. Cluster analysis phases



Based on Jelev, S. Marketingovi izsledvaniya za marketingovi resheniya. Trakiya-M. S. 2000.

Cluster analysis, incorporated in the recent study, seeks to segment apparel online stores, using OVME. The necessity of a typology is driven, on one hand from the content of online stores and on the other hand of the implementation of different virtual elements.

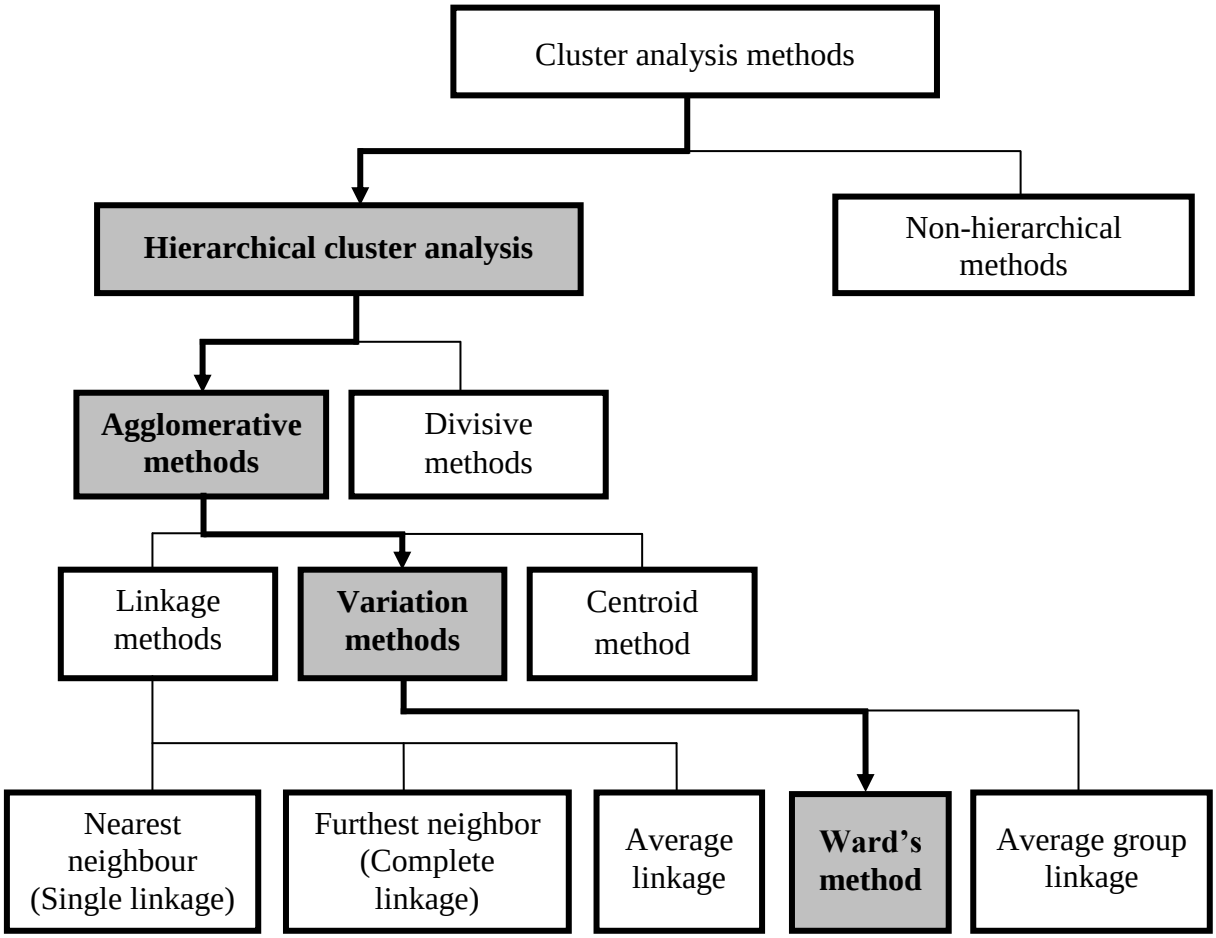
Combining merchandising (visual elements) and marketing (online store segmentation) techniques will provide clarity on demands, which will affect and shape consumer attitude.

The focus in applying cluster analysis in the given study falls **on the object – online stores**. Current situation is described and presented in the content-analysis.

Online store segmentation is performed on the basis of **element structure, as subject of cluster analysis.**

Cluster methods (procedures) are generally divided into two main groups – hierarchical and non-hierarchical. Those two major groups and their modalities are exemplified in fig. 4. The arrows indicate the sequence of choosing a cluster method. When the **hierarchic clustering** is selected, subsequently the **agglomerative methods** are applied. Consistently the method of **hierarchic clustering** is selected, then from the hierarchical methods are favoured **the agglomerative methods**. On next stage **the variation methods** (as part of the agglomerative methods) are used. Finally, from variation methods, the **Ward's method** is picked.

Figure 4. Typology of cluster analysis methods and the sequence in choosing a method to serve the objectives of the current study



In hierarchic clustering, grouping of objects resembles branch structure – the so-called dendogram. There are two possible approaches to hierarchic clustering – *agglomerative* and *divisive*. The most typical feature of the agglomerative method of the hierarchic clustering is that each single object forms separate „cluster" on the first step. On next stages objects group in larger and larger clusters, when, finally they form single comprehensive "cluster", cumulative for all objects.

The choice of cluster method is always accompanied by a great deal of subjective assessment and perception. Therefore, a review and comparison of research on this subject matter may be extremely helpful in solving the difficult task of selecting a cluster method. Studies, dedicated on the problem, generally divide to two types:

- Simulation studies. As it is stated in their name, clusters are simulated through the input date. Diverse cluster methods are applied, where clusters repeat and their characteristics are collated.
- Empirical studies. That particular type of investigations collects factual data and considers the formed clusters according to their interpretation. Empirical studies succeed simulation studies. In 1990 Dyuflo and Menhaut compare seven cluster methods and the optimal results, according to them and the interpretation of clusters, are achieved through Ward method and in-group linkage.

In addition to the cited former research results, it should be cleared that the Ward's method is widlywidely used in marketing and sociological studies. It is important to consider that the developments in cluster analysis show that the Ward's method generates fairly reliable outcomes also while examining market segmentation.

Cluster analysis compliments achievements of recent study by offering clustering of apparel online stores. This is done from a consumer perspective, showing the level of quality in services that have to be acquired in an online store. The achievements may provide useful information as a detailed list of OVME for sites for fashion garments. Thus merchants might tailor and focus on these activities that favour the profit from a certain online store. The limitations of the cluster analysis are expressed in the fact that it does not offer optimal combination of elements to answer consumer preferences. The cluster analysis does not meet fully the objectives and therefore the results of the survey will be developed by the next method, set as finalizing the research. By the application of the third method the three-step research model would be accomplished to give a more comprehensive notion of the optimum combination of OVME in apparel online stores.

4. THE THIRD STEP – DEFINING THE OPTIMAL COMBINATION OF APPAREL ONLINE STORE ELEMENTS, APPLYING CONJOINT-ANALYSIS

The conjoint-analysis refers to the understanding of how people make choices between products or services or a set of products and services, so retailers can design new products to better meet the basic needs of customers. This is just one of the basic techniques to study the market for the past ten years. The conjoint analysis is an extremely powerful way to capture what really drives consumers to buy one product over another, and what they really appreciate. The main advantage of that type of analysis is to design dynamic market models that would allow companies to verify set of measures to be taken to improve market shares and to measure the effect on the behavior of competitors.

The conjoint-analysis or the so-called discrete choice of experimentation is a familiar technique developed in 1960 to avoid serious weaknesses and incompletenesses in user studies.

The use of conjoint analysis as part of market research is one of the many means available in conducting marketing research. None of the other methods prove better at predicting consumer behavior. However, it is best to use a combination of research methods in conjunction with conjoint-analysis, in order to reach an optimal merchandise strategy for the brand, as was done in the present study.

The purpose of this analysis is to create the best set of OVME, following clients' expectations.

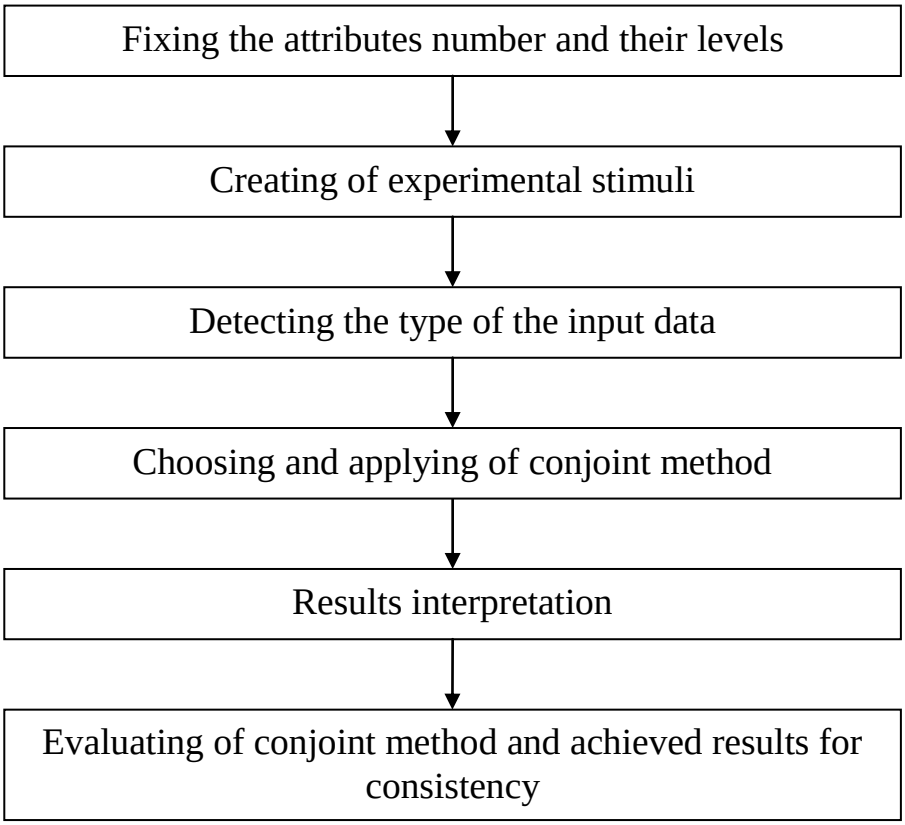
People use contrasts and colours to express feelings according to their state of mind. Similar features of products, as well as design, comfort, personalization play significant role in purchase of garments. Consequently, the present analysis focuses

on online users**. Online consumers of fashion goods are the object of the conjoint analysis.**

Companies can answer client preferences only if they understand and study the consumer needs. Marketing strategies have to incorporate awareness of consumer attitude in every aspect of the strategic marketing planning. **The optimization of an online store, based on client preferences is the key issue of the provided analysis**.

Functional realization of conjoint-analysis and its basic steps are pointed in detailed sixth-step algorithm - fig. 5.

Figure 5. Adapted methodology of conjoint-analysis application



Based on Jelev, S. Marketingovi izsledvaniya za marketingovi resheniya. Trakiya-M. S. 2000.

According to the American Marketing Association (AMA – 1992) the design of attributes and levels to be included into the analysis is the most important factor for the successfully implementation of the conjoint analysis. If non-associated attributes are acquired in the research, final results on the decision-making process of consumers would be misinterpreted. Product attributes and their levels are often defined in two directions:

- with the application of quality measurement methods, e. g. Group discussions and rarely in-depth interviews;
- or the application of expert methods, including expert reviews from professionals for the relevant product category.

All that leads to the idea to offer an optimal combination of OVME in apparel online stores, considering online consumer preferences. The preliminary selection of

fashion products in the online environment, taking into account also the layout of online stores, revealed the attributes that most often form the design of the market area are identified through the content-analysis. Conjoint investigation is basically focusing on those features that provoke greater impact on product choice. Those attributes are far more qualifying of the rest, with further stimulating role in online shopping. Unfortunately, the number of product conceptions could not be reduced to a reasonable maintaining amount, so the orthogonal design is acquired in conjoint-analysis to overcome this constraint. This is a subset of all possible concepts to allow evaluation of online stores attributes through the basic attributes.

