# Headless – the modern e-commerce solution

Recent months and the COVID-19 pandemic have forced entrepreneurs to look even more closely at their business. Those who run e-commerce know how important for the stability of the store platform is its high performance and safety.

With the closure of the brick-and-mortar stores, many brands have recorded an increase in online sales. With such an increase in traffic, it may turn out that the current monolithic architecture is not enough to scale the business.

Headless solutions can not only improve the management of an online store, but also provide users with an excellent shopping experience. From our ebook you will learn what are the advantages of headless and why it is worth investing in it today.

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# What is headless?

It is a technology that allows to separate the backend (i.e. the whole technical background responsible for the operation of the application) from the frontend (i.e. everything that the user sees). Why is such separation beneficial? Because it enables, among other things, better optimization of the service, adjusting it to the user's expectations or experimenting on the front side without „tampering" the backend.

**Let's take a look at the traditional model of an online store. It consists of three elements:**

1. **A database** in which all product information, such as photos, descriptions, product names are stored.

2. **Backend,** which is the layer that processes information from the database, together with the CMS to manage the store.

3. **Frontend**, i.e. the part visible to the end user, e.g. the shop's customer.

**In the headless model**, the third part (head), i.e. the frontend, works independently of the rest, and communicates with it via API.

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Until recently, the digital presence of companies was limited to a website, which usually had an informative and image role. **Today, having a responsive website is no longer enough, and brands must provide a consistent user experience across all channels.** As well as consuming content on different devices, users interact with the brand using artificial intelligence, Internet of Things devices, chats and other technologies.

The growing number of touchpoints forces entrepreneurs to take a broader view of the services offered and programmers to look for solutions based on headless and microservices technologies.
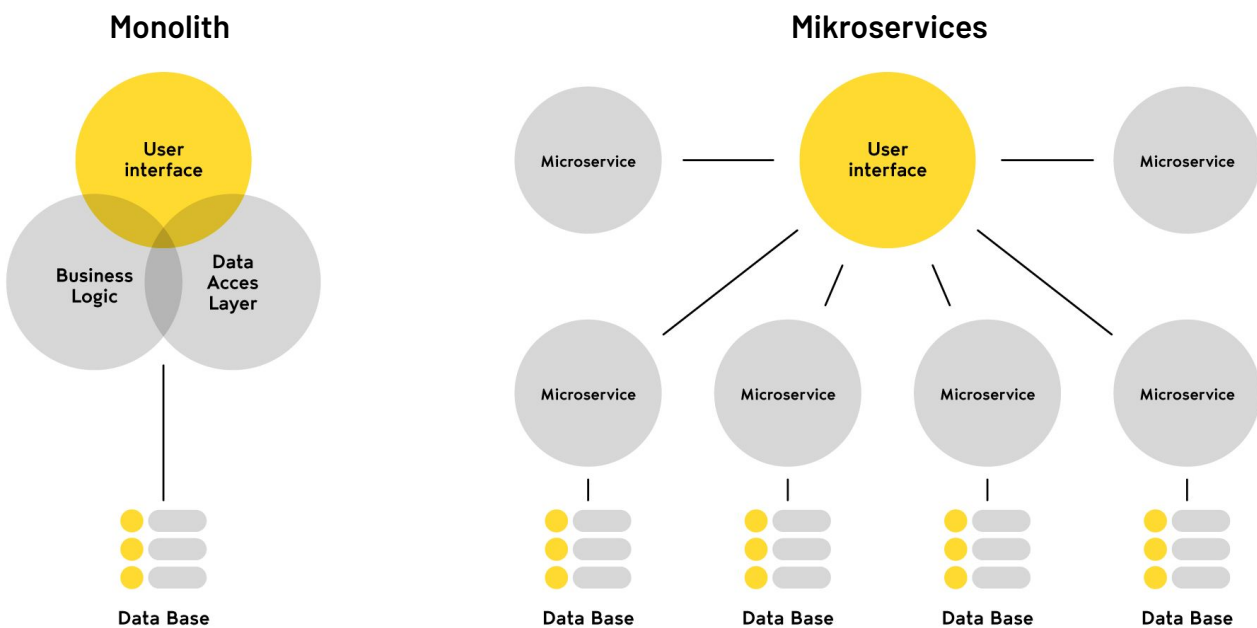


