

Customizing GeoNode

Emere Arco, Simone Balbo, Paolo Pasquali, Constantin Sandu
ITHACA

Outline

- GMES RDA
- MASDAP
- HaitiData
- UI/UX Considerations
- Way forward
- Conclusions

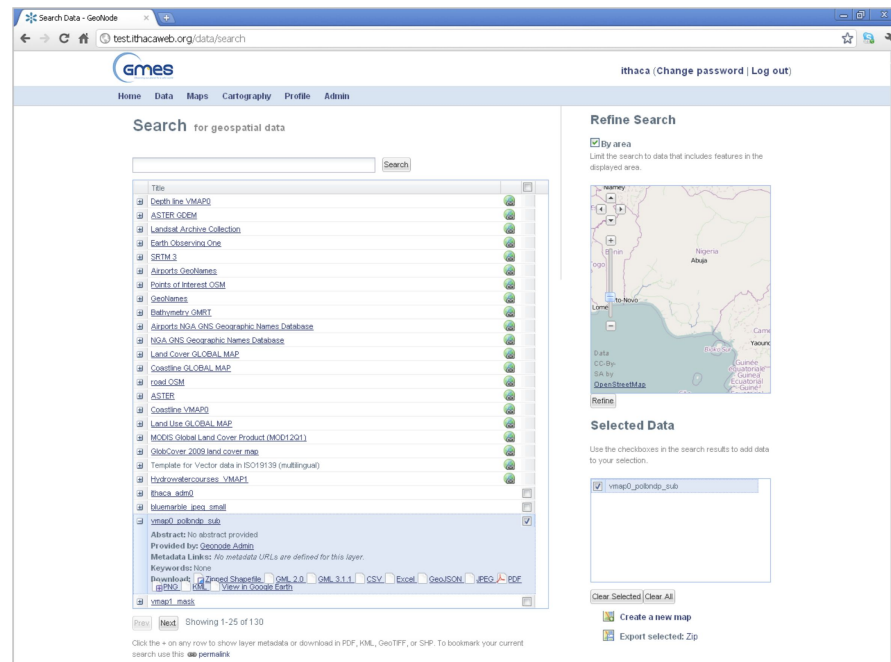
ITHACA + GeoNode

- Need for a complete set of functionalities
 - Upload data
 - Quickly create a Web Map
 - Data styling (optional)
 - Metadata catalogue
 - Support
- Open Source
- Knowledge of GeoNode key components
(Django, GeoServer, GeoNetwork and PostGIS)

GMES Reference Data GeoNode

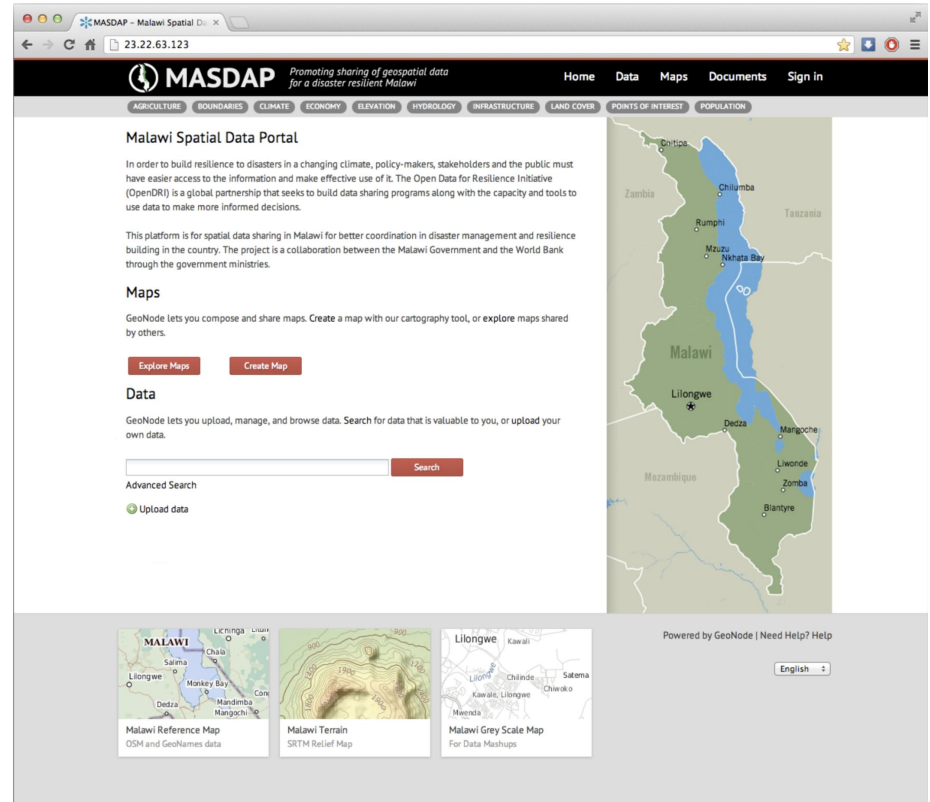
Implementation of an initial GMES Service for Geospatial Data Access covering areas outside Europe