The adoption of full profile approach in conjoint-analysis of respondents is based on offering a variety of product alternatives, each comprising of diverse set of attribute features. Respondents are asked to rank products, according to their preferences. This requires the number of attributes in the store online environment to be reduced to the most popular elements and current state of apparel online stores. The elements in the multifactor profile generate the so-called show cards, such as: *search engine, style presentation, background colour, product view types and product demonstration,* as well as their sub-attributes.

Decreasing the number of OVME helps respondents' orientation and influences the accuracy of conjoint-analysis data. The current set of elements, recorded on each show card, actually reflect object data, depicted on each card. In a series of other studies these five attributes and their subdivisions would be sufficiently incoherent to process the analysis. Consequently, it is presumed that all attributes and sets, derived from the orthogonal design, should be incorporated in the actual conjoint-analysis.

The information was compiled in a questionnaire that combines data from all 25 show cards, wherein of course, the relevant demographic block is also charged[1]. When conducting a survey, the so-called risk of data distortion exists, while interviewing the respondents. The biggest risk of data distortion is possible when acquiring those methods a direct interaction between the inquirer and the respondent is realized. This means that personal inquiries are the most exposed to mis-interpretation of answers from the side of the inquirer.

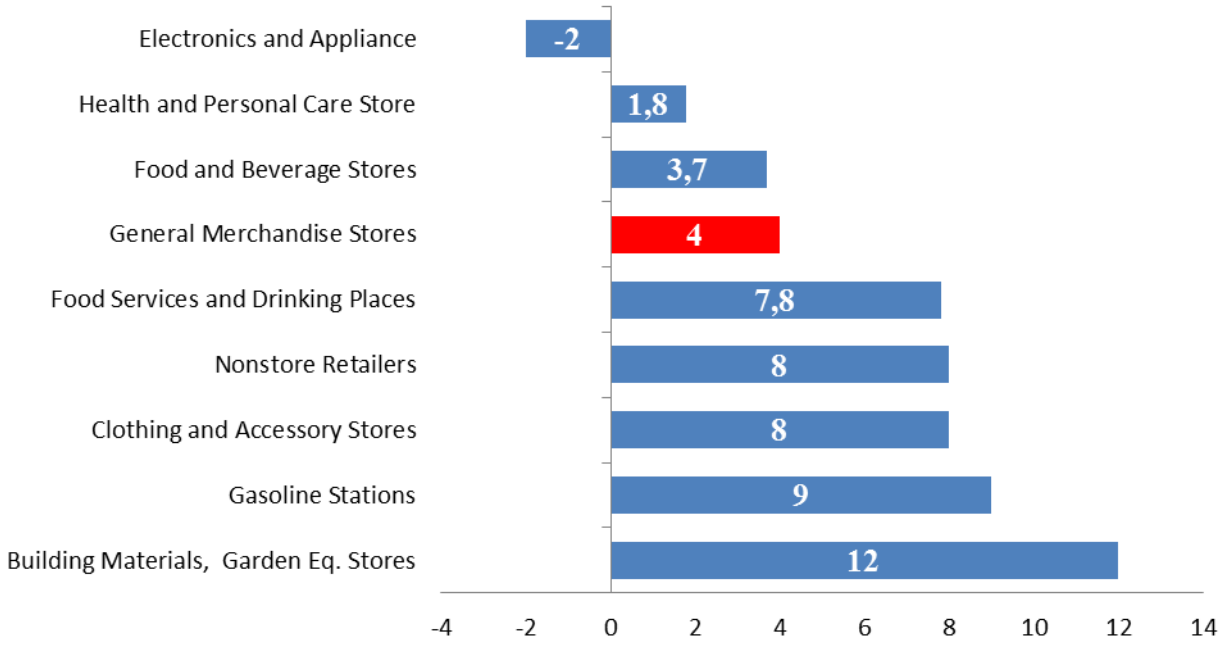
[1] Questions, considering sex, age, work environment and relevant data, related with the aim and purposes of the inquirer.

III. THE FIRST STEP OF THE RESEARCH PROCEDURE - IDENTIFICATION AND MEASUREMENT OF ONLINE VISUAL MERCHANDISING ELEMENTS (OVME)

1. RESEARCH GOALS AT THE FIRST STEP OF THE RESEARCH PROCEDURE

The importance of Internet as a distribution channel of apparel products is constantly growing. According to research conducted by EUROSTAT the online shoppers in the 27 EU member states increase by three percents each year. The reports of Forrester Research also point out the global uptake of eCommerce. Nevertheless, online shopping varies by country (Barber et al., 2011). The average growth rate of online sales has been 20% approximately since the beginning of the century. (Internet Retailer; Top 500 Guide; National Real Estate Investor). Online apparel shops offer benefits to the online shopper, as well to the online retailer: the online shopper receives better information and convenience; the online retailer achieves improvement of economic performance (Jang and Burns, 2004). Online shoppers can examine retailers' offers much faster and easier while browsing with the mouse than while walking on foot from store to store.

Figure 1. Increase in online retail sales by Select Establishment Type – percentage change 2011/2012



Online shoppers can also browse online shops all over the world and order products from almost everywhere. This peculiarity of online shopping behavior forces the online shops for apparel products into severe competition for the buyers'

attention. The decisions in the field of online visual merchandising play a crucial role in the competitive battle for attracting the consumers' attention (Ha, Kwon and Lennon, 2007). However, few researchers have dwelled into this topic. Previous research undoubtedly confirmed that marketers are facing "a new medium that is not bound by either space or time and that has the technical capability to involve and engage the consumer" (McMillan et al., 2003) and they have to adapt their approaches to that medium. This adaptation is crucial in the context of Online visual merchandising. Although the OVME in the traditional apparel stores are described and studied relatively exhaustively, the thorough examination of OVME of online stores has just begun. Hence, the purpose of this the first step of the research project includes:

1. Investigation of OVME. The starting point of this the first stage of the project was the previous research of OVME of apparel websites (Ha, Kwon, Lennon, 2007), which analyzed the differences between American and Korean apparel websites from the point of view of OVME. By replicating the study with a larger sample of websites we verified their conclusions and discovered new OVME.

2. A detailed list of OVME. The fulfilment of the first research goal resulted in a detailed list of OVME as well as in a thorough description of OVME.

3. Measurement of the frequency of usage of each OVME by calculating the proportion of online stores containing it.

One of the most important research projects in the field of online merchandising elements divides the diverse and numerous online elements of merchandising into two categories or the so called HTRE and LTRE (Eroglu et al., 2001). According to Eroglu et al. (2001), the LTRE includes merchandising elements of an online store that are "relatively inconsequential to completing the shopping task" such as: font types, music, decorations (unrelated to the merchandise), background colours, security options, etc. On the other hand, the HTRE includes verbal information connected with the merchandise (Eroglu et al., (2001) such as: verbal information, concerning the goods offered in the online store (merchandise narrative, terms of delivery, return and price policies, pictorial demonstration of merchandise, etc.), navigation options (searching toolbar, site map, etc.).

We accept this two-category typology as relevant but we make a step further by quantifying and analyzing the elements and subelements belonging to each category (Table 3, Table 4).

Our analysis is also based on the comparative research of American and (South) Korean apparel websites (Ha, Kwon and Lennon, 2007). We broadened the scope of their research by applying the method of content analysis worldwide via a random selection of websites from a huge database (containing several thousand apparel websites worldwide). This approach allowed us to fulfil the following tasks: (1) to verify all the OVME discussed by Ha, Kwon and Lennon (2007); (2) to discover and describe newly emerged OVME; (3) to measure the usage (or appearance) of each OVME within the sample of websites.

Before going ahead with the methodology and the analysis let briefly discuss the previous research projects devoted to OVME.

2. PREVIOUS RESEARCH IN THE FIELD OF OVME IDENTIFICATION AND TYPOLOGIZATION

In the following analysis of previous research in the filed of OVME identification and typologization we have accepted the defined broad categories of OVME – LTRE and HTRE (Eroglu, 2003). We went further by focusing and deepening the analysis on the substructures of the so called LTRE and HTRE.

2.1. LOW TASK RELEVANT ENVIRONMENT ELEMENTS (LTRE)

We argue that this category of OVME includes two groups of elements: (1) atmospheric features, and (2) website registration (Table 1). Having in mind the previous description of LTRE we suggest the following sub-elements as components of the so called atmospheric features: background colour, audio and intro features, and text colour. While applying the method of content analysis we noticed that some of the most often used colours (background colours and text colours) are the following: white, black, red, blue, and yellow. That is why we measured the frequency of usage of these colours. We added an option (colour) to measure the usage of colours different from the abovementioned. Another sub-element belonging to the atmospheric element is the so called "audio and intro features". It comprises of the following components: the presence/absence of an intro-page, intro-music, and music during browsing. The second element within the LTRE category is the website registration. As an OVME the registration has a contradictory impact on the consumers' attitude towards an online store. This feathure of website registration is discussed later.

Table 1. Previous research of OVME– typology by categories and elements

		Elements	Authors
CATEGORIES	LOW TASK RELEVANT ENVIRONMENT	Registration	Kollock, (1999); Lee and Yoo, (1999); Jarvenpaa, (2000); Chircu, 2000; Friedman, (2001); Bhattachejee, (2002); Tedeschi, (2002); Ba et al., (2003); Zhout et al., (2007); Tsai et al., (2011)
		Atmospheric	Mehrabian and Russell, (1974); Donovan and Rossiter, (1982); Bitner, (1992); Lewison, (1994); Sherman et al., (1997); Eroglu et al., (2001); Eroglu et al., (2003); Verchopoulos et al., (2004); Ha et al., (2007); Tsao and Chang, (2010); Hunter and Mukerji, (2011).
	HIGH TASK RELEVANT ENVIRONMENT	Web navigation	Gomory et al., (1999); Swaminathan et al., (1999); Lee et al., (2001); Eroglu et al., (2001); Koivumaki, (2001); Kim and Lim, (2001); Park and Stoel, (2002); Eroglu et al., (2003); Siddiqui et al., (2003) Jang and Burns, (2004); Seock and Norton 2007
		Web graphics	Berman and Evans, (1995); Donnellan, (1996); Levy and Weitz, (1996); Bruce and Cooper, (1997); Buchanan et al., (1999); Koelemeijer and Oppewal, (1999); Nilsen, (2001); Davies and Ward, (2002); Potts, K., (2007);
		Product demonstration	Delone and McLean, (1992); Wang and Strong, (1996); Peterson et al., (1997); Bakos, (1997); Lohse and Spiller, (1998); Gomory et al., (1999); Schmit, (1999a); Allen, (1999); Then and Delong, (1999); Palmer, (2000); Allen, (2000); Park and Stoel, (2002); Reda, (2002); Park and Kim, (2003); Eroglu et al., (2003); Jang and Burns, (2004); Park et al., (2005); Halepete and Park, (2006); McCormick and Livett, (2012);

2.1.1. WEBSITE REGISTRATION

The research devoted to online stores' registration covers mainly the consumers' privacy problems. The process and consequences of collecting personal data is in the focus of several studies (Zhou et al., 2007, Tsai et al., 2011). A research report of Privacy & American Business states that 64% of the respondents refrain from buying goods online because of personal data requirements and 67% of the respondents avoid registering at online stores (Tsai et al., 2011). A Jupiter Research Report proves that a considerable proportion of online shoppers (82%) feel inclined to exchange personal data for an option of winning money ($100) while another 63% are willing to allow the tracking of their online behavior in exchange for $5 price reductions (Tedeschi, 2002).

