

- URL:<https://e-pepper.ru/news/iskusstvennyy-intellekt-v-marketinge-i-ne-tolko-benefitny-sposoby-primeneniya-i-5-poleznykh-instrumen.html>. – Дата доступа: 15.09.2022.
- Искусственный интеллект в рекламе: реальность и перспективы [Электронный ресурс]. – URL: https://sbermarketing.ru/news/artificial_intelligence. – Дата доступа: 14.09.2022.
 - Искусственный интеллект для маркетологов: Как с помощью машинного обучения увеличить прибыль [Электронный ресурс]. – URL: <https://incrussia.ru/understand/iskusstvennyj-intellekt-dlya-marketologov-kak-s-pomoshhyu-mashinnogo-obucheniya-uvelichit-pribyl/>. – Дата доступа: 13.09.2022.
 - Как использовать искусственный интеллект в маркетинге [Электронный ресурс]. – URL: <https://youscan.io/ru/blog/artificial-intelligence-in-marketing/>. – Дата доступа: 14.09.2022.
 - Технологии искусственного интеллекта при составлении плей-листов фоновой музыки фирменных магазинов / И. Н. Калиновская, Г. А. Яшева // Big Data and Advanced Analytics. – 2020. – № 6-2. – С. 165–171.
 - Development of the global market of artificial intelligence systems [Формирование и развитие глобального рынка систем искусственного интеллекта] [Электронный ресурс]. – Режим доступа: <https://elar.urfu.ru/bitstream/10995/90350/1/10.17059-2019-1-5.pdf>. – Дата доступа: 15.09.2022.

UDC 334

**ANALYSIS OF THE COMPETITIVENESS OF
PRODUCTS BY MEANS OF INFORMATION
TECHNOLOGY**

**АНАЛИЗ КОНКУРЕНТОСПОСОБНОСТИ
ПРОДУКЦИИ СРЕДСТВАМИ ИНФОРМАЦИОННЫХ
ТЕХНОЛОГИЙ**

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Keywords: textile industry, competitiveness, market profile, competitiveness polygons, competitiveness ratio, digitalization.

Ключевые слова: текстильная отрасль, конкурентоспособность, рыночный профиль, многоугольники конкурентоспособности, коэффициент конкурентоспособности, диджитализация.

Abstract. The article considers methods for analyzing the competitiveness of children's goods produced by Belarusian knitwear enterprises, a comparative analysis of the competitiveness of real products and an ideal product is carried out.

Аннотация. В статье рассмотрены методы анализа конкурентоспособности товаров детского ассортимента производства белорусских трикотажных предприятий, проведен сравнительный анализ конкурентоспособности реальной продукции и идеального продукта.

Light industry is one of the most important components of the industrial complex of the Republic of Belarus. In the light industry of Belarus, the largest in terms of output and the number of employed workers is the textile industry, which combines the production of all types of fabrics, knitwear, felting and other products based on fibrous raw materials. In modern conditions of global challenges, the issue of product competitiveness is of particular relevance [1]. During the fourth industrial revolution, the purpose of which is to optimize business processes based on the digitalization of the economy, the Belleprom concern has developed a concept for increasing the competitiveness of textile products, including the technical re-equipment of enterprises, updating and expanding the range of products, taking into account local raw materials and customer demand, enhancing search for markets. It is also planned to master and introduce progressive technologies in the production of yarn, fabrics, knitted fabrics, etc. [2].

The purpose of the study is to develop methods and tools for modeling and evaluating the competitiveness of products in the MS Excel environment.

Tasks:

- to develop a methodology for assessing competitiveness in the MS Excel environment and to test it;
- develop a computer model for assessing the competitiveness of textile industry products in MS Excel environment.
- develop recommendations for using the results of competitiveness assessment in making business decisions.

Object of study: cotton knitwear produced by knitting factories of the Republic of Belarus: JSC "Svitanak", Zhodino; JSC "PTF 8 March", Gomel; JSC "Kupalinka", Soligorsk.

