

BROCARD[®]
P A R F U M S

**Improving the Perfume & Cosmetics
Website Performance Capability
to Increase the Market Share**

ABOUT THE CLIENT

A large Ukrainian cosmetics and perfumery retail chain in the luxury segment, operating 100 stores in 26 cities and a multilingual website on Magento Open Source 2.2.6.

More than 350 brands of premium skin and hair care, beauty accessories are presented in their stores (Chanel, Lancôme, Guerlain, Clinique, Clarins, Givenchy, Gucci).

Region: Ukraine

www.brocard.ua

25

Years on the market

100

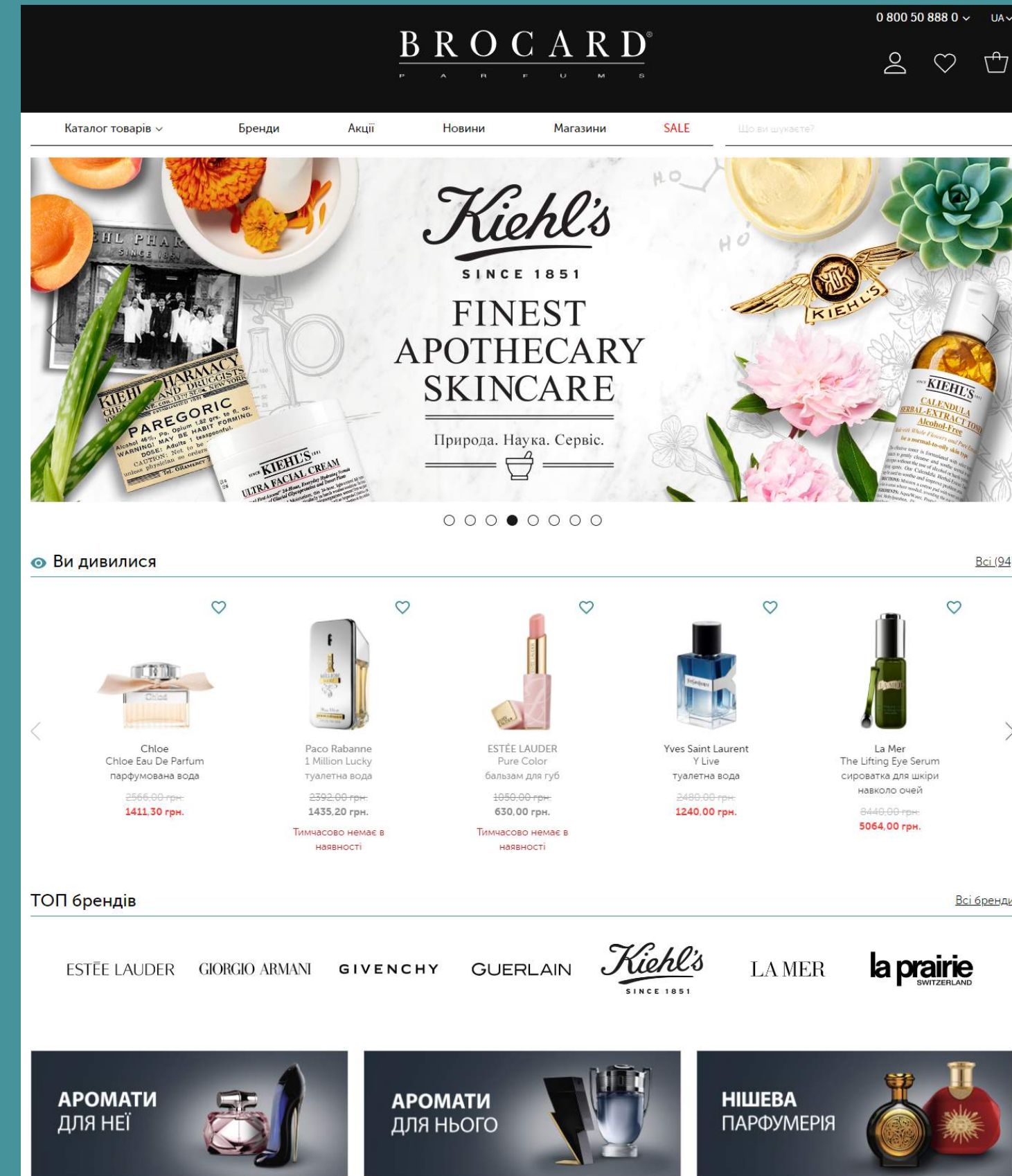
Stores all over Ukraine

26

Ukrainian cities where stores are located

350

World premium cosmetics and perfume brands



CHALLENGES

The client has an ambitious and well-defined goal to considerably increase their market share so that they commit enough resources to marketing efforts and come to us with a bunch of SEO tasks, new features and functionality that could help to attract more traffic and boost their sales.

They also reach out to us to improve the integration with the customized **ERP system¹ Microsoft Dynamics NAV²** that requires significant upgrades and advanced features for enhanced performance.

While we're working on these project tasks, another development team is dealing with the rest of the tasks so far. In other words, it means that we work on the client's project along with the other team of engineers, equally share our responsibilities, and coordinate our work with them.

1. ERP (Enterprise resource planning) system is business process management software that allows an organization to use a system of integrated applications to manage the business and automate many back office functions related to technology, services and human resources.

2. Microsoft Dynamics NAV is an enterprise information system designed to manage key processes within the company. It allows users to get a more detailed overview of what is happening in the company through a wide range of reports, automates processes related to finance, sales and marketing, production, warehousing and supply, and a lot more. It is designed for medium-sized companies that are looking for a software solution that excels in its simplicity, flexibility and intuitive user interface.

TEAM

- Project Manager
- Team Lead/Senior Full-Stack Developer
- DevOps Engineer
- 3 Back End Developers
- 3 Front End Developers
- QA Team Lead
- QA Engineer

SOLUTIONS

We begin working on the project by conducting an initial audit and code review to introduce SEO features. While carrying out the analysis, our specialists find out that the website contains several bottlenecks that are more crucial than the SEO tasks and should be fixed first. One of such critical pain points is the performance that needs significant improvements.

We discover that the website can carry the load of maximum 100-150 simultaneous users, and with a purpose to disable the **500 error**³ display and make the website work well, we tackle code refactoring.

After that, the client gains confidence in our delivery and goes on working fully with our development team without involving the original developers.