2.1.2. ATMOSPHERIC

The importance of the stores' atmospheric has been discussed numerous times. There is empirical evidence that in-store atmospheric influences shopping behavior in traditional (offline) stores by changing shoppers' emotions, purchase intentions, bought quantity, time/money spent in stores, etc. (Donovan and Rossiter, 1982; Bitner, 1992; Sherman et al., 1997). At the beginning of the era of online purchases some researchers noticed that in spite of the fact that internet does not possess physical environment (such as buildings, desks, shelves, windows, etc.) the online environment (or interface) in fact plays the role of an atmospheric environment (Shih, 1998). The very the first step in examining online stores' atmospherics was done by Eroglu et al. (2001). On the basis of knowledge about the atmospheric environment in traditional stores the researchers develop a model of atmospheric clues' impact on shopper's cognitions, emotions, and behavior. The authors analyze two major categories of environmental factors in the context of online stores – HTRE and LTRE. This model was tested and proved as reliable in a later research project (Eroglu et al., 2003).

Other researchers also confirm that pleasant online environment (atmospheric) positively affects surfers' cognition as well as consumer reactions (Dailey, 2004).

A relatively detailed description of atmospheric features in apparel online stores is given by Ha et al. (2007). The authors refer to it as an environment and according to their suggestions it includes atmospheric features, sale/promotion signage, and colour. Lately researchers have laid the emphasis on the congruence between online atmospherics and consumer preferences (Hunter and Mukerji, 2011).

2.2. HIGH TASK RELEVANT ENVIRONMENT ELEMENT (HTRE)

2.2.1. WEBSITE NAVIGATION

One of the early research projects concerning the website navigation as OVME illustrates its importance from the point of view of "tracking and measuring the effectiveness of different merchandise strategies in an online store" (Gomory et al, 1999). Researchers analyzed the approaches that online shoppers could adopt to find products in the internet environment. They named these approaches "shopping metaphors" which in fact means "browsing through the product catalogue hierarchy, various forms of searching, and configuration for "build-to-order" type products" (Lee et al, 2001). In spite of the fact that the work of (Gomory et al. 1999) and (Lee et al, 2001) treat the navigation in a broader sense (not within the context of a single website but in the context of the entire internet environment) it points out the impact of the good website navigation on sales volume. Swaminathan et al. (1999) discovered that the greater the perceived usefulness of information, the greater the customer satisfaction and the likelihood to repeat buying.

Eroglu et al. (2001, 2003) developed an S-O-R (Stimulus-Organism-Response) Model of atmospheric effects on online shopping behavior. According to this model the atmospherics of an online shop (Stimulus) affects the affective/cognitive consumers' states (Organism), which in turn affects the online shopping behavior (Response). One of the important OVME (atmospheric clues) in this process is website navigation. It is among the high task-relevant clues that include "verbal content related to the shopping goals (e.g., descriptions of the merchandise, price, terms of sale, delivery, and return policies), pictures of the merchandise, availability of sampling, and navigation aids (e.g., site map, guide bar at top or bottom of page)" (Eroglu et al., 2001).

Koivumaki (2001) noted that online stores' characteristics as ease of navigation, shopping comfort, presentation of products, selection option, and interactivity have a positive influence on customer satisfaction. Kim and Lim (2001) revealed that the importance of online stores' attributes affects customers'; satisfaction with other parameters of online stores: for example, customers' estimation of "information quality" correlates with customers' estimation of "entertainment" parameter. In other words online shoppers perceive the high informational value (quality) of online stores as an entertaining element.

A study of online apparel shopping in the US reveals that online stores with richer information have higher purchase activity and vice versa. Park and Stoel (2002) and Jang and Burns (2004) found that female college students have their favourite apparel online stores and the favourability depends on three major factors: product information, navigation, and customer service. Siddiqui et al. (2003) discovered that navigation is an important factor that stimulates online purchasing of apparel assortment.

Jang and Burns (2004) investigated the elements of apparel online stores and discovered four types of Web retailers: virtual e-retailer, catalogue company, bricks-

and-mortar retailer, and multi-channel retailer. Researchers found significant differences among the four types of online stores from the point of view of their merchandising components (OVME). They proved that "competition among Web sites is not based on what information is available, but how information is provided". Their recommendation about website navigation as an OVME states that apparel online stores should provide "advanced search function through various categories, or useful and detailed information for shopping pleasure" in order to gain unique competitive advantages.

Seock and Norton (2007) studied online stores' attributes in connection with the female college students' perceptions of their favourite online stores. This study revealed three major merchandising elements (product information, customer service and navigation factors) that represent students' perception of their favourite online stores.

2.2.2. WEB GRAPHICS

The web graphics of an online store is an important tool for attracting and retaining customers. Online store's layout influences the ease and the speed of information processing by consumers (Nilsen, 2001). Some researchers prove that the aesthetics of a website impacts purchasing intentions (Potts, 2007). Website graphic adds value in two ways – by offering pleasant environment and by making easier customers' orientation.

We defined two sub-elements within the element "website graphics" – website "geometry" and presentation format. When talking about website "geometry" we have in mind the orientation/position of major buttons within the first page (entrance) of the online store. We distinguished 3 options – horizontal arrangement, vertical arrangement, and mixed approach. The second element or the so called presentation format includes 5 variants of online presentation of merchandise. It includes the forms in which the items appear on the screen – (1) simple click-on banner; (2) multiple click-on banner; (3) pop-up banner; (4) automatically moving banner; (5) static banner. The merchandise is displayed by a simple click-on banner when it is visualized on a square/rectangular bar that can be unfolded by a simple click. This simple click displays details as price, sizes, colours, terms of payment, terms of delivery, etc. The multiple click-on banner means that the online shopper can reach these details by many clicks (not just one) – one click to see the price, another click to see the available colours, etc. The pop-up banner pops up right after entering the online store or opening a new page of an already visited online store. The automatically-moving banner displays merchandise details after positioning the cursor onto it which means that it is not necessary to click on this kind of banner. The static banner is not clickable, neither automatically moving – it represents simple visual demonstration of merchandise.

2.2.3. PRODUCT DEMONSTRATION

The wider and higher quality of information available online, leads to better buying decisions and higher levels of customer satisfaction (Peterson et al., 1997). According to DeLone et al. (1992) the quality of information and consumer interface influence consumer' information satisfaction in online stores. The information provided by the online store is divided into product information and information services to the user. Catalogue information includes attribute, consumer' recommendations (forum), evaluation reports and other elements (Park and Kim, 2003). The focus lies on the effectiveness of merchandise methods used in the product presentation and its sale in the online store (Gomory et al., 1999). This can be seen in a banner ad, cross-merchandise techniques, promotions and more. Other merchandising techniques can be expressed through images, text, size, colour, location, etc. (Gomory et al., 1999; Schmitt, 1999a). With new technologies in the online product offering and according to customers` needs, we can see better products visualization (Allen, 1999). Products' presentation in online stores can be improved by introducing a 3D view, such as furniture, appliances and clothing (Allen, 1999). Clothes such as pants, shirts, etc. and are often combined with accessories. This way, the product description is complete and gives a sense of integrity for buyers. Thus, the consumers tend to choose and buy the complete collection (Allen, 2000).

A vast majority of Internet users believe that they cannot buy clothes before trying them on. This is one of the biggest problems in online shopping (Reda, 2002). Therefore, the importance of online merchandising techniques for product demonstration should not be underestimated. As touching and feeling are particularly important and are critical for the purchase of products, the lack of a similar experience should be compensated with a realistic representation of the product line. Visual display functions and various dummy modifications according to personal measures, can bring a positive influence on purchasing decisions (Then and Delong, 1999). In particular, a three-dimensional image of the product can create positive attitudes and increase purchase intentions from the online store (Park et al., 2005; Halepete and Park, 2006).

Similar descriptions in different corners of the online store can help customers to decide about the purchase. The amount of sales with such characteristics has increased between years 1995 to 1997 (Palmer, 2000).

Machleit and Davis (Eroglu, Machleit and Davis, 2003) have found that some online visual merchandizing signals (which are not directly related to the purchase) as background, font colour, models, animated icons and others are responsible for the final process of purchase. However, they have not yet been empirically tested among online users.

When consumers buy clothes online from an online store, they evaluate a number of factors - how they will look on the body, sensory and aesthetic information and how the garment can be worn with other products.

According to McCormick and Livett (McCormick and Livett, 2012), users select and analyze according to four factors: product personalization, details magnification, practical information and product position, and movement on a dummy.

3. RESEARCH METHODOLOGY AT THE FIRST STEP OF THE RESEARCH PROCESS

3.1. SAMPLING METHOD AND SAMPLE SIZE

We searched internet for data bases containing web addresses of apparel online shops (Table 2).

Our analysis is based on the web addresses of online shops listed in five data bases (Table 2). All databases were thoroughly checked by the help of students attending "Marketing research" classes and all duplications were removed as well as online stores selling nonapparel merchandise. After this procedure the final number of unduplicated (unique) apparel sites equalled 5753. At the next step we randomly chose 200 online apparel stores. All analyses and conclusions that follow hereinafter are based on this sample.

Table 2. Online stores data bases and sample formation

DATA BASES	Number of apparel online stores	Last visited at:
1. www.yoox.com	7401	July-August 2012
2. www.topbrandsmall.com	628	July-August 2012
3. www.net-a-porter.com	375	July 2012
4. www.my-designers.com	57	July 2012
5. www.fashion.bg	175	July 2012
TOTAL	**8636**	*
After removing duplications	**5753**	*

3.2 RESEARCH METHOD

The research method employed in this study is Content analysis, defined as "a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use" (Kripendorf, 2004). As a research method, content analysis is expected to be reliable. More specifically, the research results discovered by the means of content analysis must be replicable. As an important form of reliability, replicability suggests that scientists should achieve the same results every time they apply the same method to the same data. That is why the first stage of our research design included replication of previous research focused on OVME of apparel online shops. As a starting point we choose the comparative analysis of apparel online shops in the United States and Korea (Ha et al., 2007). We applied the method of content analysis to verify the research results of this study for a broader sample. As a beginning we verified the coding structure of the American-Korean study that suggests a complete analogy between the online and offline apparel

shops. In fact this coding structure was designed on the basis of the three general types of visual merchandising elements in traditional (offline) apparel stores: environment, manner of presentation, and path finding assistance (Kerfoot, Davis and Ward, 2003). In our study we reorganized this structure in order to match the specific nature of online environment and especially the specifics of the cognitive perception of information while looking at the monitor and browsing with the mouse (Table 2).

4. ANALYSIS OF OVME

4.1. ANALYSIS OF LTRE

We applied the typology of Eroglu et al. that defines 2 types of OVME. The first group encompasses the so called LTRE that "represents site information that is relatively inconsequential to the completion of the shopping task" (Eroglu, et al., 2001). We identified 2 categories of OVME that belong to this group: *atmospherics* and *registration*. The *atmospherics* consists of several subcategories or elements:

1) *Background colour*: black, white, other, red, blue, and yellow. Our results show that the most often used background colour is black (49,55%). The second comes white (47,11%), followed by red (9,40%), blue (4,30%), and yellow (3,54%). Different background colours (from the mentioned above) are registered in 10,71% of the online stores (Table 3).

2) *Atmospheric features*: intro-page, intro music, music during browsing. The analysis of these atmospheric features proved that the most common atmospheric clue among online apparel shops is the intro-page (45,76%). About 38,23% of the studied online shops offer music during browsing while 39,95% of studied web stores offer intro-music.

Table 3. LTRE – identification, typology, and measurement

GROUPS	CATEGORIES	ELEMENTS	*Sub-elements*	%
LOW TASK RELEVANT ENVIRONMENT (LTRE)	**ATMOSPHERIC**	BACKGROUND COLOR	*Black*	**49,55**
			White	**47,11**
			Other	**10,71**
			Red	**9,40**
			Blue	**4,30**
			Yellow	**3,54**
		ATMOSPHERIC FEATURES	*Intro-page*	**45,76**
			Intro-music	**39,95**
			Music during browsing	**38,23**

Continuation

LOW TASK RELEVANT ENVIRONMENT (LTRE)	**ATMOSPHERIC**	TEXT COLOR	*Black*	**70,15**
			Other	**10,98**
			Blue	**8,73**
			White	**7,09**
			Red	**6,89**
			Yellow	**5,13**
	REGISTRATION	REGISTRATION REQUIREMENT	*Yes*	**44,53**
			No	**55,47**

3) *Text colour*: black, other, blue, white, red and yellow. We noticed a huge diversity of text colours in our research. Over 10% of monitored online shops include colours different from black, other, blue, white, red and yellow. Black text colour is very popular within the online apparel stores: black coloured text is found in 70,15% of the sample while white coloured text is typical of 7,09% of the analyzed online shops. The proportion of usage of the rest of the colours is 8,73% for blue, 6,89% for red, and 5,13% for yellow.

