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**DIGITAL TECHNOLOGIES IN THE DESIGN FIELD: FROM  
MARKETING RESEARCH TO PRODUCT DEVELOPMENT**

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*Abstract*

The article is theoretical and applied in nature and is the result of a study and analysis of the use of digital technologies in the field of design (for example, the design of hats). The problem of digital design of new products and the formation of an assortment of hats taking into account fashion trends and consumer demand is being raised. Since in the market conditions of managing the competitiveness of products, their conformity with fashion and consumer demands is a necessary attribute that allows them to withstand competition and ensure the company's profit, the search for new ideas and styles for the development of new products, expanding the product range and ensuring the quality of designed hats is especially significant. Moreover, the listed functions must be implemented using modern digital technologies that reduce design time and take into account as many factors as possible market and consumer factors. The design of new products and the formation of an assortment of hats based on the methodology developed by the authors using marketing and digital design technologies allows us to expand the boundaries of digital technologies and improve the range of hats. The conducted studies prove the hypothesis of the effectiveness of the use of digital technologies based on the use of existing software products and their combination.

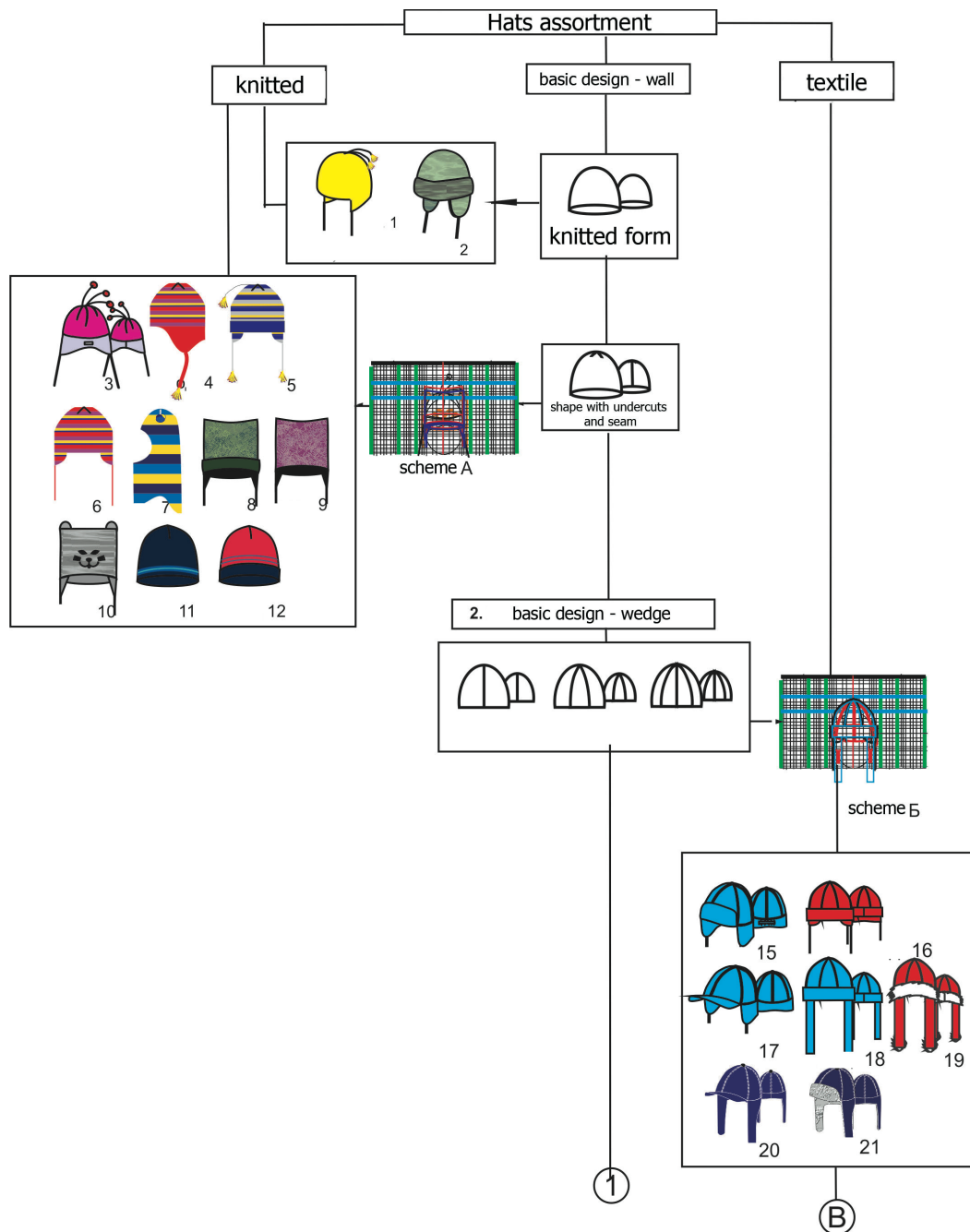
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**Keywords:** Design, digital technology, marketing research, design of new products, assortment formation, hats.