Headless is a good solution for all those who want to transform their corporate website into an online store. With the emergence of such a business need, there is a problem of combining a huge amount of content with a shop engine. The solution is headless, because it allows such a connection without the need to create a shop website from scratch and import data, content or product descriptions from the old version into it.
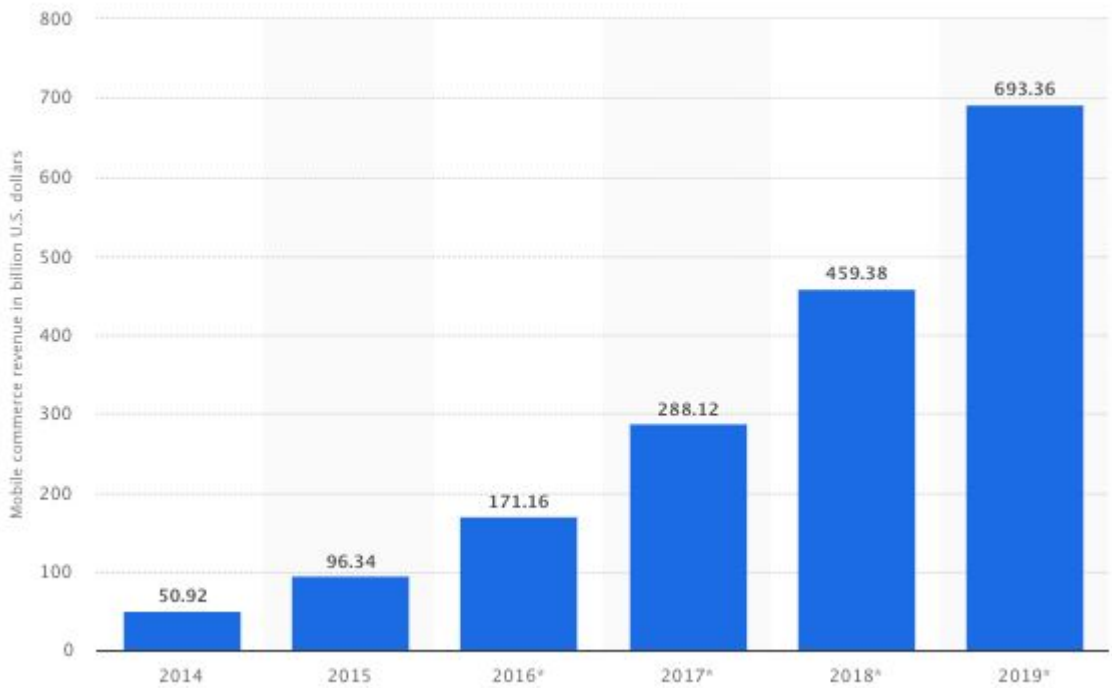
# A few words about microservices

It is impossible to talk about headless without mentioning microservices. Microservices architecture is used in modern systems and consists of a combination of both internal and external services connected by their API. In such a model, each service is self-sufficient and pursues a specific business purpose. Unlike the monolithic architecture, which was based on one common engine, when we want to make a change in a given service, we work on a specific microservice and not build a system from scratch.

Next-generation systems are built in the headless and API-first model, which means they can be easily integrated into any other application, regardless of the technology used.

**Monolith**

**Mikroservices**

User interface

Business Logic

Data Acces Layer

Data Base

Microservice

Microservice

User interface

Microservice

Microservice

Microservice

Microservice

Microservice

Data Base

Data Base

Data Base

Data Base

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# Mobile shopping - now and then



Source: statista.com/statistics/557951/mobile-commerce-transaction-value-worldwide

The majority of large shopping platforms were created at a time when desktop shopping was the most popular and mobile commerce was just emerging on the horizon. Shops created at that time were adapted to computer screens. Few people suspected that in some time, shopping will be done not only on computers, but also from the smartphones, tablets, with the use of voice, bots, with the use of artificial intelligence mechanisms, through social media channels and even with the use of ... a button (Amazon Dash Button).

The development of omnichannell and the multitude of ways of communicating with users is a great opportunity and challenge for brands at the same time. E-commerce providers can reach their customers in new ways, but they need the right tools to do so. And when it comes to modern solutions headless is the best answer.

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# What are the benefits of headless?

E-commerce is a very competitive industry. Especially today, when online sales are becoming increasingly important and entrepreneurs are moving their businesses to the Internet.

**Success depends largely on the ability to offer customers a consistent, easy and customized shopping experience in all channels.** That's why more and more managers are choosing to use headless technology to increase business flexibility and scalability and provide the best possible shopping experience.