- Analysis of non-EU reference data availability, quality and consistency and gaps to be filled
- Dissemination of the data quality assessment results

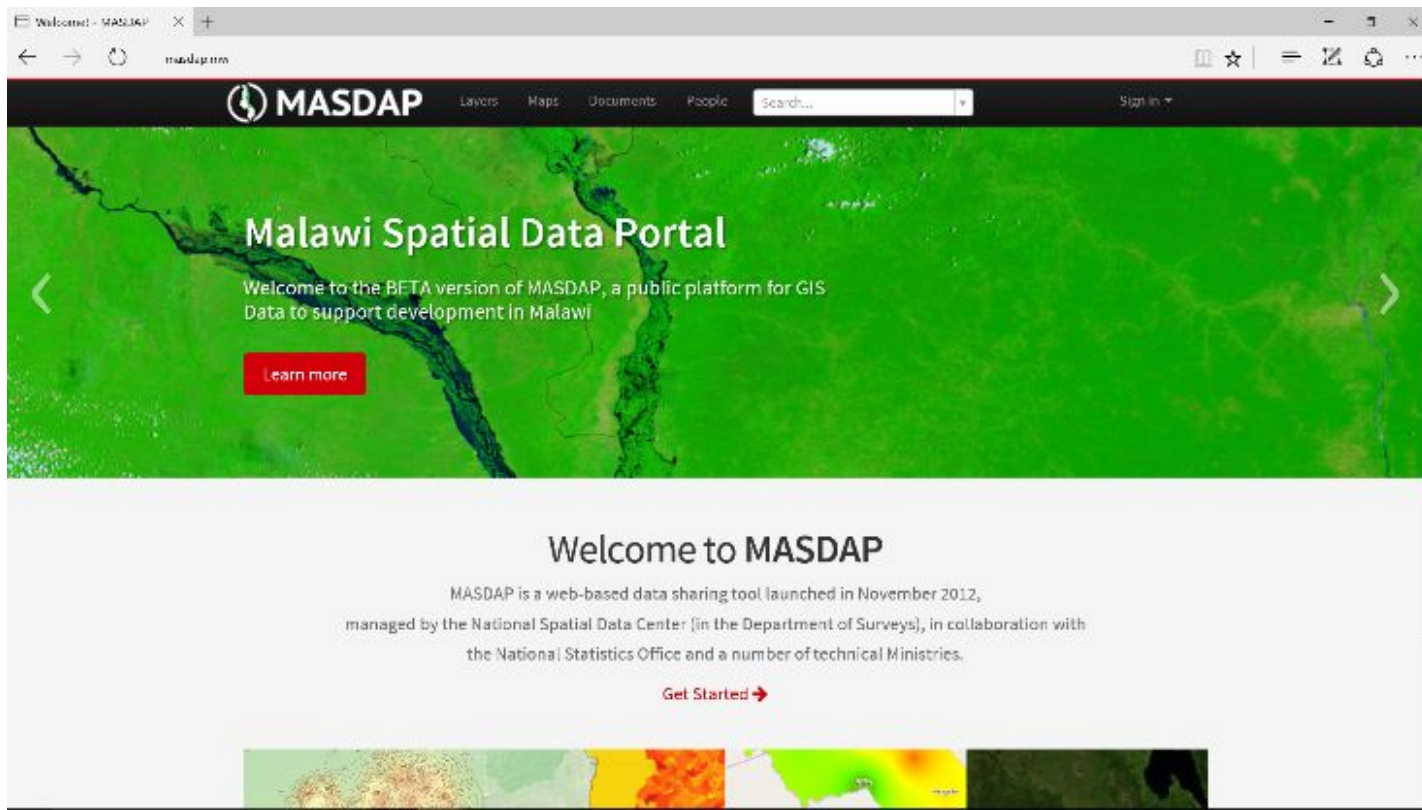


MASDAP 1 (2012)