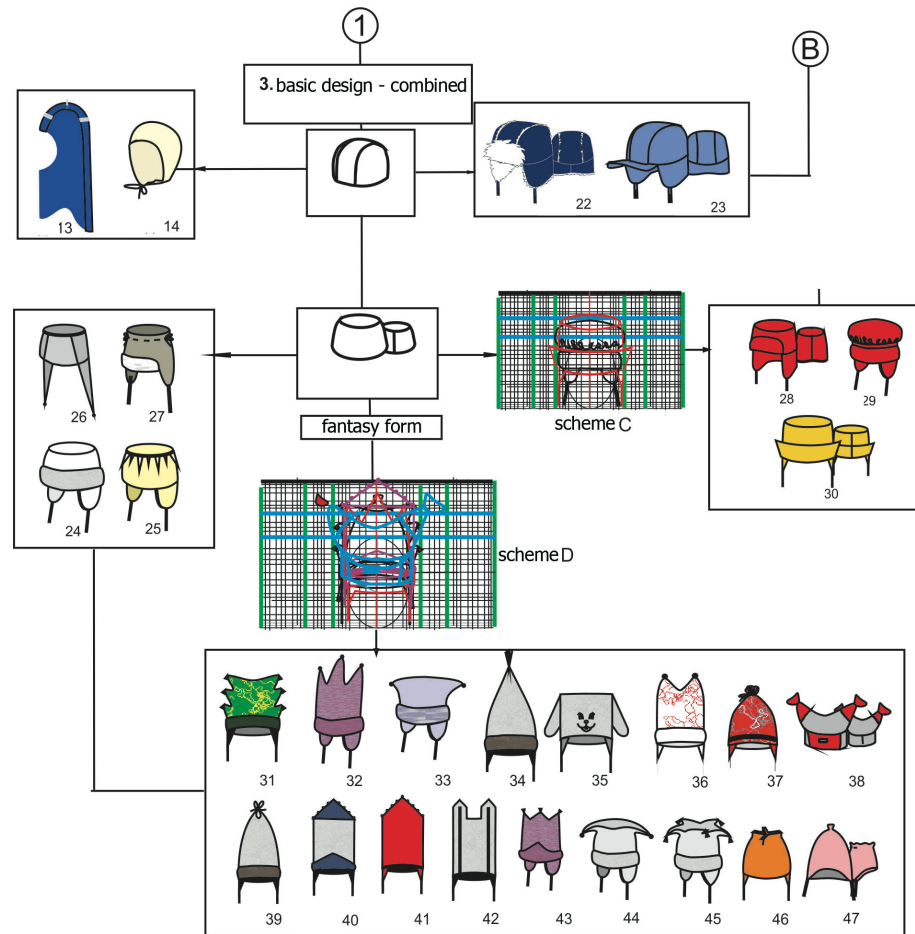


## 1. Introduction

The effective design of new products and the formation of an assortment of hats in a competitive market is one of the important areas of activity of clothing manufacturers, including hats. The use of digital technology in the design of hats, the application of methods to improve the range and improve the quality and competitiveness of products, is relevant today.



