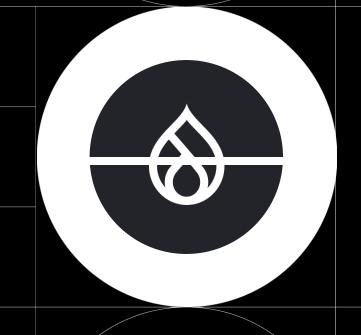
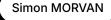


# Decoupled Drupal: Are We There Yet?



Midcamp 2025

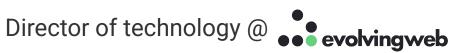






# Bonjour!

## **Simon Morvan**



https://www.drupal.org/u/garphy

ABOUT EVOLVING WEB







PRINCETON UNIVERSITY

We help our clients bring their digital experience to life



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**McGill** 





















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# Connect Learn Inspire

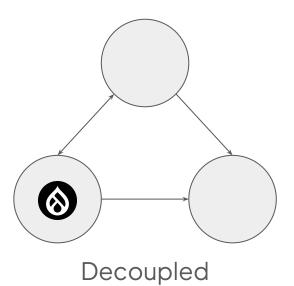
1-Day Digital Innovation Summit Case Studies in Open-Source, AI & UX



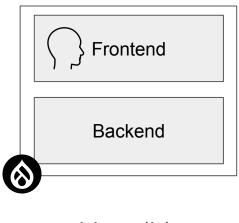
# What is decoupled?

- Multiple components
- Distributed systems
- Service oriented architecture
- Microservices
- ..

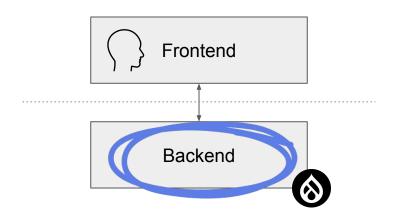




# What is headless?



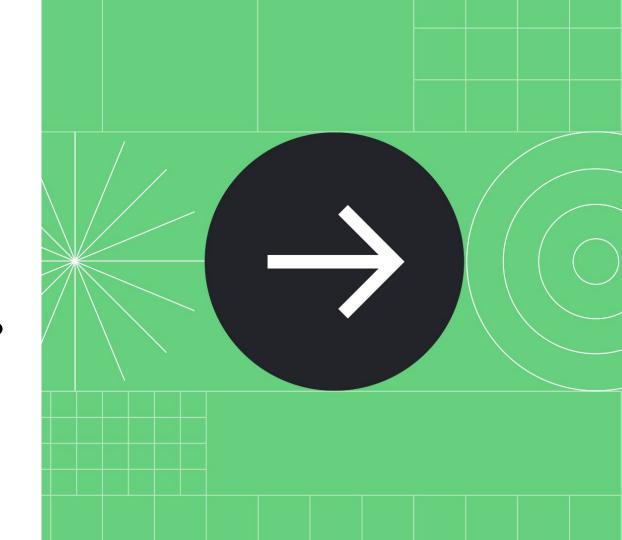
Monolith



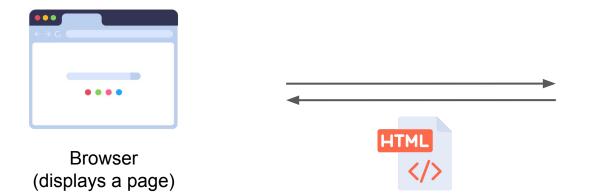
Decoupled

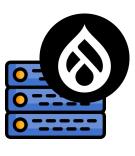
A decoupled solution with a headless CMS

How does it work?



# How Drupal typically works





Server

# How Decoupled Drupal works



Browser (runs an app)





Server

# What is headless decoupled Drupal



A <del>decoupled</del> headless backend to do backend stuff

- Content modeling
- CMS features
- Storage (data, media, ...)



A separate web stack to do frontend stuff

- Fetch the data
- Present the data
- Stateless

An API in between



# Actual use cases

- Websites (that don't reload)
- Productivity apps (M&A projects management, hospitality & business trip organizers, ...)
- Web learning platform, with e-commerce
- Content delivery Desktop app, with offline features
- Content production platform, with translation in 16 languages

Not just "Drupal websites made with React" 😀

# Push the limits

- Advanced UX, interactions and animations
- Better performance, Increased security
- Multiple channels, sharing content
- Reinforce your content governance
- Leverage existing teams, skillset and components
- Long term backend investment





## Installation

Shortcuts

the app icon.