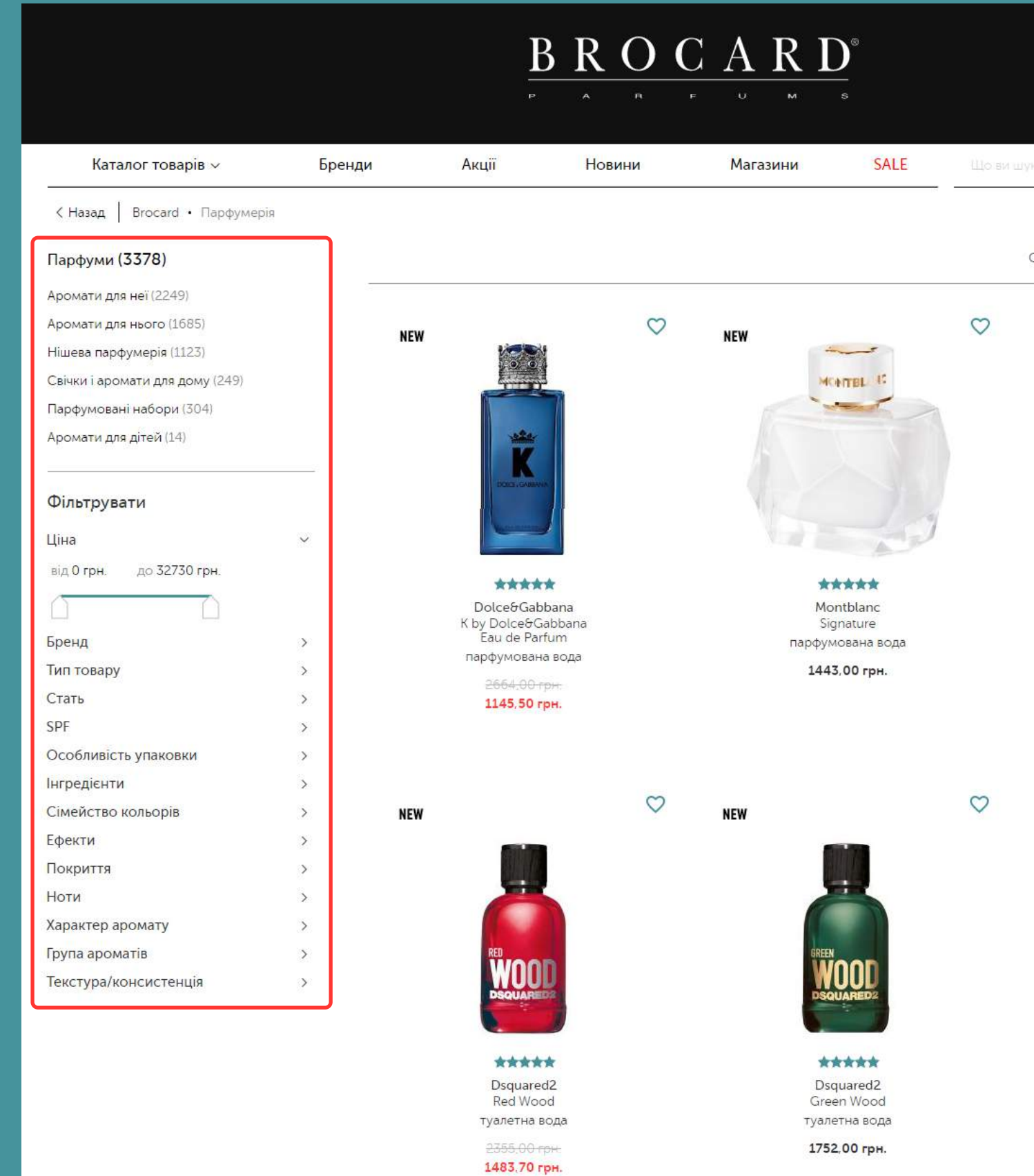
3. 500 error is a very general HTTP status code that means something has gone wrong on the web site's server but the server could not be more specific on what the exact problem is.

DEVELOPMENT

One of the most critical website performance indicators is the web page loading speed, which directly and significantly affects the conversion rate. According to the comprehensive [Akamai Online Retail Performance Report](#), a delay of at least 100 milliseconds can result in reduced conversions by 7%.

We generally use the basic PageSpeed Insights tool to analyze this metric, which shows us that the slowest part of the website with a huge drop of traffic is layered navigation, which is closely related with the functionality of Shop by Brand (which you can find below in [Features](#)). The layered navigation usually appears in the left column of search results and category pages allowing users to narrow their search and find products quickly.

We carefully refactor layered navigation and Shop by Brand all together to avoid the domino effect. For the same purpose, we entirely rework and optimize the store menu, which is a part of the header displayed on every webpage. As a result, we make the system fast enough to meet the website speed loading standards.



Layered Navigation

An additional important aspect of the project is the server side, which needs to be significantly renovated. For this purpose, we communicate with the client and offer options where to set the whole system. At the same time, the client conducts internal workshops and eventually decides to move the existing system to the [AWS⁴](#) hosting. It's a flexible cloud web solution for ecommerce businesses, which is used as a provider by 5.7% of all the websites, as reported by [Web Technologies Surveys](#).