Headless often goes hand in hand with PWA (Progressive Web App). Thanks to this solution, users can easily install the store website on their phones. The experience of using the service is then comparable to using native mobile applications.

Headless is a combination of simplicity and convenience of use using the latest technologies. PWA is a combination of the best of both browser and application use. **Together they make a great team, which will improve the operation of an online store and improve the shopping experience of users.**

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# Headless advantages

### Multiple views with one backend

You can adjust the shop view to different devices. With an API that connects the backend to the front, we can create a completely separate appearance for your store, POS system or mobile application.

### Better performance

With fewer queries to the database and updates without involving the backend. As with PWA, faster operation of the site can increase conversion in the store.

### Flexibility

This means that you can use any language and framework, depending on your needs.

### Better security

Using headless minimises the number of potential threats and "vulnerabilities" in the service through which you can hack into the system.

### Easier order processing

With the ability to manage all devices from one place.

### Customization

Thanks to headless you don't have to use ready-made solutions, you can adjust both the backend and frontend layer to your needs.

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In headless e-commerce you can update the system (e.g. adapting it to the requirements of new smartphones) without worrying about the instability of the whole platform. T**hanks to this, the store is even faster and better suited to the customers' expectations.** Such updates can be made more often, without the need to involve the whole team and deploy (implement changes) made at night. Updating the frontend layer will not affect the backend or order processing.

**Additionally, you can experiment with the store's appearance without fear of slowing it down.**

A stable and efficient shop platform is a must. Headless commerce is especially useful during sales peaks (promotional campaigns, Black Friday), when you need a system that can handle a large number of orders without overloading the backend.

It should be remembered that headless requires a well qualified team (often with higher hourly rates), which increases the time and cost of implementation of this solution. In order to minimize the risk of failure of such a project, it is worth to choose an e-commerce agency, which has extensive experience in implementing headless.

**See our selected projects using headless.**

# Case studies

# Castorama

## Headless has increased the page loading speed

Castorama is one of the largest online stores in Poland, handling very high traffic (up to 7 million sessions per month, April 2019). For this reason, the customer needed a solution that, despite such a traffic load in the store, will ensure the appropriate speed of loading the site and meet the expectations of modern consumers. **The headless project we have carried out for Castorama is the first implementation of this solution in the DIY industry in Poland.**

## 1,8 s

the page loading time has decreased - currently it is 1.8 seconds (GTMetrics data)

## 97 pt

page loading speed scored 97 out of 100 points in test conditions (Google Page Speed Insights)
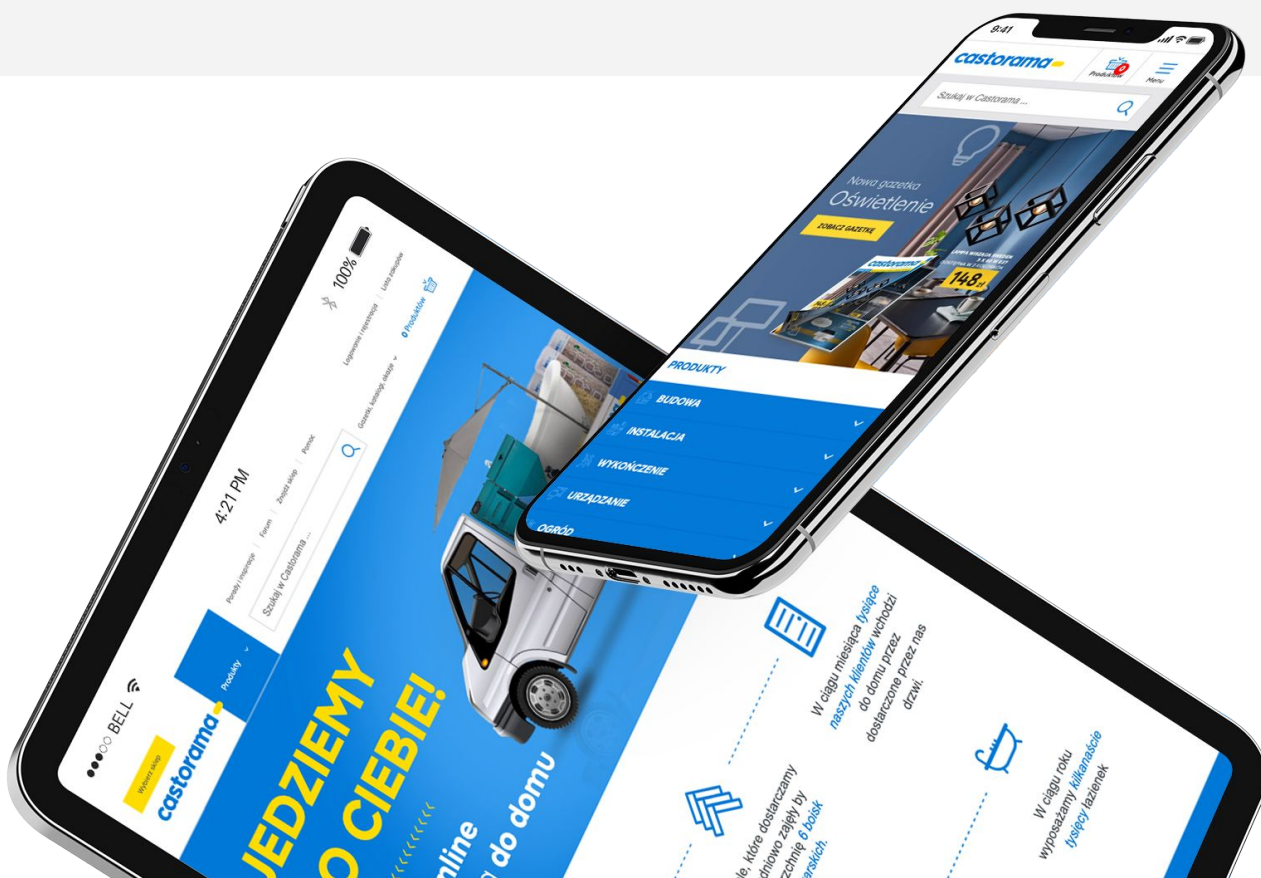
# Ergonode