Using the beforeinstallprompt event, a native dialog can be displayed to install a web app

Shortcuts provide quick access to pages in your app from

Media capture allows web apps to use the camera and



## Offline support

The Service Worker enables web apps to work offline

The View Transitions API enables app-like transitions



## Notifications

The Notifications API enables web apps to display notifications, even when the app is not active.



## Geolocation

The Geolocation API enables users to share their location



with web apps.



## File System

Access to the file system of the user's device



## Picture-in-picture

View Transitions

between pages.

The Document Picture-in-Picture API makes it possible to open an always-on-top window that can be populated with arbitrary HTML content



## File Handling API



.....

## Authentication

Face detection

Element Capture

data in the user's browser.

record specific HTML elements.

Media capture

microphone of a device

Web Authentication API (WebAuthn) enables passwordless authentication through your device's fingerprint reader or an external USB Security Key.

The Contact Picker API allows web apps to select the user's

The Media Session API allows web apps to display controls

Element Capture enables screen capturing web apps to

The Storage API enables web apps to persist structured

Augmented reality enables web apps to place virtual objects

The DeviceOrientationEvent gives information about the

contacts after permission has been granted.

The Shape Detection API detects faces in images.

for media playback on a device's lock screen.



## Protocol Handling

Protocol handling enables web apps to register their ability to open links with particular URL schemes.



The File Handling API enables web apps to register as file handlers with the operating system



Vibration

Audio Session API

should mix with audio from native apps.

Background Sync API

connection is restored. Bluetooth

write values to it. Payment

card, Apple Pay or Google Pay.

Speech recognition

The Web Share API invokes the native share mechanism of the device and allows users to share text, URLs or files.

The Vibration API enables web apps to make a mobile device

The Audio Session API configures how audio from web apps

The Background Sync API enables web apps to defer tasks

when it's offline so they can be run when the network

The Web Bluetooth API enables web apps to connect to

Bluetooth Low Energy (BLE) devices and read values from or

The Payment Request API provides a browser-based method

to enable users to make payments on the web, using a credit

The DeviceMotionEvent gives information about the speed

of changes for the position and orientation of the user's



## Barcode detection

The Barcode Detection API detects barcodes and gr-codes



## Audio recordina

Record audio using MediaRecorder and visualize audio using



Web Audio API.



## Screen Capturing

Capture Handle and Captured Surface Control enable screen capturing web apps to remotely control captured web apps.





## Background Fetch API

The Background Fetch API enables web apps to download large files in the background even when the app is running.



The Web NFC API enables web apps to read and write to





## Wake lock

The Screen Wake Lock API enables web apps to prevent devices from dimming or locking the screen when the app needs to keep running.



## Network info The NetworkInformation API provides information about the

connection of a device, allowing web apps to adapt functionality based on network quality.



hehaviour

Multi touch Touch events enable web apps to capture complex touch



in reality.

## Speech synthesis

Speech synthesis provides text-to-speech and allows programs to read out their text content.

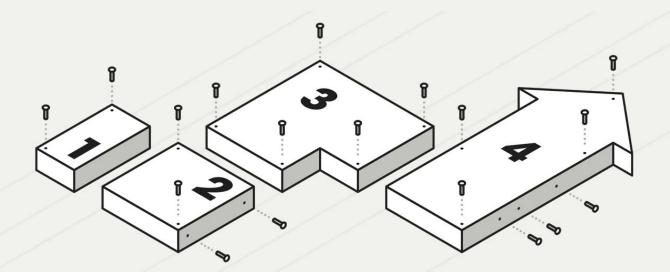
physical orientation of the user's device.



## Speech recognition is part of the Web Speech API and provides the ability to recognize voice context from an audio

# **Architecture decisions**

- Structure the content
- Connect backend and frontend
- Build the application
- Deploy!



# Content architecture

- Think semantically, not visually
- No WYSIWYG in most cases
   but supports preview of draft revisions
- A Paragraphs-based structure is usually preferred
- Layout Builder is possible

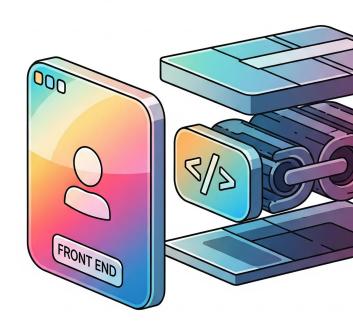
# JSON: API vs GraphQL

Mostly equivalent in terms of features.