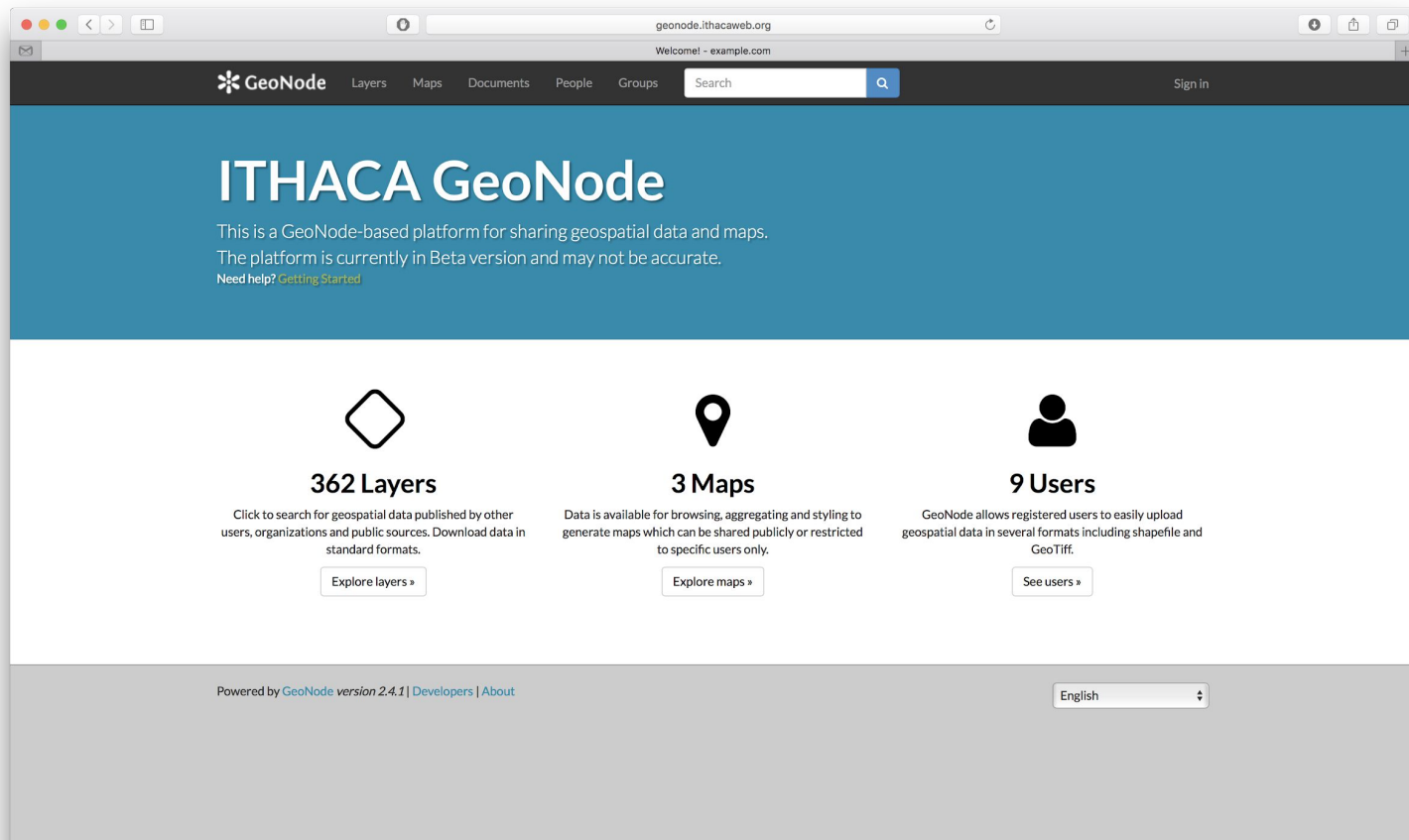
- Ensure that the data created by a number of past or ongoing projects is maintained and remains accessible and useful to the Government of Malawi
- Technical support and training to the National Spatial Data Center and partner ministries



MASDAP 2



GeoNode 2.4





Malawi Spatial Data Platform

A public platform for GIS Data
to support development in Malawi

Get Started »

Search for Malawi Data.



Search

[Advanced Search](#)