We also investigated the registration requirement as an element of LTRE. The research results indicate that a smaller proportion of online apparel stores require registration (44,53%) compared to the proportion of online apparel stores omitting this option (55,47%).

4.2. ANALYSIS OF HTRE

The theoretical background of HTRE was explained earlier. In our study we identified 3 categories of elements belonging to the HTRE family (Table 4):

1) *Website navigation*: sitemap and search engine. More than 63,18% of the analyzed online stores offer a site map as a navigation aid. A searching engine (within the web store) was found in over 76,94% of the investigated online shops. Many of the apparel online stores offered sophisticated searching – by brand (32,94%), by item (34,91%), by target (10,72%), by style (33,44%), and by price (42,53%).

2) *Website graphics*: website geometry (horizontal (69,66%), vertical (19,54%), mixed (10,76%) and presentation format (simple click-on banner (67,50%), multiple click-on banner (12,95%), pop-up banner (10,63%), automatically-moving banner (8,92%), static banner (16,05%).

3) *Product demonstration* contains the following elements: product view dimensionality (2-D F-B on same page (93,69%), 2-D click on F-B (90,94%), 2-D automatic F-B change (31,16%), 2-D static of F -B and side view (33,9%), 3-D click on rotation (30,62%), 3-D automatic rotation (32,48%), 2-D larger view on separate page (28,77%))[2], zoom partitioning[3] (37,84%); apparel colour (change by colour

[2]The sub-elements in brackets are named after Ha et al. (2007) and their explanations is the following: "2-D F-B on same page" – item's front view and back view exposition in 2 dimensions; "2-D click on F-B" –

switch click (27,31%), change by scroll down option (10,05%), automatic colour change (5,88%), size according to personal measures (55,06%); product display method (hanging(4,51%), mannequin (10,30%), folded (7,54%), flat (11,25%), mannequin-cut (8,59%), model (55,08%), video (42,98%) invisible model (4,87%); mix and match (suggestions by type (61,73%), suggestions for each item (31,16%).

Table 4. HTRE – identification, typology, and measurement

GROUPS	CATEGORIES	ELEMENTS	*Sub-elements*	%
HIGH TASK RELEVANT ENVIRONMENT (HTRE)	**WEB NAVIGATION**	SITEMAP	*Yes*	**63,18**
			No	**36,82**
		SEARCH ENGINE	*Search engine*	**76,94**
			by price	**42,53**
			by item	**34,91**
			by style	**33,44**
			by brand	**32,94**
			by target	**10,72**
	WEBSITE GRAPHICS	WEBSITE GEOMETRY	*Horizontal*	**69,66**
			Vertical	**19,54**
			Mixed positioning	**10,76**
		PRESENTATION FORMAT	*Simple click-on banner*	**67,50**
			Static banner	**16,05**
			Multiple click-on banner	**12,95**
			Pop-up banner	**10,63**
			Automatically-moving banner	**8,92**
	PRODUCT DEMONSTRATION	PRODUCT VIEW DIMENSIONALITY	*2-D F-B on same page*	**93.69**
			2-D click on F-B	**90.94**
			Zoom partitioning	**37.84**
			2-D static of F-B and side view	**33.93**
			3-D automatic rotation	**32.48**
			2-D automatic F-B change	**31,16**
			3-D click on rotation	**30,62**
			2-D larger view on separate page	**28,77**

clickable exposition of item's front view and back view in 2 dimensions; "2-D automatic F-B change" – replace item's front view by item's back view after positioning the cursor on it; "2-D static of F-B and side view" - static demonstration of three views (front, back, and side) in 2 dimensions; "3-D click on rotation" – 3-dimensional view of an item rotation (360˚) after clicking on it; "3-D automatic rotation" - 3-dimensional view of an item (360˚) after positioning the cursor on it; "2-D larger view on separate page" – clicking on the item's banner opens a separate page showing enlarged view. More details can be found in Ha, Y., Kwon, S., Lennon, S., Online visual merchandising (VMD) of apparel web sites, Journal of Fashion Marketing and Management, (2007) 11, 477–493.

[3]Zoom-partitioning – means multiple magnifying of small apparel elements (for example buttons, sutures, threads, clasps, collars, etc.). A multiple magnification is realized by a series of clicks – each click provides a greater magnification than the previous one. See Ha, Y., Kwon, S., Lennon, S., Online visual merchandising (VMD) of apparel web sites, Journal of Fashion Marketing and Management, (2007) 11, 477–493.

Continuation

HIGH TASK RELEVANT ENVIRONMENT (HTRE)	**PRODUCT DEMONSTRATION**	APPAREL COLOR	*Size according to personal measures*	**55,06**
			Change by colour switch click	**27,31**
			Change by scroll down option	**10.05**
			Automatic colour change	**5.88**
		PRODUCT DISPLAY METHOD	*Model*	**55.08**
			Video	**42.98**
			Flat	**11.25**
			Mannequin	**10,30**
			Mannequin -cut	**8.59**
			Folded	**7,54**
			Invisible model	**4,87**
			Hanging	**4,51**
		MIX AND MATCH	*Suggestions by type*	**61,73**
			Suggestions for each item	**31,16**

5. SUMMARY AT THE FIRST STEP OF THE RESEARCH PROCEDURE

The research presented in the paper is one of the few oriented towards the emerging science of online merchandising. Within this research projects we identified, registered and classified numerous OVME. By means of content analysis we revealed the following structure of OVME:

1) Two broad groups of OVME – HTRE and LTRE,

2) Five categories within groups – atmospheric and registration within LTRE; web navigation, website graphics, and product demonstration within HTRE,

3) Thirteen OVME within categories – background colour, text colour, atmospheric features, and registration requirement within LTRE; site map, search engine, website geometry, presentation format, product view dimensionality, apparel colour, product display method, and mix/match option within HTRE,

4) Fifty five subelements were identified and measured (as percentage of usage in online apparel stores) – 17 subelements within LTRE group (Table 3) and 38 subelements within HTRE group (Table 4).

We state that this research as well as the previous studies is aiming to outline the bases of the new field of Online merchandising. Several paths of investigation can be offered to interested researches:

The first, the next research projects have to measure the relative importance of each OVME/subelement from the point of view of the impact on sales.

The second, the typology of online stores from the point of view of OVME/ subelements must be analyzed.

The third, methods and models for OVME/subelements optimization have to be developed. Such methods and models can bring a practical value to online sellers that are interested in optimizing their online stores in accordance with the specifics of their target groups.

IV. THE SECOND STEP OF THE RESEARCH PROCEDURE – TYPOLOGIZATION OF APPAREL ONLINE STORES ON THE BASIS OF OVME

1. RESEARCH GOALS AT THE SECOND STEP OF THE RESEARCH PROCEDURE

Online trading marks constant growth ever since the emergence of Internet. With the development of the online trade in the last 15-20 years, an accelerated researchers' interest in online stores in particular is detected. A new field of research, namely online merchandising evolved. Series of studies were dedicated to online merchandising. Former reports in the field are stepping on comprehensive information on online buyers, navigation, ads links, the optimal alternative for product searching (Huarng and Christopher, 2003; Ha, Kwon, Lennon, 2007; Syzmanski and Hise, 2000; Katrandjiev and Velinov, 2014) and types of offered products (Xu and Paulins, 2005; Ha and Lennon, 2010; Cho and Workman, 2011). Published results (in the field of online marketing) are numerous and they are overviewed in a pervious original article (Katrandjiev and Velinov, 2014).

Talking about diversity of online stores, we should admit that current research is rather limited. As normal stores the online ones also are typologized, based on their features.

The second step of the three-step research approach is aimed at categorizing of apparel online stores on the basis of OVME. Building a typology is of essential importance for further research, as this is the first attempt in this direction, and the second – it would throw light on online store types from the perspective of their OVME. Knowledge on online stores typology is a prerequisite for a selection of an adequate type shop (corresponding OVME) against a relevant target group. Experts in e-commerce are aware of the fact that commercial impact of an online store is build on its interface, or stated in a broader sense – on the interaction between people and the computer. The appropriate selection of OVME is related with the increasing of the efficiency of this correlation.

2. PREVIOUS RESEARCH IN THE FIELD OF ONLINE STORES TYPOLOGIZATION

One of the first attempts to set types of online stores (Cappel and Myerscough, 1996) uses common features, such as: „online" showcases/catalogues, offering products and product description; informative web-pages, giving instructions and help information on online shopping; option for successful searching, while shopping, through sophisticated search engines.

Other researchers (Spiller and Lohse, 1998), divide online shops with the help of cluster analysis. They prove the existence of five cluster groups: *superstores* – according the overall number of products on the web pages of the store; *promotional stores* – with small product range and detailed files for store clients; *commercial stores* – comparatively large stores, demonstrating their products with no additional information; and *promotional stores* – with product information, order section and product range. They were filed, using prints for promoted products and online information for store goods.

The authors of the study put the retail online stores into groups with the help of the cluster analysis. Typology of retail online shops is proposed, based on the visual merchandising elements.

3. RESEARCH METHODOLOGY AT THE SECOND STEP OF THE RESEARCH PROCEDURE

Typology of online stores in the current development is done, using cluster analysis.

Setting the classification criteria is the first task to be completed in applying that type of analysis. OVME are taken as classification variables. The following variables would be considered in the study: *site map, search engine, web geometry, atmospheric features, background colour, font colour, product visualization types, colour and size sample, product demonstration method, merchandizing techniques and online registration* (Table 1). Marked merchandizing elements are investigated and described in detail in a previous research of the authors (Katrandjiev and Velinov, 2014).

Table 1. Classification criteria

№	Variable		Type
1	Site map	Site map	Dichotomous
	Search engine	Search engine	Dichotomous
2	Types of search engines	By brand	Dichotomous
		By item	Dichotomous
		By target	Dichotomous
		By style	Dichotomous
		By price	Dichotomous
3	Website geometry	Horizontal	Dichotomous
		Vertical	Dichotomous
		Mixed positioning	Dichotomous
4	Atmospheric characteristics	Intro page	Dichotomous
		Intro-sound	Dichotomous
		Search sounds	Dichotomous
5	Presentation format	Single click banner	Dichotomous
		Pop-up banner	Dichotomous
		Multiple click-on banner	Dichotomous

Continuation

6	Background colour	White	Dichotomous
		Black	Dichotomous
		Red	Dichotomous
		Blue	Dichotomous
		Yellow	Dichotomous
		Other	Dichotomous
7	Text colour	White	Dichotomous
		Black	Dichotomous
		Red	Dichotomous
		Blue	Dichotomous
		Yellow	Dichotomous
		Other	Dichotomous
8	Product view dimensionality	2-D F-B on same page	Dichotomous
		2D click on the F-Back	Dichotomous
		2-D automatic F-B change	Dichotomous
		2-D static F-B and side view	Dichotomous
		3-D click on rotation	Dichotomous
		3-D automatic rotation	Dichotomous
		2-D separate page larger view	Dichotomous
		Zoom partitioning	Dichotomous
9	Apparel colour	Change by colour swatch click	Dichotomous
		Change by scroll down option	Dichotomous
		Automatic colour change	Dichotomous
		Size according to personal measures	Dichotomous
10	Product display method	Hanging	Dichotomous
		Folded	Dichotomous
		Flat	Dichotomous
		Mannequin -cut	Dichotomous
		Mannequin	Dichotomous
		Dummy	Dichotomous
		Model	Dichotomous
		Invisible model	Dichotomous
		Video	Dichotomous
11	Mix and match	Suggestions by type	Dichotomous
		Suggestions for item	Dichotomous

A discreet dichotomous scale serves the needs of the presented analysis. In the given examples, an attribute (visual merchandizing element in online environment) could be available or omitted in an online store. The availability is coded with „1“, while the absence is marked with „0“. For example, availability of search facility is defined in the following manner: „1“ for available and „0“ for non-available.