We configure the server part of the system in collaboration with their DevOps Engineers and select a specific configuration of settings to meet their requirements of carrying a heavy load of simultaneous users.

We also make the whole infrastructure scalable and adaptable to the website traffic with instances that automatically grow and reduce – the [AWS Auto Scaling⁵](#) solution. We often use it for our client's online store optimization, as for instance we [successfully did it for the French clothing store](#).



4. AWS (Amazon Web Services) is a subsidiary of Amazon that provides on-demand cloud computing platforms and APIs to individuals, companies, and governments, on a metered pay-as-you-go basis. In aggregate, these cloud computing web services offer a set of primitive abstract technical infrastructure and distributed computing building blocks and tools.

5. AWS Auto Scaling monitors your applications and automatically adjusts capacity to maintain steady, predictable performance at the lowest possible cost. Using AWS Auto Scaling, it's easy to setup application scaling for multiple resources across multiple services in minutes.

We eventually put the finishing touches on the integration with the customized ERP system Microsoft Dynamics NAV by improving a part of its architecture and making a full import of the entire catalog and all information related to products.

The ERP system allows effective and quick managing prices that follow a specific pattern to meet the client's business needs, contain different wholesale, retail prices, and discount cards to deliver a personal touch in customer experience.

For example, if a product discount is 30% and a customer has a discount card with 10%, then they don't sum up, instead, the system chooses which option has a bigger discount. Customers also see different prices depending on whether they are guests or registered users. If a user logs in on the checkout stage, the prices on products in the shopping cart are updated dynamically.

The price calculation system depends on a range of factors and conditions, such as cards, user groups, promotions, a period of promotions, which are calculated on both sides of Microsoft Dynamics NAV and Magento.

The system regularly updates price information and checks its relevance once a product is added to the shopping cart – whether there's such a quantity in the stock or not and analyzes if a price matches. If there's a match for both options, the product is added to the cart, if not, a customer sees a validation message. To exclude situations when a customer puts an item into the cart, stays away, and then returns to the shopping cart again, we go the extra mile and implement one more test on the checkout page for availability and price validity.



Afterwards, we delve into expanding the Magento native capabilities so that the website can carry a heavy load of simultaneous users.

We perform the load testing with [JMeter](#)⁶ on an ongoing basis on different ecommerce projects, which has proved to be an effective tool.

It's usually a process of putting a synthetic load on the whole system and finally measuring its capacity. Although the shopping cart and the checkout process work fast, the main challenge is to receive instant results on prices from the ERP system, as we need to get quick responses according to the particular number of users.

It works in the following way: we simulate 2,000 users with products in their shopping carts as an example, then the ERP system receives this information, processes it, and comes up with a response. We analyze how quickly the system reacts and record this information, after that, we upgrade the infrastructure. For instance, we could increase the server's capacity or allocate more storage space for some technical processes if it's necessary. Afterwards, we remove bottlenecks in the code that we revealed, and repeat the same flow of actions to see the progress.

As a result, we gradually optimize the bandwidth of the system from 300 to 3,300 simultaneous users.

Alongside with these tasks, we work a lot with the client's in-house marketing team, who usually plan and launch advertising campaigns targeted at specific audiences in search engines and social networks to promote product, categories, brands. That is the main reason why they need separate webpages dedicated to exclusive discount offers with applied product filters by 1-2 options, so that we considerably improve the URL structure for configurable products and develop promotional URLs from scratch.

We also provide the client's marketing team with an option to effectively and quickly manage the data feeds for the social networks and marketplaces, automate the workflow, check product availability and prices by introducing the Feed Controller.

⁶ [JMeter](#) can be used as a load testing tool for analyzing and measuring the performance of a variety of services, with a focus on web applications. JMeter can be used as a unit-test tool for JDBC database connections, FTP, LDAP, Webservices, JMS, HTTP, generic TCP connections, and OS native processes.