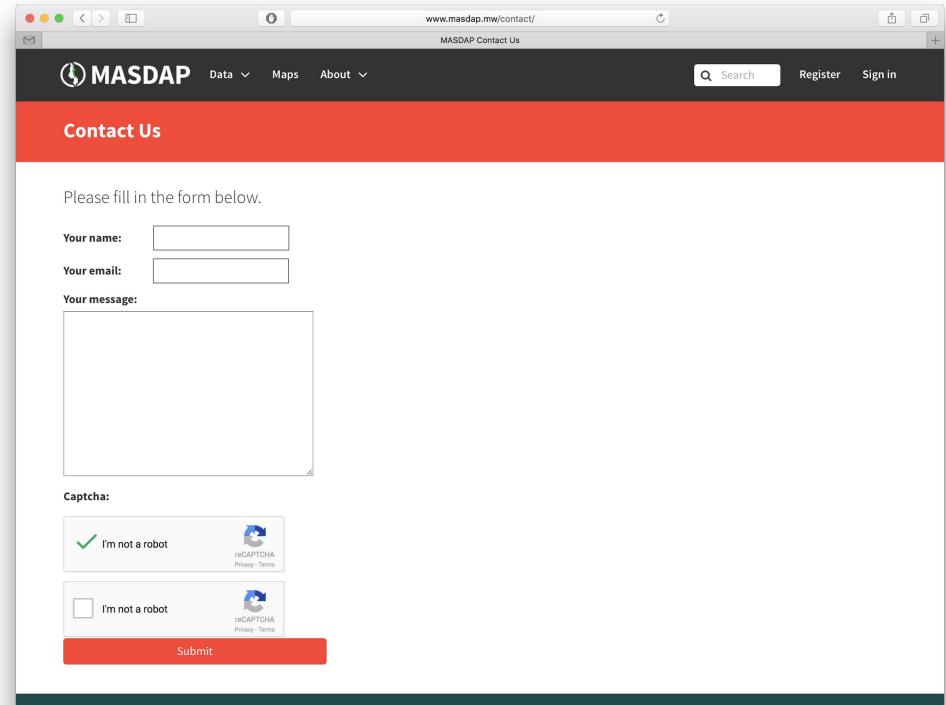
Apps: Contact Form

Requirements:

- A contact form to be available on the GeoNode site
- Registered and non-registered users must be enabled to send a message to the administrators
- A security check must prevent a robot to spam the system
- The message should reach an email inbox, managed by the administrators

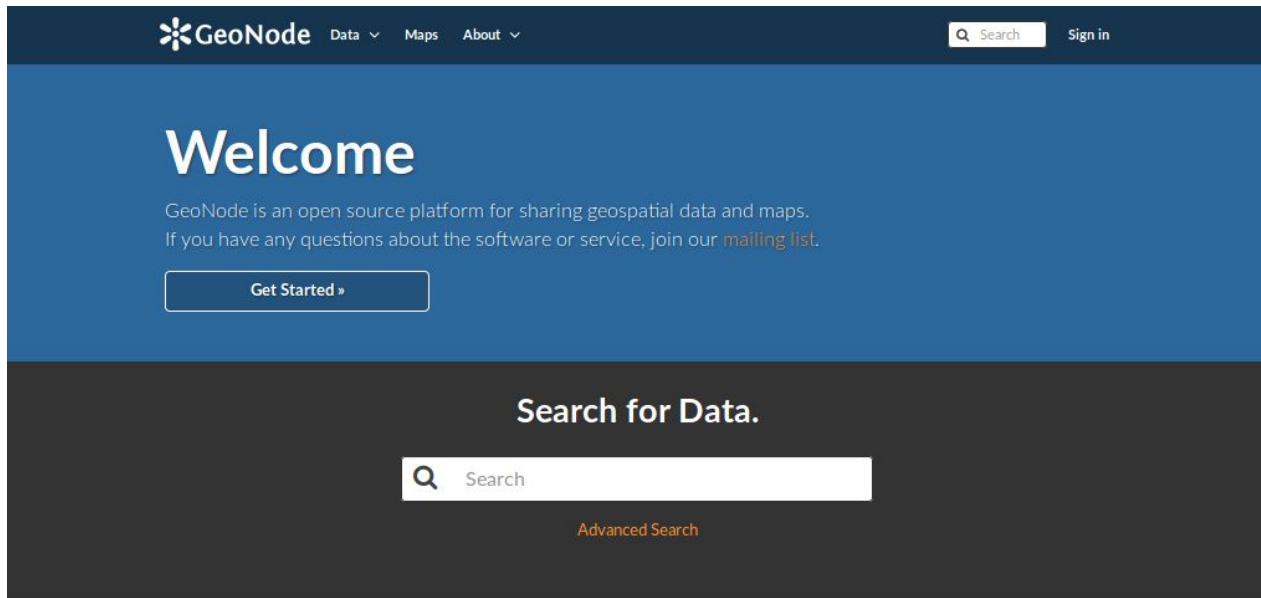
Solution:

- A Django app was added, that performs the required descriptions
- This was enriched with the google “nocaptcha_recaptcha” tool (i.e. “I’m not a robot”)



The screenshot shows a web browser window displaying the MASDAP Contact Us page. The browser's address bar shows the URL www.masdap.mw/contact/. The page has a dark header with the MASDAP logo and navigation links for Data, Maps, and About. A search bar and links for Register and Sign in are also present. The main content area has a red header with the text "Contact Us". Below this, a message says "Please fill in the form below." The form consists of three fields: "Your name:" with a text input, "Your email:" with a text input, and "Your message:" with a large text area. Below the message field is a reCAPTCHA section with two checkboxes, each labeled "I'm not a robot", and a "Submit" button at the bottom.