To group the studied objects (in our investigation – the online stores) in homogeneous clusters, the rates should be defined, with which similarity/difference are to be determined (Jelev, 2008). To measure similarity (proximity) the Jaccard's coefficient was applied.

Cluster analysis is built on **hierarchical clustering,** where priority was given to **agglomerative methods**. On next stage we preferred to apply the **variation methods** (as sub-group of the agglomerative methods). **The Ward Method** has been chosen.

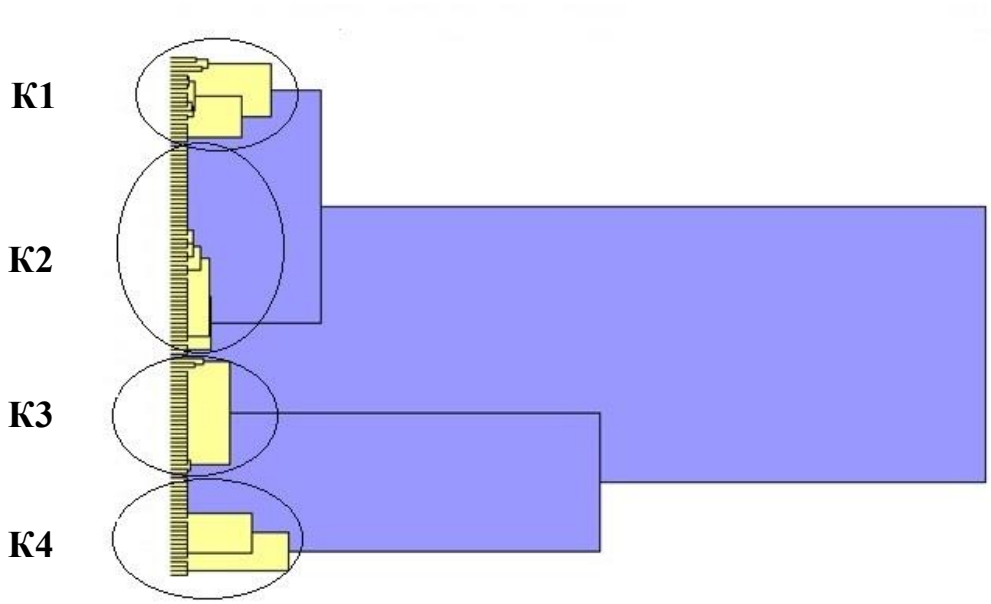
It is essential to stress that the research practice in clustering has proved the Ward Method to give fairly precise results in market segmentation (Goulet, 1996). Summarizing the results of the mentioned studies, as well as the acquired marketing practice, we may conclude that the Ward Method is the most applicable (from all agglomerative cluster methods) to accomplish the recent study.

4. ANALYSIS OF THE TYPOLOGY OF APPAREL ONLINE STORES

Setting of clusters should be done attentively, as the research methods are less studied still and lacking consistency (Aldenderfer and Blashfield, 1984). Recent surveys, focusing on the problem of determining the number of clusters, in professional literature step on: validity of research hypothesis, subjectivity and the practical experience of the researcher, as well as the range where the clusters coalesce - the agglomerative level method (screen diagram test) (Bacher, 2002; Baker, 1986).

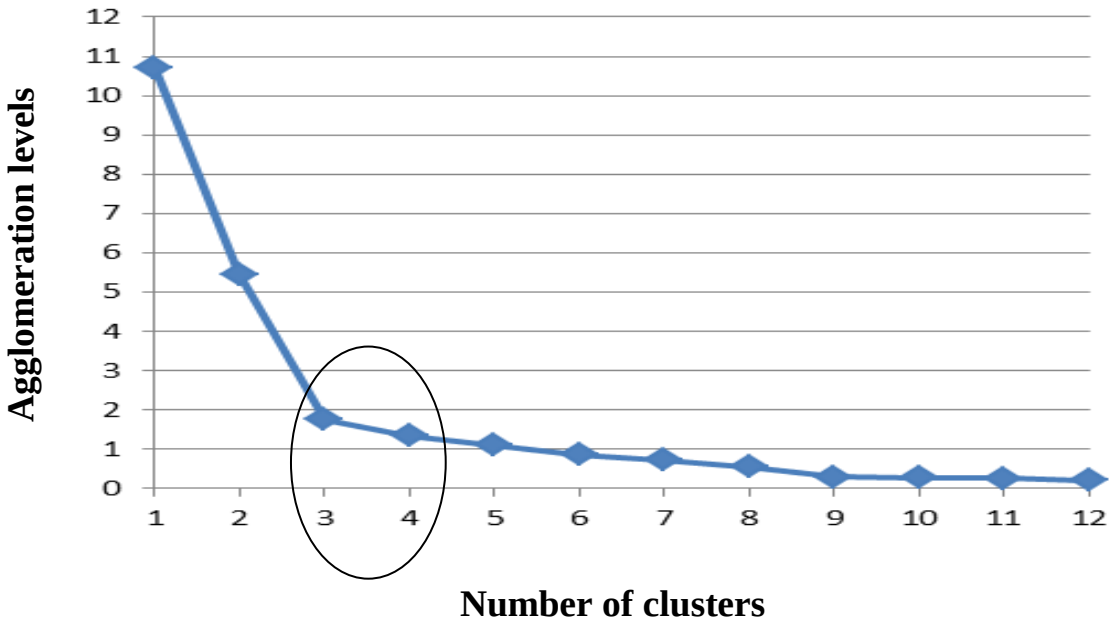
The process of object grouping on each stage is graphically represented via a dendogram - visualized in fig. 1. It illustrates the clustering process and object grouping, received at each level. The height of the dendogram shows the range in which the objects group. The higher the levels are, the more heterogeneous objects enter the same category. The forming of four clusters is quite evident, grouped two by two.

Figure 1. Dendogram of four clusters



Determining of the cluster number is achieved through the agglomerative levels method, designing a screen diagram of agglomeration levels, seen on fig. 2. The axis x presents the number of clusters and the axis y shows the agglomerative levels, or the so-called fusion coefficients.

Figure 2. Defining the number of cluster via a scree diagram



In the given report, an abrupt increase of values in the agglomerative levels is observed between 4th and 5th clusters**.** This might mean that the object grouping in less than 4 clusters will allow the coalescence of rather heterogeneous objects. Hence, the number of clusters should not be less than 4. According the logics of the cluster approach, the choice of very few clusters (in the indicated study less than 4) proves to

be much more complicated in interpreting heterogeneous cluster content that tend to be too "mixed-up". On the contrary, choosing more clusters results in defining more homogeneous ones, but the analysis is much more complicated and what is really frustrating – the managerial decision making process is aggravated (Aldenderfer and Blashfield, 1984).

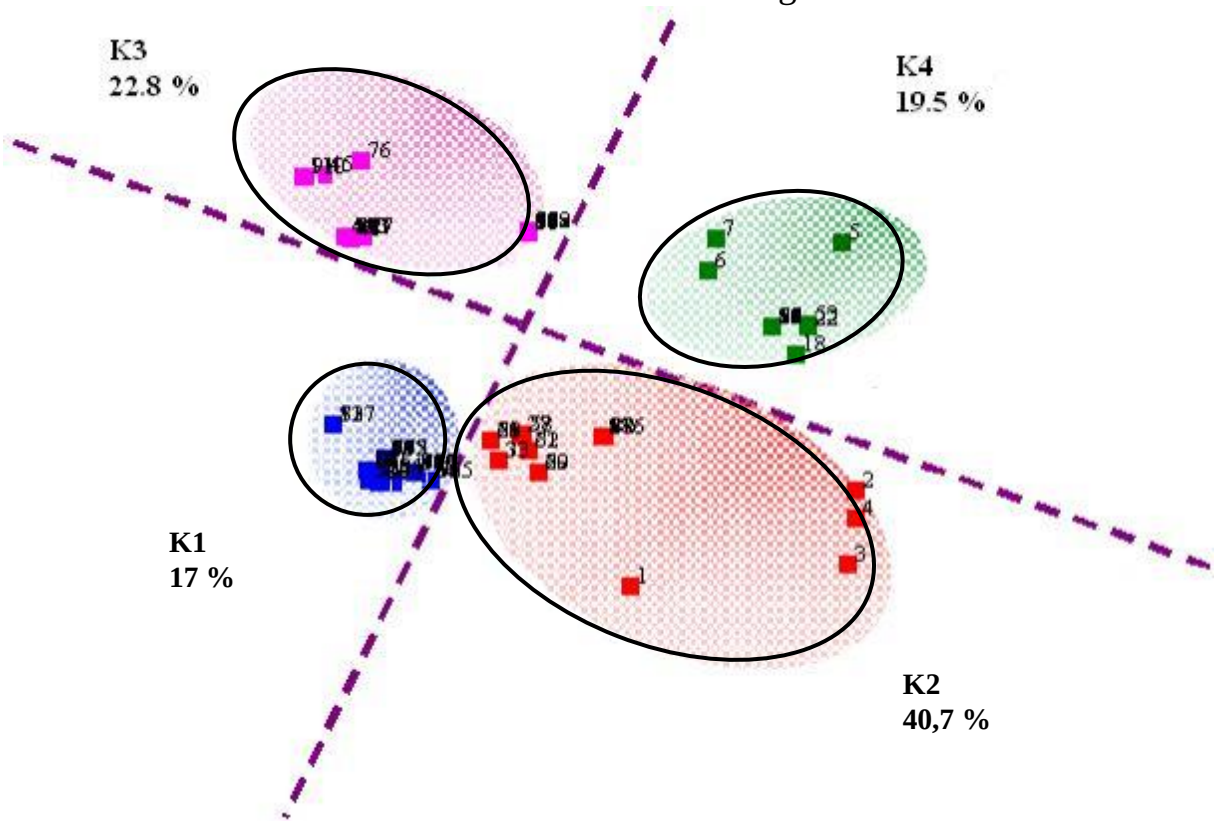
Relative levels of the four clusters in the frame of the sample are as follows: cluster К1 – 17 %; cluster К2 - 40,7 %; cluster К3 - 22,8 %; cluster К4 - 19,5 % (See Table 2).

Table 2. Clusters' proportions

Clusters	**К1**	**К2**	**К3**	**К4**	**Total**
Proportion	17 %	40,7 %	22,8 %	19,5 %	100 %

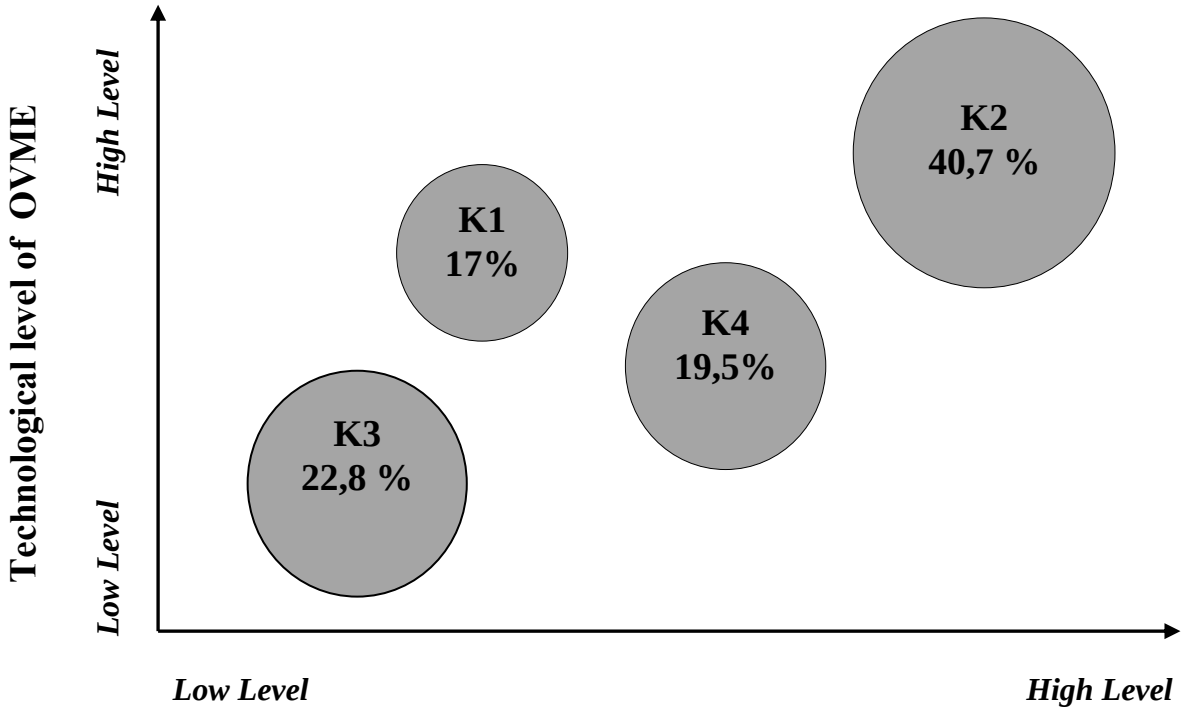
In order to visualize the cluster groups, as well as to verify their validity, in the course of the analysis is performed multidimensional scaling. The multidimensional scaling (as well as the cluster analysis) is realized through the software program ClustanGraphics. The results of the first hand application of the procedure are demonstrated in figure 3, where the online stores are precisely allocated in the four clusters as per their relative share (К1 – 17 %; К2 40,7 %; К3 22,8 %, and К4 19,5 %).