- Listing entities
- Fetching specific entities
- Retrieve complex content (multiple entities)
- Invoke business logic

Can be complementary.

JSON:API is part of Drupal Core since Drupal 8.



Assembling all the pieces

# Deployment models

Single Page Application (SPA)

The "classic" dynamic deployment model of the code.

Static Site Generation (SSG)

Pre-render (extract) content from the CMS

Code change and content change

Also: ISR, PPR, CSR, ...



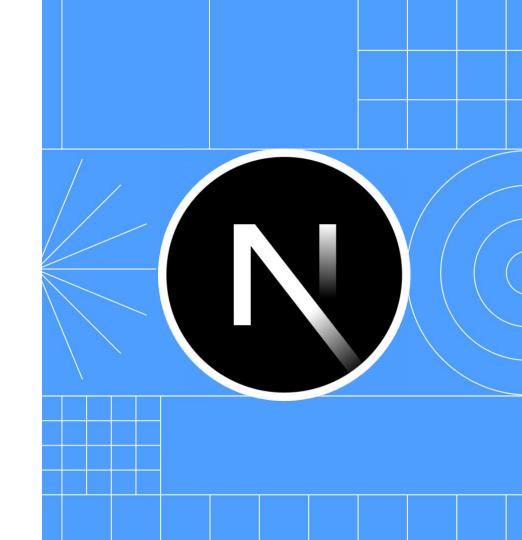
# Pick a frontend stack



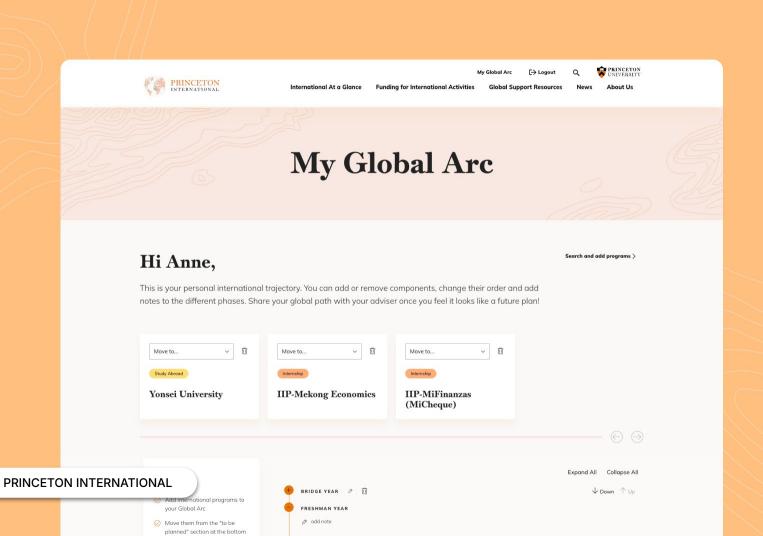
# Selecting next.js?

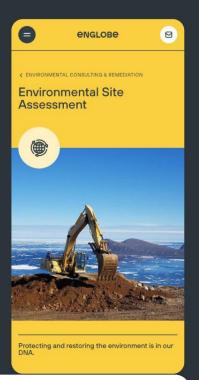
- Popularity of React
- plus a backend layer
- Great integration support with Drupal
- Supports Static site generation

https://next-drupal.org/learn/quick-start
https://www.drupal.org/project/next



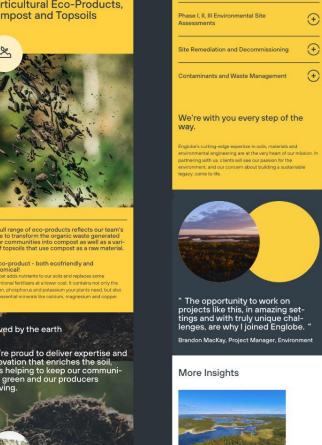
# Some examples





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https://www.englobecorp.com/

Certified eco-products\* drawing on our vast expertise

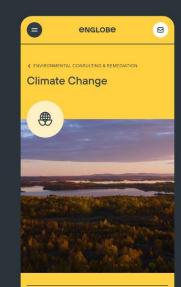
> See all insights

interdisciplinary, open-ended approach is distinctive. It begins with the operational reality of each client to generate real, concrete progress toward climate resilience and carbon Related Sectors TRANSPORTATION ENERGY & RESOURCES

## Moved by the sustainability

COMMERCIAL, INDUSTRIAL & REAL ESTATE

At Englobe, we understand both the local and the global implications of greenhouse gas emissions. We have the knowledge and tools to make projects resilient and include diverse organizations along for the transition to more sustainable development.