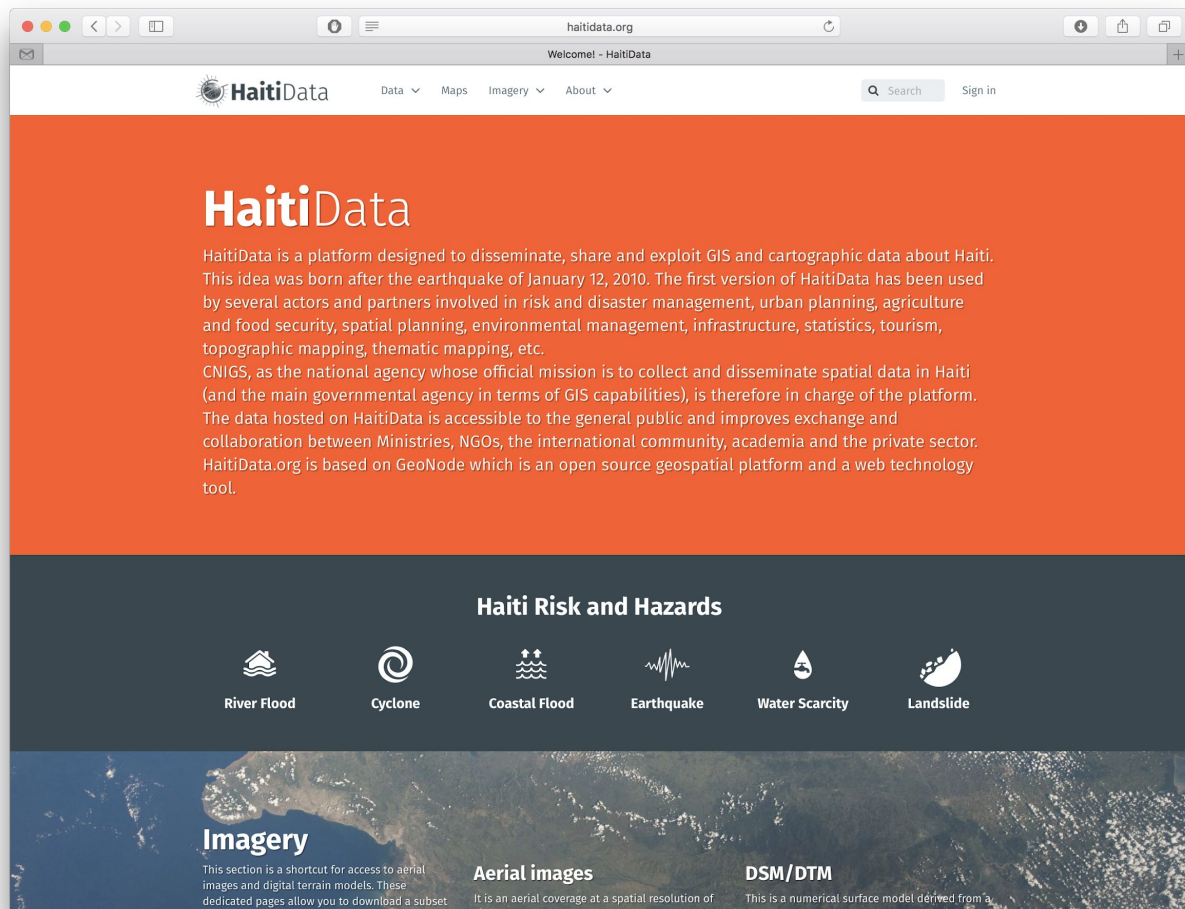
GeoNode 2.6



Discover the available datasets.



HaitiData



HaitiData with Kartoza

Updating the existing Haiti GeoNode platform (HaitiData) using the latest version of GeoNode and developing additional functions specific to HaitiData

- Mosaic Clip'n'Ship (Aerial imagery and DSM)
- Charts
- Docker + Rancher


In depth training of staff of CNIGS (Centre National de l'Information Géo-Spatiale) that will be responsible of the renewed HaitiData platform.

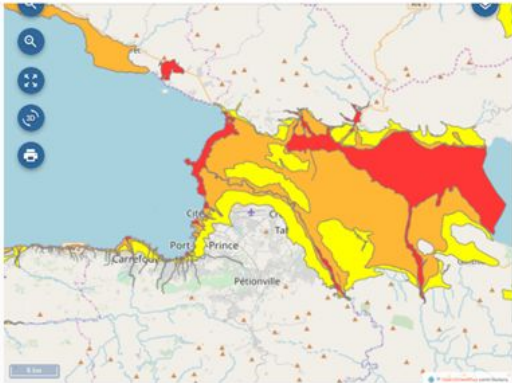
Charts

Specifications:

- Capacity of generating a chart
- On vector datasets
- Two-fields entry (label or category field, quantity field)
- Possibility of aggregating data, according to e.g. mean, average etc.
- Capacity of storing the chart in db, for retrieving it at a later stage

Charts

Data ▾ Maps ▾ About ▾SearchSign in



Info

Attributes

Ratings

Comments

Title Hti Hazardhydrology Floodregions Nathat Polygon 052010

Abstract No abstract provided

Publication Date Oct. 3, 2017, 3:56 a.m.