DEVELOPMENT

01. Reworked the Backend logic that needed fundamental improvements
02. Optimized the Frontend part to improve the website performance and speed up its loading
03. Developed the server component and moved the existing system to the AWS hosting
04. Performed the main project assignment along with a bunch of regular SEO tasks
05. Maintained a balance between satisfying website performance and improving the functional part



FEATURES

1. 'Shop by Brand' for brand partners

As the client's business is associated with brands and involves a partnership with some of them, we implement unique extended functionality to increase their loyalty and meet their changing needs and desires.

The brands are implemented in two different types: common ones and partners that require separate pages developed in the corporate identity with logos, colors, banners, texts, etc. The brand representatives also require custom filtering logic and specific catalog structures on their pages that work individually for each brand.

For example, the Dior catalog structure includes the following sections – About Dior, Dior Backstage, Makeup, Men's perfumes, Skincare, Women's perfumes, while the Yves Saint Laurent catalog structure features – About Yves Saint Laurent, Perfumes, Makeup, Bestsellers, Sets. Meanwhile, the Givenchy brand webpage structure consists of sections: About Givenchy, Perfumes, Makeup, and Skincare.

Filters for brands work individually as well.

The screenshot displays the Dior brand page on the Brocard website. At the top, the navigation menu includes 'Каталог товарів', 'Бренди', 'Акції', 'Новини', 'Магазини', and 'SALE'. The breadcrumb trail shows 'Назад | Brocard • Бренди • Dior'. The main header features the Dior logo and a large banner for 'Dior HOMME SPORT'. Below the banner, there is a list of product categories: 'Про Dior', 'Dior Backstage', 'Макіяж', 'Чоловічі аромати', 'Догляд за шкірою', and 'Жіночі аромати'. A filter sidebar on the left allows users to filter products by 'Ціна' (Price), 'Тип товару' (Product Type), 'Стать' (Gender), 'Область застосування' (Application Area), 'Вік' (Age), 'SPF', 'Тип шкіри' (Skin Type), 'Властивість/дія' (Property/Action), 'Особливість упаковки' (Packaging Feature), 'Інгредієнти' (Ingredients), 'Сімейство кольорів' (Color Family), 'Ефекти' (Effects), 'Покриття' (Coverage), 'Ноти' (Notes), 'Характер аромату' (Fragrance Character), 'Група ароматів' (Fragrance Group), and 'Текстура/консистенція' (Texture/Consistency). The main content area shows two product listings: 'Dior Joy' (perfumed soap) and 'Dior Capture Totale Cell Energy' (serum). Each listing includes a star rating, the product name, and the price.

#1 'Shop by Brand' feature: Dior catalog

2. User-friendly search

According to our audits and investigation, the initial website search is not user-friendly enough and displays irrelevant search results. To quickly and efficiently solve this problem, we install a module based on the autosuggest in [Elasticsearch](#)⁷.

Later on we track the efficiency of the newly implemented solution and eventually discover that several different products with similar titles (such as lipstick, lip gloss, and lippen) aren't displayed correctly because such ready solutions work not so effectively and well enough for the Cyrillic alphabet.

Therefore, we decide to gradually refine the search on the website and implement [Multisearch](#)⁸, which is a paid service that provides a selection of words based on the specific rules and has a bunch of synonyms for the Cyrillic alphabet. It also has an option to customize search and ranking algorithms.

7. Elasticsearch is a search engine based on the Lucene library. It provides a distributed, multitenant-capable full-text search engine with an HTTP web interface and schema-free JSON documents. Elasticsearch is developed in Java.

3. Registration & checkout flow

As the client's customers have discount cards, we implement specific functionality for them to quickly connect their profile on the client's website with a card received in the offline store and instantly enjoy the advantages.

During the registration process, a customer enters a phone number, email address, name, while the system starts searching for such an owner of a discount card, according to the hierarchy and logic of these fields with data. Once the system finds a match, it immediately links a relevant profile with a discount card.