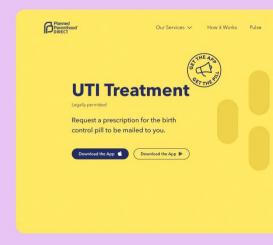




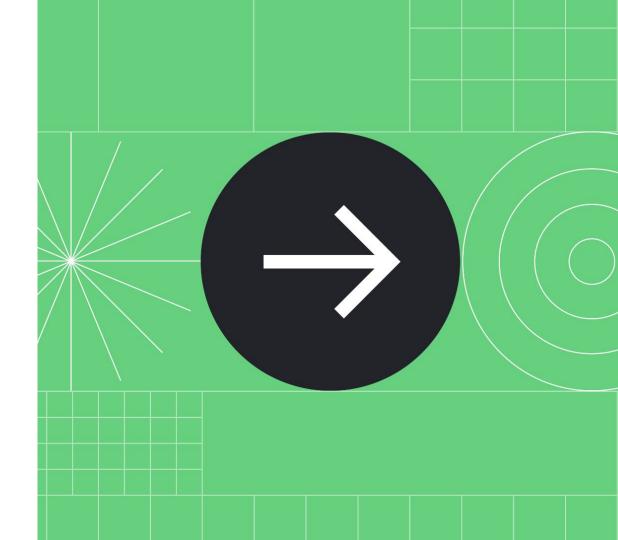








Implementation details



# Decoupled architecture grocery list

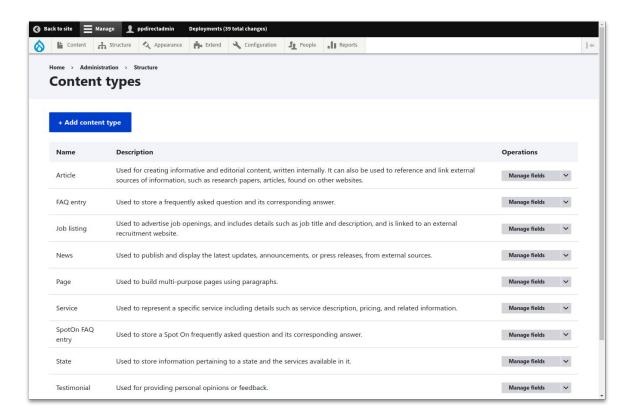
# We need to Implement the content model Provide an administrative UI to manage the content Render component-based content Render navigation menus Render the right content based on the path Generate the static artifact Support a moderation workflow Support content translation

# Decoupled architecture grocery list

# We need to Render component-based content Render navigation menus Render the right content based on the path Generate the static artifact

# Content types modeling

Drupal standard approach.





# Content types modeling

Drupal standard approach + React standard approach.

## Drupal config

- mode.type.article.yml
- mode.type.faq\_entry.yml
- node.type.job\_listing.yml
- M node.type.news.yml
- M node.type.page.yml
- mode.type.review.yml
- III node.type.service.yml
- mode.type.state.yml

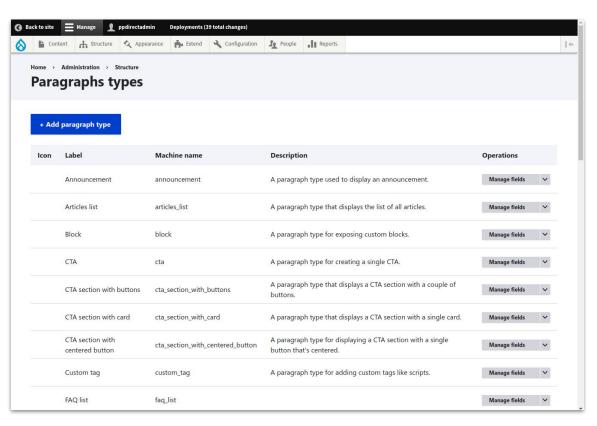
## React components

- node--article.tsx
- mode--article--card.tsx
- node--article--featured.tsx
- node--faq\_entry.tsx
- mode--job\_listing--card.tsx
- node--news--card.tsx
- mode--page.tsx
- node--service.tsx
- node--service--card.tsx
- node--state.tsx

## Implementation

# Paragraph based page building

Drupal standard approach.