Figure 3. Apparel online stores clustering in homogeneous groups via multidimensional scaling



The precise data analysis points that a two-dimensional approach should be adopted: The first level – **technological level of OVME**; The second level – **variety of OVME** (fig. 4).

Figure 4. Typology of online apparel stores



Under technological level of OVME in the current article we mean the level of functionality of an element or elements of visual merchandising in online environment. For example, the simple demonstration of a product with a static visualization is lower technological level than the visual representation, acquired by click on the product image to turn from the front to the back side (the type F-B). Analogically the product F-B view is a lower technological level compared to 3-D product view with 360˚ rotation, etc.

OVME variety is interpreted as the diversity/lack of OVME in an apparel online store. Some stores contain less virtually incorporated merchandising elements (for example: View Sofia - http://www.viewsofia.com/). All the shops for fashion goods that use one or two options to sell their products (like 2-D product view (F-B), or 3-D images, etc.) go into this group. Online stores, acquiring diverse merchandising elements, luckily utilizing a set of OVME, offer higher functionality to their clients and make online shopping process smooth and preferable (Visit: Giorgio Armani - http://www.armani.com/us/giorgioarmani). Those stores with variety of OVME offer a broad selection of product views (model, mannequin, cyber-mannequin, invisible dummy, etc.); zooming option to clearly see separate details (accessories, the material from which the product is made, manufacture, etc.); product types (2-D and 3-D view), etc. (Ha, Kwon, Lennon, 2007; Katrandjiev and Velinov, 2014).

Each cluster includes also stores with mixed cluster features that could not be added in the same category (fig. 3).

4.1. PROFILE OF CLUSTER K1

Seventeen percents of the apparel online stores get into cluster K1. The most typical for the shops from this group (cluster) is the availability of high technological level of OVME, limited in variety (compared to clusters K2 and K4). The most popular of HTRE in this group is the comprehensive search facility.

Cluster K1 features stores, the majority of which undergo online sign-up procedure to use their services. As is shown on fig. 4, in the upper left quadrant, the K1 position is among technological high level clusters, and at the same time it appears to be a part of the sector with limited incorporation of OVME (less variety of OVME). The elements state and their wide application are totally reverse, considering K4, in the lower right quadrant of fig. 4. In relation to cluster K2, apparel stores do not apply merchandising techniques (offering complimentary items to the main one) in product presentation – the so-called cross-merchandising.

K1 is characterized by a better use of elements, such as search engine, presentation format, apparel store atmospheric features, and product view if compared to K4, but yet and a bit limited, if compared to with its neighbouring K2.

The conclusion that can be drawn from the data of the apparel online stores content, entering cluster K1, is that those stores are clearly identified (less OVME applied), where the level of incorporated OVME is comparatively high.

4.2. PROFILE OF CLUSTER K2

Cluster K2 is the largest of all the clusters – its share reaches 42%. The apparel shops in the cluster characterize with high technological level and variety of OVME (fig. 4).

Cluster K2 groups online stores with high technological levels of OVME and at the same time with variety of merchandising elements. The availability of rich colour range of the items and their successful demonstration with models and dummies ensure high visualization experience among clients. Following this direction in our comparison, it is obvious that shops in cluster K2 acquire well-developed element to locate certain item. With the help of 2-D and 3-D visualization and zooming of parts or details of the item consumers are facilitated in online shopping.

Another outcome, imposing from the evaluation of apparel stores in the second cluster K2, is the quality servicing and respectful attitude toward online clients. The atmospheric characteristics, as intro-page, intro sound, search sounds, etc. outline specific touch to the portrait of cluster K2, which can be described as an innovative, building a good brand image and creating a feeling among users, as of a visit, similar to that in the real store. The application of adequate merchandising techniques when selling goods online increases the level and quality of service. Moreover, effective online merchandising has a positive impact on building consumer loyalty.

The conclusion that can be drawn from the data for the online stores content that fall within the cluster К2, is related to the supply of goods of high quality, accompanied by high technological level and variety of OVME. Visual merchandising of these stores is consistent with the high consumers' expectations for product presentation and the overall store visual effect. As a whole these stores offer high quality brands with respective prices. The high technological level and the diversity contribute to the positive brand/brands public image.

4.3. PROFILE OF CLUSTER К3

Cluster К3 amounts to 22,8 %. In comparison to the other cluster groups, the online shops here are less providing OVME (less OVME) (fig. 4). Typical for the stores from cluster К3 is the frequent and mass product demonstration with 2-D F-B and side view. The application of OVME from the group of the atmospheric elements and achieving a higher level of visualization (like 3-D view) are not popular techniques among stores in this category.

It could be argued that cluster К3 comprises of online stores, which organization is characterized with low technological level of OVME, and also less OVME variety. This dimension in the profile of cluster К3 is different and diametrically opposite to the key features of cluster К2. Online shops in the group attract and are mainly suitable for clients, who want to shop fast and lack time and willingness to browse through items visual and simulation effects demos.

Online shops in the cluster offer, generally, goods of brands, with limited demand for quality and luxury Therefore, the use of complex software applications and solutions is not conventional for the online stores within the cluster К3.

The conclusion that comes forth from the data of online stores content that appear in the cluster К3, is that they offer not too expensive and standard goods (such as ready-make cloths). They are orientated toward clients, for whom the price is leading as well as the time spent for the purchase (thus saving time). This category is not appropriate to sell brands with high level of quality-price ratio.

4.4. PROFILE OF CLUSTER К4

The fourth comprises 19,5 % of the sample (Table 2). It is obvious that cluster К4 combines stores, which structure stands out with high technological level of OVME against low level of different merchandising elements. The onlne apparel stores included in Cluster 4 are characterized by a high level of variety of OVME. This is similar to the variety of OVME of Cluster К2. Cluster К2 is characterized by even higher level of variety of OVME. In fact this is the highest level of variety of OVME among all clusters. On the other hand the technological level of OVME in Cluster К4 is lower compared to the technological level of OVME in Cluster К2 and Cluster К1.

The online stores in this group provide lower level of service and an average price range in comparison to some of the other clusters (К1 and К2). Despite the impact of

the higher-levelled cluster (cluster K2) and in relation to the availability of more specific OVME (as cluster K1), stores in cluster K4 are assigned to low technological level but differ from K3 through higher diversity of OVME.

What makes the significance for the shops in the cluster is the fact that the retailers still succeed to provide goods in the average price range despite the application of very few merchandising elements.

5. SUMMARY AT THE SECOND STEP OF THE RESEARCH PROCEDURE

The rapid development of the global network and the popularity of internet in everyday life, online shopping becomes one of the easiest and fastest ways to purchase goods. The increase of online users and the sophisticated online supply are of vital importance for the development of fashion brands. The comfort of consumers in internet has improved sufficiently in the last decade (Kotler, 2005; Allen, 2000). Internet solved the problem with costs in locating products and increased the interaction between the buyer and the seller. According the conventional theories, length of time for shopping lessens, and the frequency of shopping rises (Internet Retailer). Taking into account the cited ongoing processes, the need for adequate identification of OVME comes at the first place to help the progress of marketing and merchandising decisions toward market success of apparel online shops.

Recently, video and audio element implementation and the immediate access to high-quality images are exceptionally important for a good shopping experience online. Newly-emerging stores, providing, for example, voicemail requests to sales representatives, turn to be more attractive. Although these changes are achievable, retailers still pursue different goals. There is no standardized typology of online stores design to choose from, allowing retailers to follow a working marketing strategy.

Current survey determines four different online store designs (K1, K2, K3, and K4). They differ in level and diversity of used OVME (background and font colour, atmospheric characteristics, search engine, types of webgeometry, presentation format, demonstration and visualization of the product, type of merchandising techniques in promoting the product line). We took apparel online stores to make our conclusions.

Cluster analysis serves the purpose of the current empirical study by determining and grouping apparel online stores in cluster groups. This is necessary to be done from online users' perspective, revealing a detailed picture of what level of servicing is required, when visiting an online store. Being aware of the basic types of online stores and their organization could facilitate the managerial decision making from retailers, marketing and merchandising professionals.

The results of the study can provide helpful information such as a detailed list of the elements of visual merchandising elements for garments sites.

Outcomes for online retailers of fashion goods to help managerial decision making:

- attract and ease online users in online shopping.

From the perspective of marketers:

- develop systematic approach to increase the online stores visit by clicks and impressions;
- support creativeness in product distribution in online branding.

Findings for merchandise specialists:

- design new methods for product demonstration, through a thorough knowledge of OVME, consistent with target group preferences;
- developing a new type presentation of the product in line with the 2-D and 3-D format requirements of online users;
- cross-selling promotion (launching) of new products in apparel online stores;
- colour solutions for current and future product demonstrations.

V. THIRD STEP OF THE RESEARCH PROCEDURE - IDENTIFICATION AND EVALUATION OF ONLINE VISUAL MERCHANDISING ELEMENTS (OVME)

1. RESEARCH GOALS AT THE THIRD STEP OF THE RESEARCH PROCEDURE

Study aims to offer an optimal combination of OVME, based on Bulgarian user preferences. The growing number of online fashion buyers is in respect to the rapid development of marketing and merchandising. According to the Forrester Research Report, retailers must strive to raise their websites accessibility. They can benefit from buyers, focusing on additional and accurate product information, image enhancement, flexible payment methods and reclaims, reduced transportation costs, etc. (Rosencrance, 2009). Business and researchers have long considered the visual stimulation and communication as important aspects of retail (McGoldrick, 1999 and 2002). It is important how the product or brand are graphically represented. Aspects of offline shopping space that might be adopted by online stores are defined as **design** (Li, Daugherty and Biocca, 2001; Bellizzi et al., 1983; Berman and Evans, 1995; Bhattacherjee, 2004), fixing (Donnellan, 1996), **goods** (Davies and Ward, 2002), **demonstration** (Buchanan et al., 1999; Burke, 2000; Chaging et al., 1994), **colour** (Koelemeijer and Oppewal, 1999) and **wrapping** (Bruce and Cooper, 1997). These and some additional elements are core in online shop design (Potts, 2007).

Conjoint analysis is one of the many tools of marketing research. It proves better in predicting consumer behavior. Used in a set of research methods (content analysis and cluster analysis), it helps to reach the optimal merchandising strategy (Jelev, 2008; Brice, 1997).

Conjoint analysis is extremely powerful way to capture what really drives consumers to buy one product over another (Raghavarao, Wiley and Chitturi, 2011), (Richard, 2004). The main advantage is to design dynamic market models for bigger market share.