The assessment of the competitiveness of the products of the above-mentioned enterprises was carried out on the basis of children's products, which, according to experts - specialists of the marketing department, have the greatest demand among buyers. A survey of buyers of products - commercial organizations was conducted in Zhodino and Minsk, and made it possible to identify the most significant indicators that affect the competitiveness of this group of goods: price (46 %); end-user demand (31 %); product design (14 %); delivery time (9 %) [3]. Therefore, the analysis of the level of competitiveness of the children's assortment was carried out according to the following indicators: comfort, external design of the product, materials used, fit of the

SECTION 2. SOCIAL AND ECONOMIC PROBLEMS OF EDUCATION AND SCIENCE DEVELOPMENT IN THE 21st CENTURY

model, tailoring quality, colors, prestige, packaging, brand, product cost, distribution channels.

The results of the survey in comparison with the characteristics of the ideal product and the relative deviations from the standard of indicators for assessing the competitiveness of the enterprises: JSC "Svitanak", Zhodino; OJSC "PTF 8 March", Gomel; OJSC "Kupalinka", Soligorsk are presented in Table 1.

Table 1 – Indicators of competitiveness of products of knitwear enterprises.

Options	The weight	Characteristic perfect product	Analyzed p/p "Svitanak"	Competitor 1 Kupa linka	Competitor 2 March 8	Analyzed p/p "Svitanak"	Competitor 1 Kupa linka	Competitor 2 March 8
Comfort	0,11	5	4	4	5	-0,2	-0,2	0,0
Landing	0,1	4	4	4	4	0,0	0,0	0,0
Composition of materials	0,09	4	2	2	3	-0,5	-0,5	-0,3
Tailoring quality	0,05	3	4	4	4	0,3	0,3	0,3
Color spectrum	0,06	3	1	1	1	-0,7	-0,7	-0,7
Design	0,08	4	3	3	4	-0,3	-0,3	0,0
Prestige	0,01	2	1	1	1	-0,5	-0,5	-0,5
Package	0,04	2	2	1	2	0,0	-0,5	0,0
Trademark	0,02	2	1	1	2	-0,5	-0,5	0,0
Price	0,07	4	3	5	3	-0,3	0,3	-0,3

The calculations showed that, in comparison with competitors, the overall competitiveness of JSC "Svitanak" is lower than the competitiveness of JSC "Kupalinka" ($2.64 < 2.73$) and JSC PTF "8 March" ($2.64 < 2.91$) the final coefficient of the overall competitiveness of each of the enterprises below the reference value (3.36). In addition, the final coefficient of competitiveness of each of the enterprises has a deviation from the indicators of an ideal product ($3.36 > 2.91 > 2.73 > 2.64$).

The table on the right provides information on the relative deviation from the standard for each position of the analyzed enterprises. The relative deviation of indicators from the standard varies from -0.7 to 0.3. So, for example, according to expert estimates, the products of JSC "Svitanak" for children deviate from the ideal in the following parameters: comfort, composition of the material, colors, design, prestige, brand, and price. However, in terms of planting, distribution channels and product packaging, the assessments of the experts of JSC "Svitanak" for children are equal to the reference ones. And in terms of the quality of tailoring, the products of JSC "Svitanak" are higher than the standard ones.

To quantify the level of competitiveness of the products of the enterprises under consideration, the calculation of the coefficients of competitiveness of the goods was

made [4]. Comparing the indicators, we can conclude, that children's products, for example, JSC "Svitanak" has the lowest coefficient of competitiveness in comparison with similar products of competing factories.

The results of the analysis are presented in Table 2 and illustrated in the histogram (Fig. 1).