# Paragraph based page building

Drupal standard approach. React standard approach.

## Drupal config

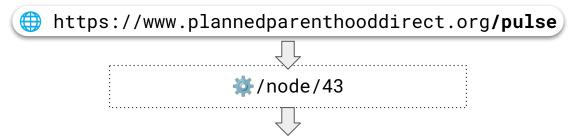
- paragraphs.paragraphs\_type.announcement.yml
- paragraphs.paragraphs\_type.app\_hero\_banner.yml
- paragraphs.paragraphs\_type.articles\_list.yml
- paragraphs.paragraphs\_type.block.yml
- paragraphs.paragraphs\_type.cta.yml
- paragraphs.paragraphs\_type.cta\_section\_with\_buttons.yml
- paragraphs.paragraphs\_type.cta\_section\_with\_card.yml
- paragraphs.paragraphs\_type.cta\_section\_with\_centered\_button.yml
- paragraphs.paragraphs\_type.custom\_tag.yml
- magraphs.paragraphs\_type.faq\_list.yml
- magraphs.paragraphs\_type.faq\_topic.yml
- paragraphs.paragraphs\_type.featured\_article.yml
- paragraphs.paragraphs\_type.hero\_banner\_compact.yml
- material paragraphs.paragraphs\_type.hero\_banner\_generic.yml
- material paragraphs.paragraphs\_type.hero\_banner\_simple.yml
- magraphs.paragraphs\_type.job\_listing.yml
- magraphs.paragraphs\_type.news\_list.yml
- paragraphs.paragraphs\_type.newsletter\_subscription\_form.yml
- magazine paragraphs type related articles vml

## React components

- paragraph--announcement.tsx
- paragraph--app-hero-banner.tsx
- paragraph--articles\_list.tsx
- paragraph--block.tsx
- paragraph--cta.tsx
- paragraph--cta-section-with-buttons.tsx
- 👺 paragraph--cta-section-with-card.tsx
- paragraph--cta-section-with-centered-button.tsx
- paragraph--custom\_tag.tsx
- paragraph--fag\_list.tsx
- paragraph--fag\_topic.tsx
- paragraph--featured\_article.tsx
- paragraph--hero-banner-generic.tsx
- 👺 paragraph--hero\_banner\_compact.tsx
- paragraph--hero\_banner\_simple.tsx
- paragraph--job\_listing.tsx
- paragraph--news\_list.tsx
- paragraph--newsletter-subscription-form.tsx

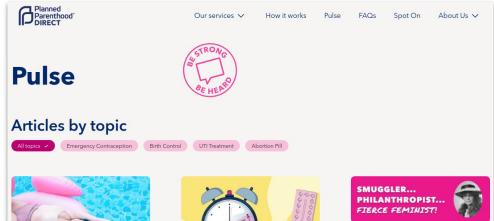


# Resolving the target path



GET /jsonapi/node/page/a4579fef-0df0-4205-89a1-daa4e5bfefc8







# Resolving the target path

/router/translate-path?path=/pulse

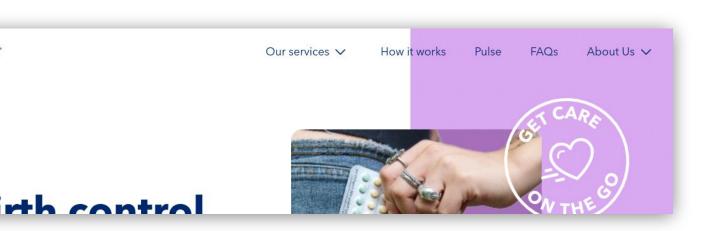
drupal/decoupled\_router contrib module
https://www.drupal.org/project/decoupled\_router