Type Vector Data

Keywords cnigs

Owner paolo

More info -

Metadata Detail

Download Metadata

Legend
3) Exceptional
2) Rare
1) Frequent

Maps using this layer
This layer is not currently used in any maps.

Create a map using this layer
Click the button below to generate a new map based on this layer.

Create a Map

Charts using this layer
No charts available at this time

Create a chart using this layer
Click the button below to generate a new chart based on this layer, choosing a quantity and a category field.

Create a chart

Category: type ▾

Quantity: hectares ▾

Type: Pie chart ▾

Aggregation: Sum ▾

Title:
Suggested title
Sum of hectares for type

Abstract:

Preview

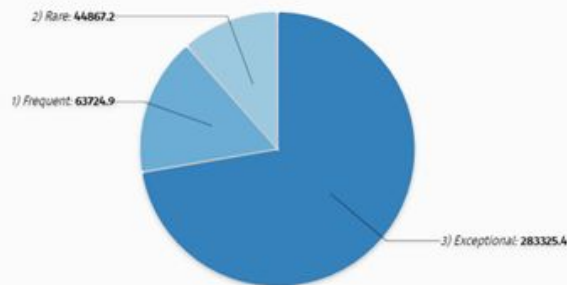
Data ▾ Maps ▾ About ▾Searchlimo_user ▾

Explore Charts

Charts

Sum of area per flood region type

Pie chart based on hti_hazardhydrology_floodregions_nathat_polygon_052010 layer (Category field: typee, Quantity field: hectares)

[Download CSV](#)

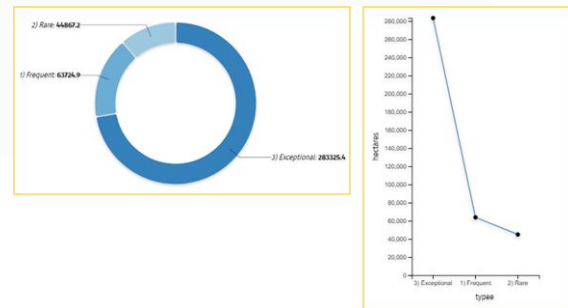
Modify this Chart

Change type of the chart or type of aggregation.

[Modify this Chart](#)[Delete this Chart](#)[Export my D3 visualization to PNG](#)

Abstract

This chart shows the area distribution according to the flood region type



Charts

Solution provided

- Software stack: GeoServer, Django (two apps), d3js
- GeoServer provides the WFS service, which is used as source
- a Django app acts as a middleware between the client and WFS
- D3js reads a csv file obtained from the WFS
- D3js performs the aggregation and generates the chart on the client side
- another Django app stores the input parameters of each single chart in the db and handle modifications

Charts

Integration with the GeoNode permission system:

- Non registered users can create a chart, on vector layers on which download permissions is granted to anyone
- Registered users can create a chart, on additional layers which they have been granted download permission to
- Registered users can save a chart in the system, in order to publish it. A chart inherits the download permissions on the original layer
- Charts can be modified and deleted by the owner, or by the owner of the original layer

Charts

Next steps and ideas:

- Currently the chart is not saved as image; the input parameters are saved (i.e. layer, fields, aggregation, chart type, title, abstract). As a consequence every time a user wants to see a chart, this must be regenerated (bandwidth...)
- A solution would be to store the HTML element that describes a chart... but what about consistency if the layers is modified? Triggering chart update?

GeoNode + Wagtail CMS

Wagtail built on Django

MASDAP is based on GeoNode 2.4

Django==1.6.11 but need Django>=1.8.1,<1.12

(Latest Wagtail version requires Django>=1.11,<2.1)

How to install Wagtail CMS in GeoNode

1. `pip install wagtail`
2. Add required apps to `INSTALLED_APPS`
3. Add 2 entries in `MIDDLEWARE`
4. Configure `urls.py`
5. `manage.py migrate`
6. `manage.py startapp`

How to integrate Wagtail CMS?

GeoNode and Wagtail can share:

- Same Users
- Same Content (e.g. Maps)

Select user to change

[Add user](#) +

Filter					
By staff status					
All					
Yes					
No					
By superuser status					
All					
Yes					
No					
By active					
All					
Yes					
No					
By groups					
All					
Moderators					
Editors					
anonymous					
(None)					

Action: Go 0 of 4 selected					
<input type="checkbox"/>	Username	Email address	First name	Last name	Staff status
<input type="checkbox"/>	AnonymousUser				✖
<input type="checkbox"/>	bill		Bill	Murray	✖
<input type="checkbox"/>	paolo	paolo.pasquali@gmail.com	Paolo	Pasquali	✔
<input type="checkbox"/>	simod	simone.dalmasso@gmail.com	Simone	Dalmasso	✔
4 users					



USERS

Search users



ADD A USER

Search

Explorer

Images

Documents

Snippets

Settings

NAME

USERNAME

LEVEL

STATUS



AnonymousUser

AnonymousUser

ACTIVE



Simone Dalmasso

simod

Admin

ACTIVE



Bill Murray

bill

ACTIVE



Paolo Pasquali

paolo

Admin

ACTIVE

Page 1 of 1.