Table 2 – Competitiveness ratios

	Analyzed p/p "Svitanak"	Competitor 1 "Kupalinka"	Competitor 2 "March 8"
Group index, I_1	1,96		2,23
Group index of the sample, I_2	2,5	2,5	2,5
Competitiveness coefficient, K	0,78	0,82	0,89

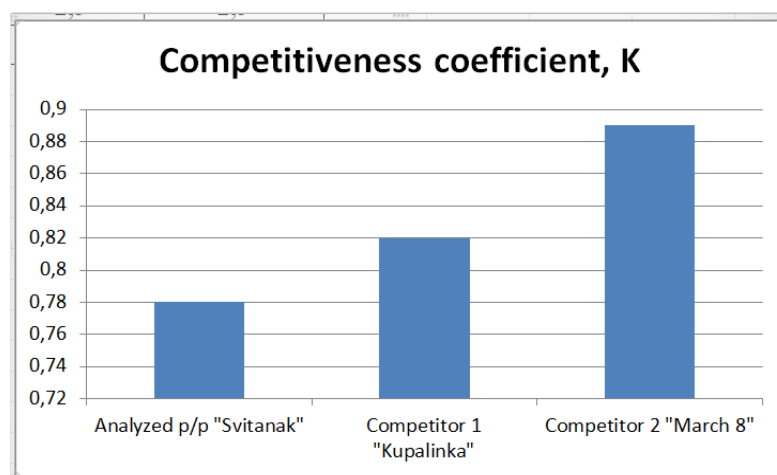


Figure 1 – Competitiveness ratio

As a result of the study, the weaknesses of the children's products of JSC "Svitanak", JSC "Kupalinka" and JSC PTF "8 March" were identified, which the specialists of these enterprises should pay attention to and properly approach the solution of this problem. In the future, the textile industry, as part of the light industry of Belarus, should be focused both on the maximum possible satisfaction of effective demand in the domestic market, and on achieving the greatest results in foreign markets. The proposed calculation model is universal and can be used to assess the competitiveness of any kind of industrial products.

References

1. Перспективы отрасли легкой промышленности – в проекте программы социально-экономического развития Беларуси на 2021–2025 годы. [Электронный ресурс]. – Режим доступа: <http://www.belleprom.by/press/news/db91f9c5b06fa1ed.html>. – Дата доступа: 20.03.2022.

2. Программа действий концерна «Беллегпром» по импортозамещению в 2017 году [Электронный ресурс]: Режим доступа: http://www.bellegprom.by/export_import/. – Дата доступа: 19.03.2022.
3. ОАО «Свитанок». [Электронный ресурс]. – Режим доступа: – <https://www.svitanak.by/content/franchayzing/> – Дата доступа: 05.04.2022.
4. Яшева, Г. А. Методы и инструментарий оценки эффективности и чувствительности стартап-проекта в среде ТП MS Excel в контексте формирования бизнес-стратегии / Г. А. Яшева, Е. Ю. Вардомацкая // Вестник Витебского государственного технологического университета. – 2020. – № 2(39). – С. 193.

UDC 339.138:004.77

CHAT-BOTS AS A TECHNOLOGY FOR THE INTERACTION OF ECONOMIC ENTITIES

ЧАТ-БОТЫ КАК ТЕХНОЛОГИЯ ВЗАИМОДЕЙСТВИЯ ЭКОНОМИЧЕСКИХ СУБЪЕКТОВ

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Keywords: automation, machine learning, chat-bot, artificial intelligence, digital marketing, customer service.

Ключевые слова: автоматизация, машинное обучение, чат-бот, искусственный интеллект, цифровой маркетинг, клиентский сервис.

Abstract. The article analyzes the possibilities of using chat-bots as one of the automation tools in digital marketing. The types of chat-bots, their advantages for business are considered, and an assessment is made of the effectiveness of their implementation in the organization's business processes.

Аннотация. В статье проанализированы возможности использования чат-ботов как одного из инструментов автоматизации в цифровом маркетинге. Рассмотрены виды чат-ботов, их преимущества для бизнеса, и выполнена оценка эффективности их внедрения в бизнес-процессы организации.

Automation is the most relevant trend in various business areas. More and more eCommerce companies are integrating machine learning and adopting chat-bots, which are becoming an important factor in the development of enterprises.

A chat-bot is a program that simulates a conversation with a user in natural language, allowing him to interact with a digital device as if he were a real person.