2. PREVIOUS RESEARCH IN THE FIELD OF CUSTOMER PREFFERENCES FOR OVME

The online purchase of fashion goods marks one of the top market shares – around 40 % of the purchases for 2011. Interest in the Internet has increased, with over 20 million users, and they account up to 130 000 new users every month (Dieckmann, 1995; Anderson, 2005), ensuring large market potential (Fox, 1995; Hahn and Stout, 1993; Powell, 1994). E-commerce sales mark growth of 20% per year, creating a 143 billion dollar profit in 2009 (Internet Retailer).

Increased demand for "green" clothing (Williams et al., 2005) has significant effect on global fashion apparel industry. Users seem more likely to make compromise between different attributes of clothing, such as comfort and quality (i.e. functional attributes) and fashion and style (i.e. hedonistic attributes) (Sondhi and Singhvi, 2006). Previous studies on style, colour, quality (O'Cass, 2000; Sondhi and Singhvi, 2006; Cervellon et al., 2010), brand (Carrigan and Attalla, 2001), resistance, country of origin (Martinez and Kim, 2012), safety maintenance (Eckman et al., 1990; Davis, 1987) are most often considered. Little is known which OVME exactly stimulate purchases. This study examines the relative value of OVME, based on consumer's behavior. The growing demand for "green" clothing is influenced by the production of eco cloths, as most brands that offer "green" product lines and use reusable materials, find it a way to attract eco buyers (Sampson, 2009).

A study of online apparel shopping in the U.S. shows that detailed product information results in greater sales volume (Park and Stoel, 2002; Jang and Burns, 2004).

Search facility optimization is important - slow loading will means poor Google rating (Nelsen, 2001).

Customers' navigation defines web design and layout (Vrechopoulos et al., 2004). Navigation in a broad sense (not taking into account one site but in the context of the entire online environment) raises sales (Gomory et al., 1999; Lee et al., 2001). Some researchers (Sit, Merrilees, and Birch, 2003) state that the better the perception of the usefulness the information on the site is, the greater the customer satisfaction is. Air of an online store (stimulus) (Eroglu, 2001 and 2003) touches cognition (the organism), which affects buyers' behavior (reaction).

Other researchers (Kim and Lim, 2001) point number of characteristics, with a positive effect on customer satisfaction, such as comfort in buying, product representation, etc.

Eroglu was the first to point the importance of design (Eroglu, 2001 and 2003), and to offer a frame to measure the impact of "atmospheric" elements on purchase intentions. "Atmospheric" elements can be grouped in two main sub-categories - LTRE and HTRE. They are further developed and analyzed by (Velinov, 2013).

Impact of "atmospheric" elements (Mehrabian and Russell, 1974) that create S-O-R model, were also examined, studying the effects of the physical environment on human behavior through: pleasure, arousal and dominance. The store space is consciously designed to provoke specific emotional effects in the buyer (Kotler, 1973; Donovan and Rossiter, 1982). Although the study of "atmospheric" elements is recently made, an empirical evidence of their impact on online users' behavior is cited.

The influence of the colour, as element, on the response of the buyer is very strong (Wu and Yuan, 2003; Xu and Paulins, 2005; Zhou, Dai, and Zhang, 2007). Each colour, tint or shade, leads to a rapid response and purchase (Gorn et al., 2004).

Research dedicated to the online registration, mainly covers all issues, related to the protection of consumers' privacy. The collection of personal data is the focus of several studies (Tsai, 2011; Xu and Paulins, 2005; Zhou, Dai and Zhang, 2007; Forbes magazine). Risks that arise during online shopping target mostly the exchange

of personal data and credit card information. Despite the risks, consumers shop online. Total sales on the Internet increased (Kannan et al., 1998; Salam et al., 1998). (Hu et al., 2001) and studied group of online service providers built optimal pricing strategy. (Ba and Pavlou, 2002) use data from e-Bay, to show that feedback systems develop confidence in the online seller, generating price premium to the seller.

In particular, three-dimensional image of the product could create positive attitudes and purchase intentions (Halepete and Park, 2006).

VM consists of visual resistant marketing functionalities: dummies, props, graphics, labelling and more (Diamond and Diamond, 2007). Not all products from the catalogue are available online (Szymanski and Hise, 2000). Merchandising is identified in the literature by assortment, quality, price and style (fashion) (Gautschi, 1981; Bell, 1999; Ahn, 1989; Finn, and Louviere, 1995; Wong et al., 2001; Weisbrod et al., 1984). Merchandise methods bring effectiveness in raising sales (Gomory et al., 1999). Product location (recently on a full page or two) is significant (Allen, 1999). Three-dimensional product image is positively associated (Halepete and Park, 2006, Allen, 1999, 10 best Practices for Online Merchandising).

Trying on clothes is a problem in online shopping (Reda, 2002). Competitive prices and other merchandising attributes (Park and Stoel, 2002) can stimulate sales. For Bulgarian consumer awareness is critical. According to (Then and Delong, 1999; Halepete and Park, 2006), touching and feeling are decisive for the purchase; online consumers must be compensated with a realistic online demo.

According to (McCormick and Livett, 2012), users rely on four factors: customization, detailed description, safety information and virtual dummy demonstration.

3. RESEARCH METHODOLOGY AT THE THIRD STEP OF THE RESEARCH PROCEDURE

3.1SAMPLING METHOD AND SAMPLE SIZE

The analysis is based on OVME, evaluating websites of several online stores (full description in a preceding article – Katrandjiev and Velinov, 2014). Five databases were screened and duplications have been removed.

Unique fashion online stores encounter 5753 shops. Randomly picked were 200 online fashion stores to define the fundamental OVME (Katrandjiev and Velinov, 2014). The conjoint analysis method was adopted to help mark OVME, according preferences in Bulgaria. Analyzes and conclusions are based on this sample.

3.2. DETERMINING THE ATTRIBUTES (OVME) FOR THE CONJOINT PROCEDURE

Reduced number of OVME gives accuracy of data. The purpose is to show the exact OVME (Table 1) users prefer. These seven basic attributes with their subdivisions will be insufficient to conduct conjoint analysis. Consequently, all the attributes and couples must be used, as a rule, resulting from the orthogonal design of a conjoint analysis. In our case it is impossible. Since the use of all visual attributes in orthogonal design will generate incredibly large number of show cards that could not be comprehended by respondents and precisely analyzed.

Table 1. Reduction of merchandising elements

Search engine		**Style presentation**			**Background colour**					**Types product view**		**Method of displaying**		
Yes	No	Horizontal	Vertical	Mixed performance	White	Black	Red	Blue	Yellow	2D	3D	Dummy	Model	Without Dummy /Model

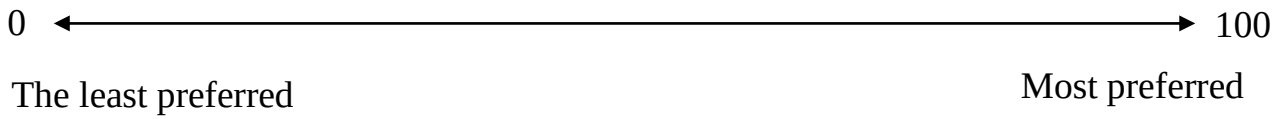
Description of the attributes and their levels (in the beginning of orthogonal design) is done within SPSS module. All possible combinations of relevant profiles are: 2.3.5.2.3 = 180. This is the derivative of the number of levels of all attributes. The evaluation of this large combination is practically impossible. The amount of profiles can significantly be reduced with the means of the fractional factorial design (Kalinov, 2010). It evaluates effectively the main effects in a limited number of experimental stimuli. Using the SPSS module, we reduced the 180 possible profiles to 25 samples.

3.3 INPUT DATA

The next step in the conjoint analysis is to determine the input data. In our case, they represent consumer preferences (the extent to which each stimulus option is preferred) or shopping intentions. Respondents were addressed with a questionnaire. Preference estimates or shopping intentions could be divided into two types: metric and non-metric (Kalinov, 2010).

This paper cites metric input data in levels of preference to any of the stimulus options. Named polar scale with unnamed intermediate options is adopted. A bipolar scale from 0 (least preferred) to 100 (most preferred) appears in each show card (fig. 1).

Figure 1. Bipolar scale



Researchers use metric for convenience. Respondents prefer easy evaluation. Researchers feature fast data analysis. Pre-scale is designed, to address description of the variables. Card numbers in the sector Variable View/Label: card 1, card 2, card 3, etc. to card 25 are kept. In Variable View/Name is accepted for better synchronization and accuracy

The questionnaire combines all 27 show cards and relevant demographic block. Risk of data distortion can be reduced by appropriately structuring the questionnaire and reviewing the answers (Tull and Richards, 1980). Review sifted best interviewers and they might be invited for future research. When it is carried out continuously, the risk of distortion greatly reduces.

In this study 10% of the interviews were reviewed and deliberate distortion of data has not been established.

Perceived anonymity represents the extent to which respondents believe that their identity and responses will be kept confidential by third parties. The principle of anonymity is pointed out to respondents at the beginning of each study. However, the level of perceived anonymity varies within different methods of data collection.

4. OPTIMIZING OVME OF APPAREL ONLINE STORES

In this section, the results are discussed. The main purpose is to derive the most important attributes, forming the optimal combination of OVME. Some indicators would be interpreted to an extent, where the conjoint analysis model corresponds to the collected group data.

4.1 ORTHOGONAL DESIGN

The SPSS conjoint procedure initially generates regression analysis, where the dependent variable is the empiric rating estimates of respondents, and the independent one – the level of product attributes. Regressive odds (values), linking attribute levels with score variability of product estimates are calculated and appear together with the standard errors (validation). Corresponding magnitude of each attribute is derived, as well as the general indicators of similarity (proof of consistency).

Table 2 introduces the orthogonal design in 25 sample show cards. Summarized information is represented in the questionnaire.

Table 2. Show cards in tabular form

№ on the map	Search engine	Style presentation	Background colour	Type product view	Product detailed description	Purchase method	Method of demonstra-ting product
1	No	Horizontal	Red	3D	No	Yes	Dummy
2	Yes	Vertical	White	3D	No	No	Without Dummy/ Model
3	Yes	Mixed performance	Red	2D	Yes	Yes	Model
4	No	Vertical	Red	2D	Yes	Yes	Without Dummy/ Model
5	No	Horizontal	Yellow	3D		Yes	Model
6	Yes	Horizontal	Blue	2D	Yes	No	Dummy
7	Yes	Mixed performance	Yellow	3D	No	Yes	Without Dummy/ Model
8	Yes	Horizontal	Black	2D	No	No	Without Dummy/ Model
9	No	Horizontal	Blue	2D	No	No	Without Dummy/ Model
10	Yes	Vertical	Yellow	2D	Yes	No	Dummy
11	Yes	Mixed performance	White	2D	Yes	No	Dummy
12	Yes	Vertical	Red	2D	Yes	Yes	Dummy
13	No	Mixed performance	Blue	2D	No	Yes	Model
14	Yes	Vertical	Blue	3D	No	Yes	Dummy
15	Yes	Mixed performance	Black	3D	Yes	Yes	Model
16	Yes	Horizontal	Yellow	2D	Yes	No	Dummy

Continuation

17	Yes	Horizontal	White	2D	Yes	No	Model
18	Yes	Vertical	Black	3D	Yes	No	Model
19	No	Vertical	White	2D	No	No	Model
20	Yes	Vertical	Blue	3D	No	Yes	Model
21	Yes	Horizontal	Black	2D	No	Yes	Model
22	Yes	Horizontal	Red	3D	No	Yes	Model
23	No	Vertical	Black	2D	Yes	Yes	Dummy
24	No	Vertical	Yellow	2D	Yes	Yes	Model
25	No	Horizontal	White	3D	Yes	Yes	Dummy

Show cards contain detailed descriptive rhetoric of the concept, same subtitles for different attributes to guarantee coherence between the descriptions. For accuracy each concept typifies the other. It is difficult to ensure that the pictures (drawings, cartoons and photographs) contain only information for the analyzed situation. Attributes that are valued, could be used in the evaluation of certain other attributes, difficult to be described. Show cards contain subtitles used for different attributes on each card, ensuring coherence between the descriptions.