## PIM system more efficient with microservices

Ergonode is an open-source PIM system that simplifies and improves product information management in e-commerce. It is a simple and ergonomic platform that enables creation, management and distribution of product information to multiple channels. From the frontend side, headless is used using Vue.js. **Thanks to this, we have achieved an increase in performance and speed of the application, as well as readiness to fully adapt the system as a Desktop Progressive Web App.**

Frontend and backend layers are based on microservices and communicate via API.
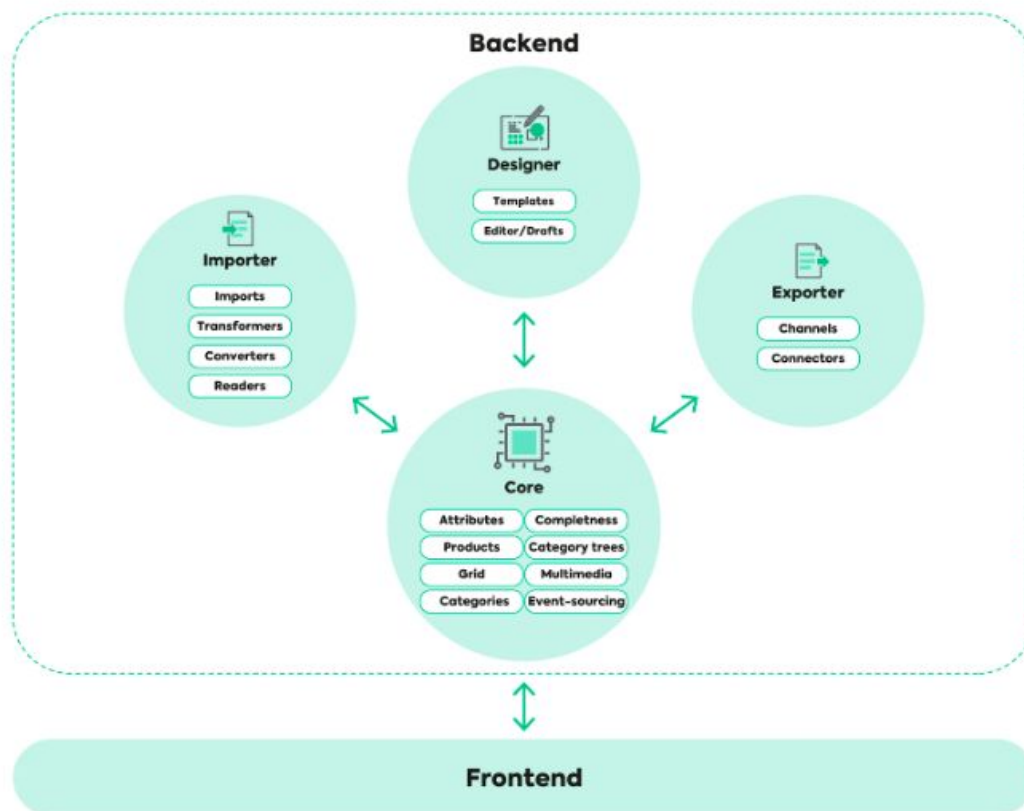
Thanks to the use of headless technology and microservices architecture we managed to achieve our goals:

- Enabling other developers to create their own functionality without interfering with the core application.
- Easy to add and manage modules.
- Separate business contexts from the backend and frontend.
- Modules can be written by different teams, which have separate tasks.
- The base application code remains unchanged and only the core team can modify it.
- The client's instances are independent and can be easily expanded and the installation of finished modules is very easy.
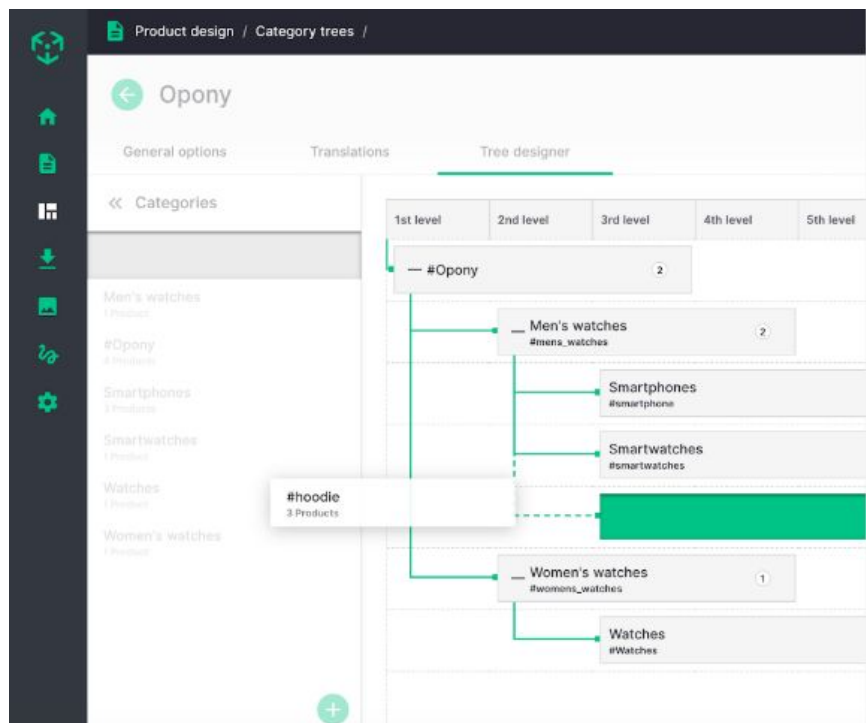
# 200k +

products managed
in real time

## Technologies used:

# Summary

# A few things to remember

Customers, especially those already raised in digital reality, **require fast, trouble-free purchases with different devices.** The winners are those shops that are able to provide them with the best possible shopping experience.

> Traditional e-commerce platforms operate in a monolithic model, i.e. close integration of front and backend, often requiring a middle layer to facilitate communication between them. However, when the backend functions are so closely linked to the frontend layer, the ability to adapt the platform to different customer needs drastically decreases.

Things get even more complicated when we add m-commerce, which means mobile shopping. It's hard to ensure a consistent experience for the omnichannel era without taking proper care of every sales channel. By separating backend and frontend layers, companies eliminate this complexity and can make changes to each of them according to their needs. Integrating APIs, creating new marketing channels and adapting sales models to market reality is easier with headless.

**Finally, it is worth noting that headless is not a revolutionary way of looking at today's e-commerce, but rather a logical step in the development of it.**

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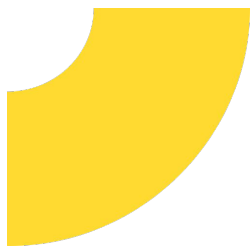
Are you thinking about using headless technology in your online store? Contact us. We will prepare an individual strategy and efficiently **implement headless in your company.**
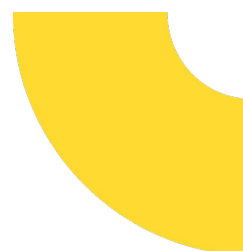
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