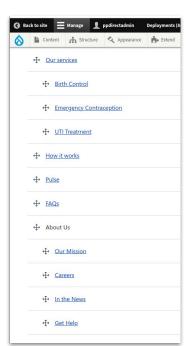
```
"resolved": "https:\/\/live-ppd-api.pantheonsite.io\/pulse",
"isHomePath": false,
"entity": {
    "canonical": "https:\/\/live-ppd-api.pantheonsite.io\/pulse",
    "type": "node",
    "bundle": "page",
    "id": "43",
   "uuid": "a4579fef-0df0-4205-89al-daa4e5bfefc8",
    "langcode": "en",
   "path": "\/pulse"
"label": "Pulse",
"isonapi": {
   "individual": "https:\/\/live-ppd-api.pantheonsite.io\/jsonapi\/node\/page\/a4579fef-0df0-4205-89a
   "resourceName": "node--page",
   "pathPrefix": "jsonapi",
   "basePath": "\/isonapi",
   "entryPoint": "https:\/\/live-ppd-api.pantheonsite.io\/jsonapi"
"meta": {
    "deprecated": {
        "jsonapi.pathPrefix": "This property has been deprecated and will be removed in the next versi
```

## Implementation

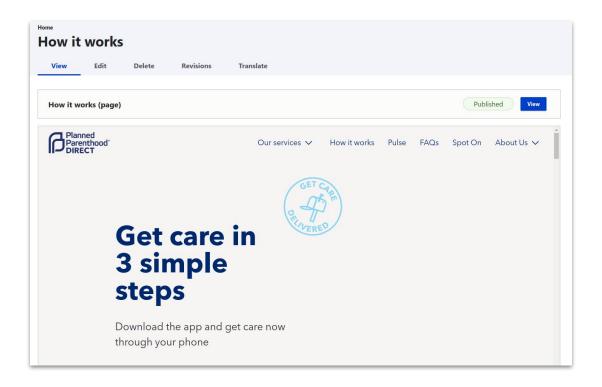
# Retrieving menus

- Menus are managed in the CMS
- drupal/jsonapi\_menu\_items contrib module
- <a href="https://www.drupal.org/project/jsonapi\_menu\_items">https://www.drupal.org/project/jsonapi\_menu\_items</a>





# Previewing from the Drupal UI



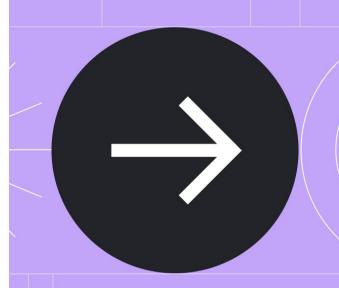
#### Implementation

#### Building for production

We have the content (Drupal backend) and the frontend code base

- Next.js build chain: next build
- CI/CD environment :
   Gitlab, Github, an hosting provider integration, ...
- A way to trigger it : drupal/deploy\_hooks

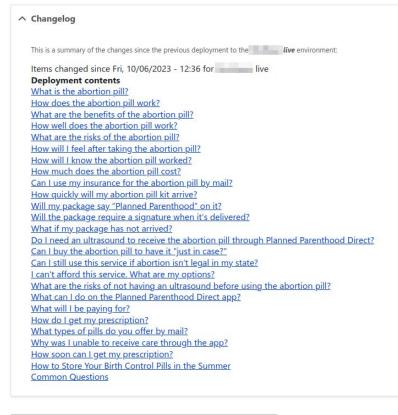




Implementation

## Content changelog

deploy\_hooks displays the list updated contents since the last deploy.



Start a new deployment to the live environment

#### Headless Drupal requirements

#### **Dependency on Drupal contribs**

Major contribs used to build the Drupal backend

- drupal/build\_hooks
- drupal/consumer\_image\_styles
- drupal/decoupled\_router
- drupal/jsonapi\_extras
- drupal/jsonapi\_menu\_items
- drupal/next

#### **Drupal custom code (modules)**

None.

#### To learn more

https://next-drupal.org/learn/quick-start

https://www.drupal.org/project/next

A secret...



#### the headless equation:

1 project = 2 projects

Another secret...



#### No need for custom modules

Drupal = No-code headless CMS!