Afterwards, we also implement an SMS-verification for ensuring that the customer owns a particular discount card. After confirmation, a user could proceed to the checkout step and use a discount card there. Finally, as soon as an order is created, it automatically moves to the ERP system.

8. Multisearch is a multitasking search engine which includes both search engine and metasearch engine characteristics with additional capability of retrieval of search result sets that were previously classified by users. It enables the user to gather results from its own search index as well as from one or more search engines, metasearch engines, databases or any such kind of information retrieval (IR) programs.

4. Integration with offline stores

The client's business has a retail chain of about 100 offline stores throughout Ukraine, and each store has their own promotional strategy and schedule with marketing activities. To engage customers, improve their retention rate, and ensure the omnichannel user experience, we create an entity of shops in Magento and receive information about them from the ERP system – offline store addresses, phone numbers, working hours.

We implement a custom store locator for users to easily and quickly find the nearest store on the map. Then we move further and implement a specific function for users to see all the promotions in the online and offline stores on the Discount web page and filter them according to the location.

5. Product labels

The store also features a range of labels – hits, new items, and best sellers – that are easily managed in the admin panel and smoothly fit the images. There is a specific hierarchy of such labels, so that if a product aligns with several labels at once, one of them is preferred to the rest, which look well-organized and catchy as a result.

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Каталог товарів ▾ | Бренди | Акції | Новини | Магазины | SALE

< Назад | Brocard • Акції

Усі акції мережі магазинів BROCARD

Категорії акцій

- Всі (31)
- Інтернет магазин (10)
- [Роздрібна мережа \(23\)](#)

Виберіть магазин

Місто:

Магазин:


Категорії товарів

- Аксесуари
- Набори
- SALE

Види акцій


- Знижка
- Акції та подарунки

SHAKIRA




Мрії збуваються - Shakira
з 12 жовтня по 25 жовтня 2020

Venus




Турбота і догляд з Venus
з 12 жовтня по 25 жовтня 2020

Chloé



Стильний Chloe
з 12 жовтня по 25 жовтня 2020

paco rabanne



Грація грецької богині - Paco Rabanne
з 12 жовтня по 25 жовтня 2020

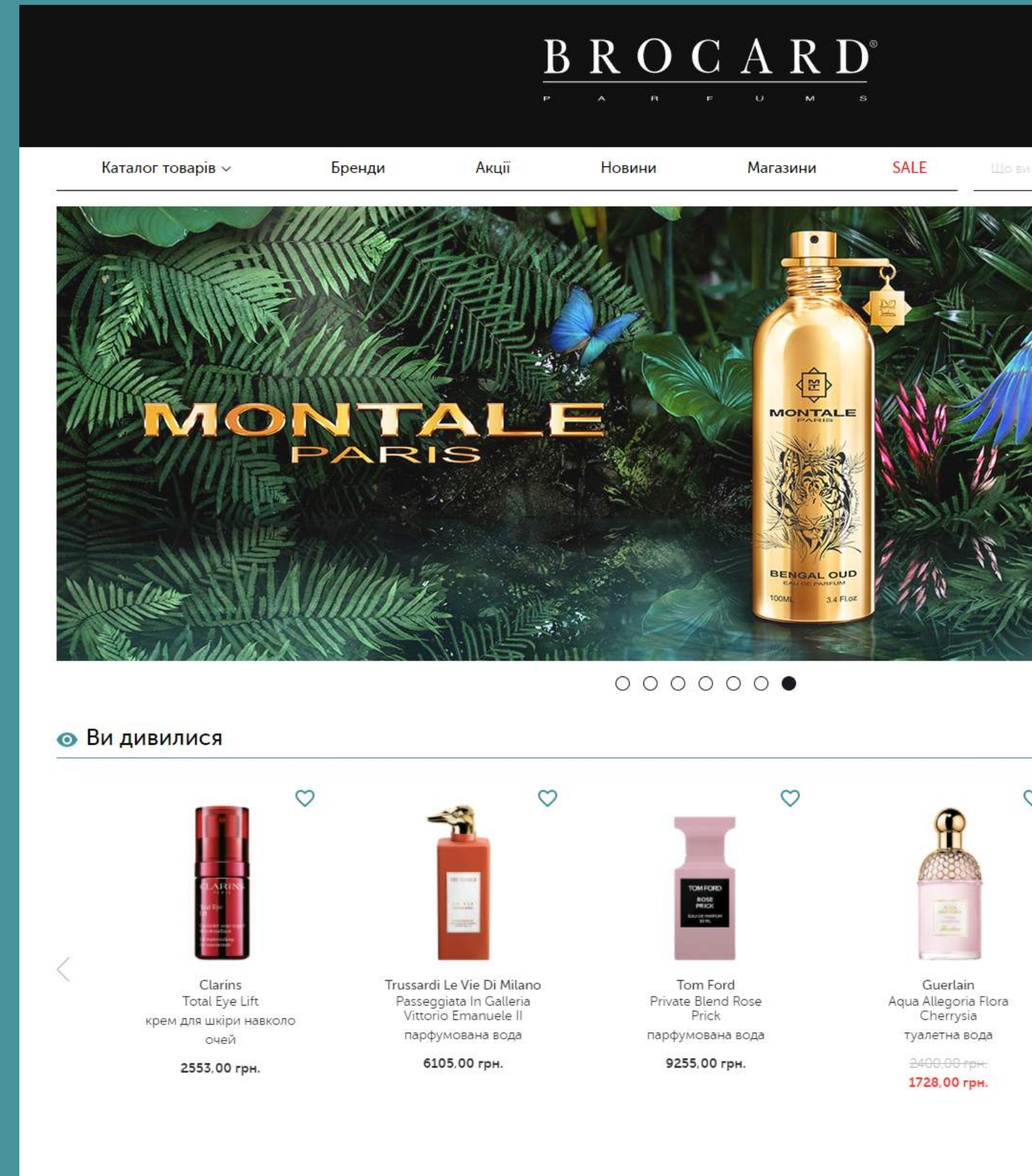
6. Homepage Manager module

As stated by the [CXL research](#), the average ecommerce bounce rate is more than 45%, that's why it's essential to catch users' attention at first sight on the homepage and retain them as long as possible.

Also, according to the [Taylor & Francis Online Report](#), it takes only about 50 milliseconds for users to form a complete opinion about whether they'll stay on the website further or leave, which provides another confirmation in enhancing a homepage and paying attention to its design and content.

Our client's website managers on a regular basis change the content on the homepage to promote sales, products, categories, and brands. That's the reason why we provide them with a custom Homepage Manager Module that allows quickly and easily adding banners, links, product sliders, and carousels without involving developers.

All the website admins need to do is to choose an appropriate view, fill in the content, and drag products to demonstrate them on the homepage. Content blocks can be easily edited, duplicated, and deleted in a couple of clicks right in the builder module.



#6 Online store homepage

RESULTS

- 01. Expanded the capabilities of the Magento website to carry a load of simultaneous users 10 times larger than initially
- 02. Reworked the architecture of the custom Microsoft Dynamics NAV ERP system to make the price logic work according to customer groups
- 03. Introduced a unique 'Shop by Brand' feature to increase the loyalty of brand partners
- 04. Implemented a user-friendly search that displays relevant results for the Cyrillic alphabet
- 05. Provided the client with the module that allows changing the homepage content without involving developers



LET'S HAVE A CHAT

Choose the most convenient way of communication for you – write an email or contact us in one of the messengers. We'll discuss your project – provide individual calculations and offer our suggestions on how to upgrade your business.

Email:

sales@magecom.net

Office:

United Kingdom
102 Wornington Road
London W10 5QP

Phone:

+44 7491 43 5563

Messenger:

[SKYPE](#)

[FB MESSENGER](#)

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