The study was carried out through the participation of153 individuals - Bulgarian students at New Bulgarian University and the University of National and World Economy.

SPSS conjoint analysis describes the model, which will be revised (parameterized). Each factor (attribute 1, attribute 2, attribute 3 attribute 4 and attribute 5) appears in the list, where the selected particular model, the number of factor levels and labels are marked (Table 3).

Table 3. Factors summary

Object parameterization		
	N of Levels	Relation to Ranks or Scores
Attribute 1	2	Discrete
Attribute 2	3	Discrete
Attribute 3	5	Discrete
Attribute 4	2	Discrete
Attribute 5	3	Discrete

Current file contains detailed study description (i.e. no missing values in show cards). Values on age representation from the demographic block are omitted. SPSS conjoint analysis does not account for missing values in one or more variables (hence the third type of calculation for sample by age is not done).

The consistency checking of input data does not analyze the effect of the elements on the respondents. For each group (group conjoint analysis) or each respondent (individual conjoint analysis) SPSS display results in three tables. Subject Name label identifies the group or respondents whose results are presented (in Table 4 are shown the results of the whole sample "Overall Statistics" - at "utility" level).

4.2 ANALYSIS OF THE RESULTS IN ASSESSING THE UTILITY (UTILITIES)

Utility (utilities) estimates show how each factor-level is related to preferences (units are ranks or ratings in accordance to scales; in the example rating evaluations are used). Positive values indicate that the respective attribute level is positively related to preference, and negative values indicate that factor level is not preferred. For the purpose of a fair and accurate description, the following names of the studied OVME are introduced:

- attribute 1 - *search engine*;
- attribute 2 – *style presentation*;
- attribute 3 – *background colour*;
- attribute 4 - *types of product view*;
- attribute 5 – *method of demonstrating product* (Table 4).

The description applies also for Table 4 и Table 5.

If we consider the first factor attribute 1, indicating a search in online store, it is clear that the group respondents prefer it: "Yes" (utility = 1.990) to "No" (utility = -1.990). Estimates are normalized such that their sum is equal to 0. If the number of product cards was sufficient to any assessment of the utility, a standard error value is returned. Thus we assess whether utility levels are significantly different. The difference between the estimates of the utility of the two alternatives [1.990 - (-1.990) = 3.980] is much higher number than twice the standard error (2 x 0.641 = 1.282), which means a significant difference between the two estimates of utility. If this difference was less than twice the standard error, the difference in estimates of utility could be explained by scattering (e.g. in the overall estimation the values not to differ between the rate of the factor levels).

Table 4. Conjoint-analysis utility

Utilities			
		Utility Estimate	Std. Error
Attribute 1	Yes	0.99	.641
	No	-1.99	.641
Attribute 2	Horizontal	-1.788	.876

Continuation

Attribute 2	Vertical	-1.952	.876
	Mixed performance	**3.739**	**1.047**
Attribute 3	**White**	**3.745**	**1.256**
	Black	**2.031**	**1.256**
	Red	-2.493	1.256
	Blue	**1.086**	**1.256**
	Yellow	-4.368	1.256
Attribute 4	2D	-5.429	.641
	3D	**5,429**	**.641**
Attribute 5	**Model**	**5.682**	**.876**
	Dummy	**1.774**	**.876**
	Without dummy/ model	-7.456	1.047
(Constant)		51.434	.718

In the parameterized conjoint-model (Table 4) the constant is also included. Ordinal data (rating values) may vary in accordance with show cards number, which makes it non-interpretive.

Focusing on utility and other factors is evident that consumers prefer *mixed presentation* of the webgeometry for online fashion stores (3.739). From colour to background - attribute 3, Bulgarian online users prefer the *white colour* (3.745), followed by *black* (2.031) and *blue* (1.086). Respondents opted for *3-D demonstration* of the product with a very high score (5.429), for *model (*5.682), and as his best alternative - *dummy* (1.774).

4.3 ANALYSIS OF THE RESULTS FOR THE RELATIVE IMPORTANCE (IMPORTANCE)

The values of relative importance in Table 5 point the extent to which a particular attribute affects the formation of preferences. The example shows that attribute 4 (*product presentation*), is the highest (5.429 (-5.429)). The value of the relative importance is 16.168. The attribute of the highest importance, is the background colour. Although values are lower (3.745 for white, 2.031 for black and 1.086 for blue), the impact here is due to **the psychological effect of colour** on the first visit (highest value of relative importance – **31.565**). The search opt is with the smallest relative importance (10.745) - the rank of the utility estimate is the smallest (1.990 - (-1.990).

Table 5. Relative importance of attributes

Importance Values	
Attribute 1	10.745
Attribute 2	16.764
Attribute 3	31.565
Attribute 4	16.168
Attribute 5	24.758

4.4 VALIDITY OF CONJOINT ANALYSIS RESULTS

Measures of association in SPSS show the strength of the relationship between grades and ratings of individual cards and their predictions of the model estimates for utility. Higher values indicate an association agreement between empirical rating and the estimated values of the model. If the values are low, it means that conjoint model is not proved by empirical data. At individual level, low convergence could be explained with more complex psychological assessment of preferences by the respondent (interaction effects), which cannot be covered by the model. Another possible reason can be the confusion, or lack of concentration in the respondent. In group analysis (unless reasons specified) low values of association can be explained with combinations of different user evaluations. In this example, the verification of the analysis of group level indicates that validation values are high (Table 6).

Two key indicators measure the strength of association in SPSS. The first is the standard correlation coefficient R of Karl Pearson (presumably metric scaling level of the two variables) and the second is the coefficient of Kendall Tau, calculated on rating data. Both factors have theoretical maximum value of 1 to indicate perfect association between the estimated values of cards utility and the empirical rating of cards value. There is a high association between the average ratings cards and assessments of their utility predicted by the model. Correlation coefficients are accompanied by tests of statistical significance - Table 6.

Table 6. Correlations between observed and estimated preferences

Correlation / Validity		
	Value	sig.
Pearson's R	**.962**	.000
Kendall's tau	**.833**	.000

The conclusion (Table 4) is that the desired OVME are - *search engine, mixed web graphic, white, black and blue background, 3-D format representation, along with a model and a dummy representation*. High values and statistically significant degree of the standard errors for all attribute levels should be noted.

Table 5 shows that *background colour* is the most important attribute (31.5), followed by *method of demonstrating product* (24.7) *style presentation* (16.7), *types of product view* (16.1) and *search engine* (10.7).

5. SUMMARY AT THE THIRD STEP OF THE RESEARCH PROCRDURE

Conjoint-group level analysis shows that OVME, presented in Table 7 are important for both groups of respondents. As shown in the table, youths, aged 18 to 35 years, determine seven basic components:

- search engine;
- style presentation - mixed presentation of menus vertically and horizontally;
- white, black or blue are background colours;
- 3-D format demonstration;
- live model or dummy demonstration (Table 7).

Table 7. OVME Preferences

OVME	
GROUPS	**ELEMENTS**
CRITERIA FOR SEARCHING	*Search Engine*
STYLE PRESENTATION	*Mixed performance*
BACKGROUND COLOUR	*White*
	Black
	Blue
TYPE OF PRODUCT VIEW	*3D presentation format*
METHOD OF PRODUCT DEMONSTRATION	*Model/Dummy*

Bulgarian online users selected OVME entirely on their preferences and past shopping experience. The research object is achieved through a conjoint analysis - OVME are optimized for a target user group.

Although not all of the visual elements are used in content analysis, only those, entering the clustering of online shops, it provides a good and objective assessment of visual elements. Problems associated with emotional and cognitive abnormalities that inevitably arise as a result of the underlying assumptions made by conjoint analysis limit their effectiveness.

However, the state of society in Bulgaria, the awareness of the respondents, their experience in handling Internet, advances in information technology are reasons why much of the elderly population and including working age, refused or cannot deal with online shopping. The limitations of this analysis give rise to the continuation and improvement of methods for the study of OVME to offer new, more sophisticated models of online stores tailored to the rapidly changing habits and demands of consumers of fashion goods online.

VI. GENERAL SUMMARY

Internet is becoming the most popular and convenient way for shopping. The constant growth of online users and the development of the online supply are vital for the distribution of fashion brands. More and more consumers appreciate the convenience, offered by e-commerce. E-commerce relates to reduced costs and easy localization. The main tendency is towards the increase of internet sales.

Regarding those process the accurate identification of OVME is really necessary to urge better marketing and merchandising solutions in designing the virtual environment of stores for fashion goods.

Recent study introduces three-step research approach, where OVME are systematized, analyzed and optimized, focusing on target groups.

The objective of the first step in the research process is related to the identification and evaluation of OVME. It is carried out through the content-analysis method. The process of OVME systematization ends in determining two basic groups: LTRE and HTRE. Each group consists of a set of elements, where the first one is subdivided into two more groups: atmospherics and online registration. The first group of elements stimulates purchase intention but has no impact on purchase process. The second group of elements combines the basic stimuli for online purchase: web navigation, webgraphics and product demonstration. Those HTRE are used to contact online consumers.

The second step of research deals with the categorization of apparel online stores on the basis of OVME. While progressing with the research data, received in the first stage of the study, identified OVME were used to form the typology of apparel online stores. With the help of the cluster analysis 4 types of online stores were determined and described.

On the last third step of the current development OVME have been optimized, taking into consideration young online users preferences. Applying the conjoint analysis was defined the optimal OVME combination: search engine; website geometry, incorporating mixed-type of menus – vertical and horizontal; display; white, black and blue background colour of online display/store; 3-D product view of presentation and product demonstration with live model and/or mannequin.

Retailers could step on the current development and work on better decisions in the following directions:

- Design of new approaches to attract online users, acquiring better shopping experience and easy navigation,
- Development of effective approaches to attract user visits and activity in online stores through clicks and impressions,
- Introduction of creativity in product distribution of brands online,
- Development and evaluation of new methods (merchandising elements) in product offering,
- Achievement of optimal colour scheme of the online store.

Future surveys might take into account the online merchandising and continue to develop the optimal set of OVME in relation to cultural diversity of target consumer

groups. Another trend that appears in this connection is the in-depth investigation and analysis of consumer motivation in choosing a store to shop online.

Online users ‘attitude toward 2-D and 3-D representation of the product has to be studied. Survey in that line should aim to explore to what extent users credit 2-D and 3-D view and how many state that these parameters are not very informative about the product.

Studying of colour perception from the online users has also to be tracked. It is still less developed to what extent consumer perception of colour schemes affects their attitude in apparel online stores. An interesesting subject interest for marketing, and especially merchandising professionals is what number of clients migrate to another online store, if showing non-acceptance of the colour solution, as well as to what extent they stay loyal customers of the store, but do not shop online in it.

Psychographic analysis of the online shoppers has to be performed. In-depth survey of the psychographic characteristics would be of particular use for retailers of fashion goods, marketing and merchandising professionals and experts. In this respect the main objects of surveying can be: live style, moral values, religious diversity and individual characteristics of the online consumers. The good recognition of psychographic characteristics of these segments would help owners of apparel online stores, marketers and merchandizers to develop and promote local product lines.

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Over the last years the online trade is growing rapidly. Web stores are selling more and more goods and the principles of merchandising are finding new soil for further development. We are witnessing an online technological boom of web stores and especially the techniques and elements of presenting goods in an online environment. This technological development is giving birth to a new scientific branch which we call Online Visual Merchandising. This book provides an in-depth study of apparel online stores, focusing on three goals: identification and systematization of online visual merchandising elements (OVME) of apparel web stores; classification of apparel web stores from the point of view of OVME, and finally – optimizing the OVME for a specific target group. This book is one of the first steps towards the building of a sound scientific "groundwork" of the theory of Online Visual Merchandising. It could be very useful for online shop managers/owners, internet marketing consultants, web designers, marketing specialists, advertising creative personnel, and marketing students.

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