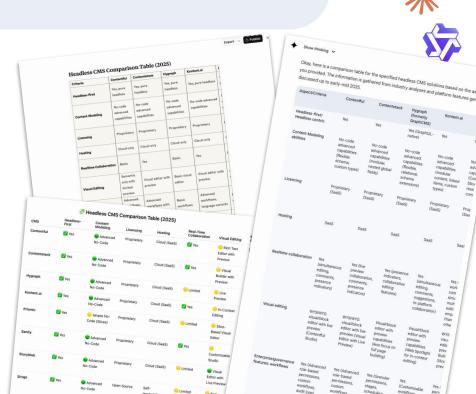




#### What are the top 10 recommended headless CMS in 2025?

- Contentful
- Contentstack
- Hygraph
- Kontent.ai
- Prismic
- Sanity
- Storyblok
- Strapi

Where is Drupal?



#### Headless CMS landscape comparison

#### **Key aspects**

- Headless-first
- Content Modeling
- Content Governance
- Integrations
- Licensing
- Hosting
- Visual editing
- Provided API(s)
- Developer friendliness
- Al capabilities

So what's next.js?

#### Make it easier!

We have a no-code headless CMS...

...only after quite a lot of composer and drush black magic.

No-code for the Drupal coders

Our Headless Drupal needs to be:

- easier to discover on the headless CMS market
- easier to quick start

**Quick Start** 

Introduction

Install Drupal

Apply Patches

**Enable Modules** 

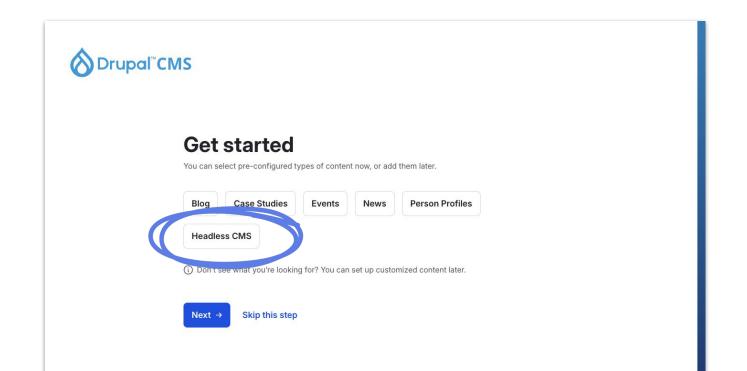
Configure Path Aliases

Create Next.js project

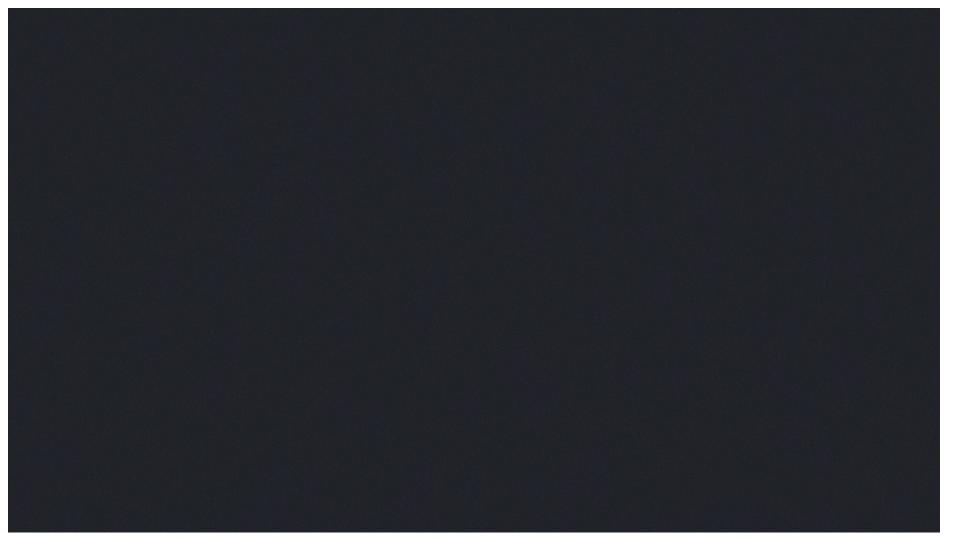
Create Content

Done

#### Let's discuss!



# Thank you



### Let's React!

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# CONTRIBUTION DAY Thursday 10:00am to 4:00pm

You don't have to know code to give back!

New Contributor training 9:00am to 10:00am



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1-Day Digital Innovation Summit Case Studies in Open-Source, AI & UX