**Figure 01.** Design of new products and product range of hats (on the example of hats for a teenage group)  
 (drawn in Corel Draw)



**Figure 02.** Continuation of the picture – Design of novelty products and product range of hats (on the example of hats for a teenage group (drawn in Corel Draw). Source: authors.

## 2. Problem Statement

Due to the fact that the search for new ideas and styles for the development of new products, expanding the product range and ensuring the quality of designed hats is especially significant for mass production, the authors formulated a hypothesis on the effectiveness of the use of digital technologies that would integrate research in the field of fashion, design (shaping), meeting demand and the formation of an assortment of products. In modern conditions, it is necessary to use methods that allow you to search for relevant and fashionable ideas and design competitive products that allow you to increase the income of enterprises. Advances in digital technology can solve these problems. Designing novelty products and a range of hats based on the methodology proposed by the authors using marketing technologies and digital design allows us to expand the boundaries of digital technologies, improve the range of hats, and reduce the time for product design and development.

## 3. Research Questions

Improved methods of projection of holes in the position of applications of digital technology to the disadvantaged object (Korobtseva & Nesteruk, 2014; Kudryashova, Denisova, & Pogorelova, 2009; Lutskova, 2009) and jewelry professionals (Huaixiang, 2007; Ball, 2014). The issues of improving the

design process of hats based on a three-dimensional scanning design, designing hats in the AutoCAD graphics editor, designing hats using architectonics in 3-D format are presented in the works of Russian scientists (Petrosova, Guseva, & Lopasova, 2013; Shakhmatova, Vlasova, & Sudarushkina, 2016).

The design issues of hats based on combinatorial shaping were also raised in the works of specialists from Russia (Chulkova, 2009). Similar studies in the field of design in the field of light industry and culture, digital design technologies are carried out by foreign authors (Hayes, & McLoughlin, 2008; Loy, Canning, & Little, 2015; Moon, 2018; Lee et al., 2018).

The study of the problems of the formation of product strategies and digital design design from the standpoint of economics and marketing, the introduction of innovations in light industry are also the subject of research by Russian and foreign scientists (Bank, Vilisov, & Khristoforova, 2016; Maldini, Stappers, Gimeno-Martinez, & Daanen, 2019).

#### **4. Purpose of the Study**

The main objective of the study, the results of which are presented by the authors in this publication, is to develop and implement digital methods in modern design that allow you to take into account fashion trends and marketing aspects, in particular, customer satisfaction.

#### **5. Research Methods**

As methods of obtaining secondary information during desk research, the authors of the article used: goal-setting, grouping, ranking of product elements (form, style, materials, time). To create a database on this set of criteria, specialized publications were used – magazines and fashion catalogs, which included: Vogue, Officiel, Jardin des Modes, Linea Italiana, Les modes, L art et la mode published over the period from the beginning of the last century to present (from 1905 to 2017). Observation periods, the frequency of occurrence of forms, sizes and materials were recorded and entered into the program for statistical processing of Excel data, and the characteristics of forms and styles were recorded in one of the most popular vector graphics editor Adobe Illustrator among practicing designers.

#### **6. Findings**

The main stages of designing hats include: research, search, analysis of options and design (figure 01). The research phase is characterized by streamlining the range of hats by forms and basic designs, by the raw materials used, and the time spent in the consumer market. The search stage includes the use of a matrix for shaping and proportioning hats drawn up at the research stage, which made it possible to systematize information on fashion and demand for headwear. The search stage includes the harmonization of the forms of hats and their assortment. Next, there is a comparison and selection of the obtained options.

During the design process, computer technologies recommended for use provide the opportunity to transform the shape of the headgear and its parts (fields, tulas, peaks, etc.), determining the design of the products while searching for the formation zones. In addition, there is the formation of a product range across the entire line of designed products. In the figure 02, the processes of product design and product assortment are illustrated by the example of product design and headgear assortment for a teenage group.

## 7. Conclusion

The conducted studies prove the hypothesis of the effectiveness of the use of digital technologies based on the use of existing software products and their combination. The author's classification of headgear shaping by assortment and the use of a headwear proportioning matrix optimizes the fulfillment of tasks.

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