PAOLO

How can I share more?

Register your piece of code as a Snippet

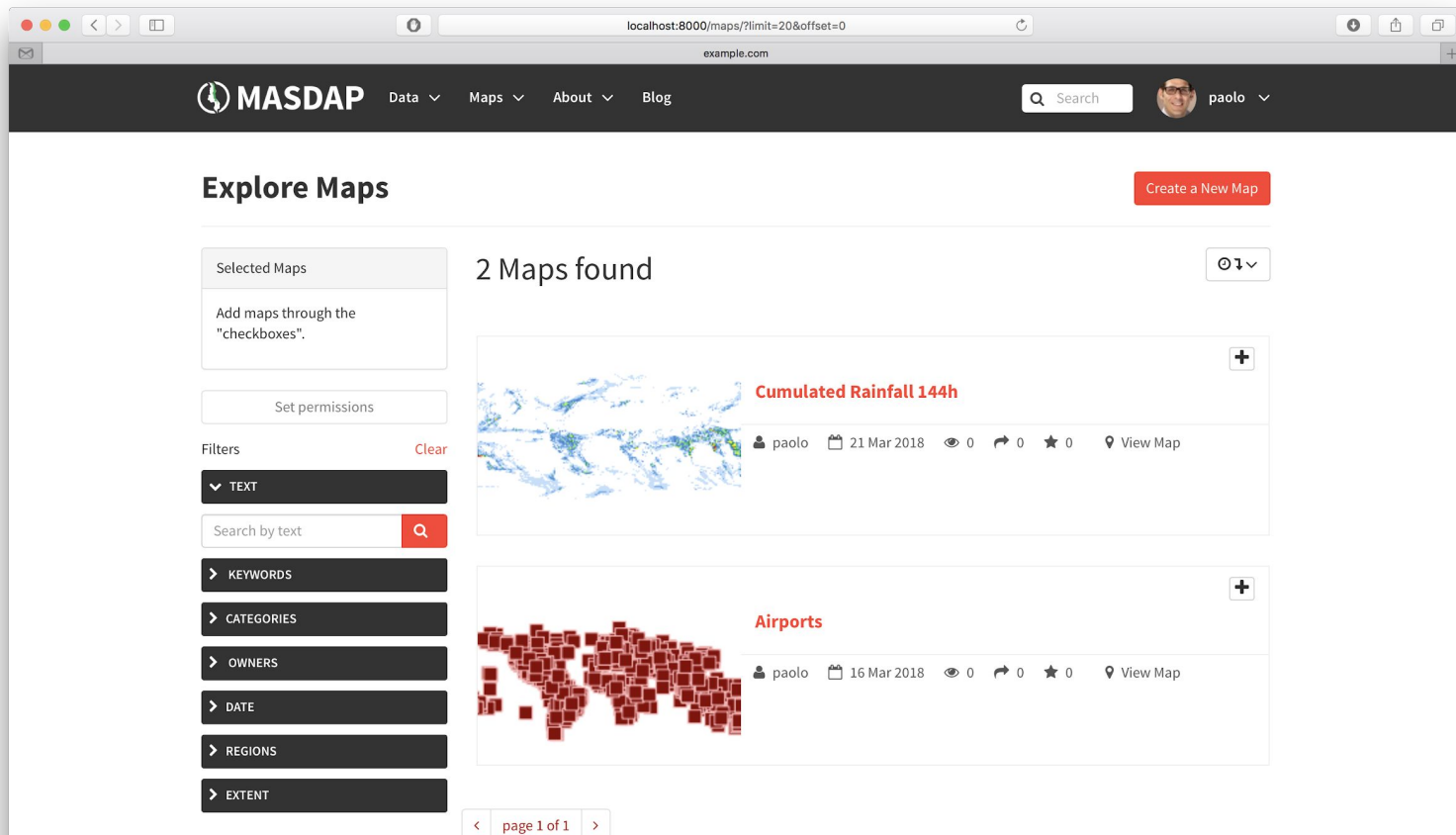
```
...
from geonode.maps.models import Map

class BlogMap(BlogPage):
    map = models.ForeignKey(
        'maps.Map',
        null=True,
        blank=True,
        on_delete=models.SET_NULL,
        related_name='+'
    )

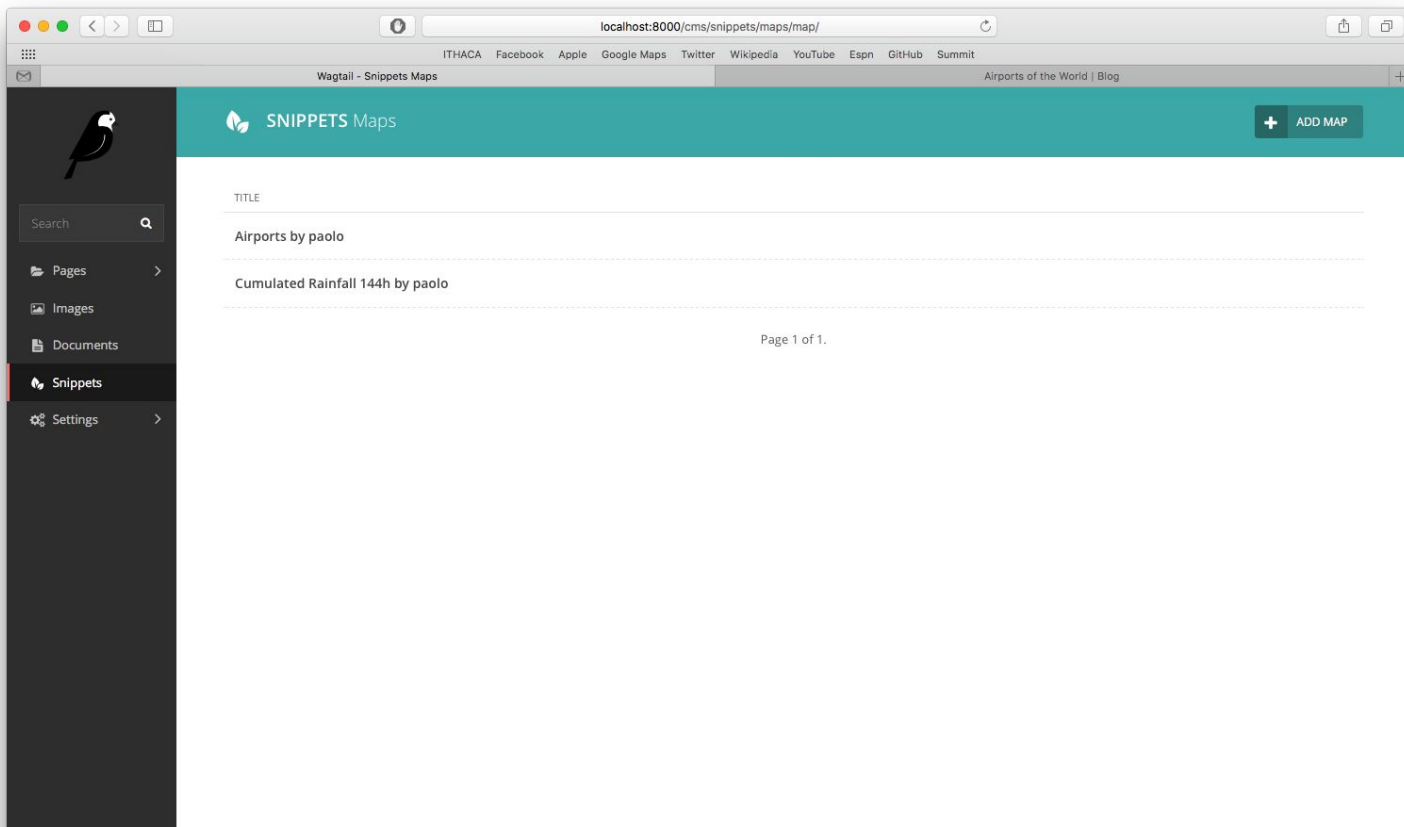
    content_panels = BlogPage.content_panels + [
        SnippetChooserPanel('map'),
    ]

register_snippet(Map)
```

GeoNode Maps



Wagtail Maps



Editing Posts

The screenshot shows the Wagtail CMS interface for editing a page titled "Airports of the World". The browser address bar shows the URL `localhost:8000/cms/pages/7/edit/`. The page title is "Wagtail - Editing Map entry page: Airports of the World". A note at the top states: "Entry excerpt to be displayed on entries list. If this field is not filled, a truncate version of body text will be used."

The interface is divided into a left sidebar and a main content area. The sidebar contains a search bar and a menu with the following items: Pages, Images, Documents, Snippets, and Settings. The main content area is divided into two sections: METADATA and MAP.

METADATA Section:

- Tags:** A text input field containing the tag "airports". Below it, a note says "A comma-separated list of tags."
- Category:** A dropdown menu showing "Transportation". Below it is a button labeled "+ ADD CATEGORIES".
- Entry:** A text input field containing "Lorem ipsum dolor". Below it are two buttons: "CHOOSE ANOTHER PAGE" and "EDIT THIS PAGE". Below these buttons is a button labeled "+ ADD RELATED ENTRIES".

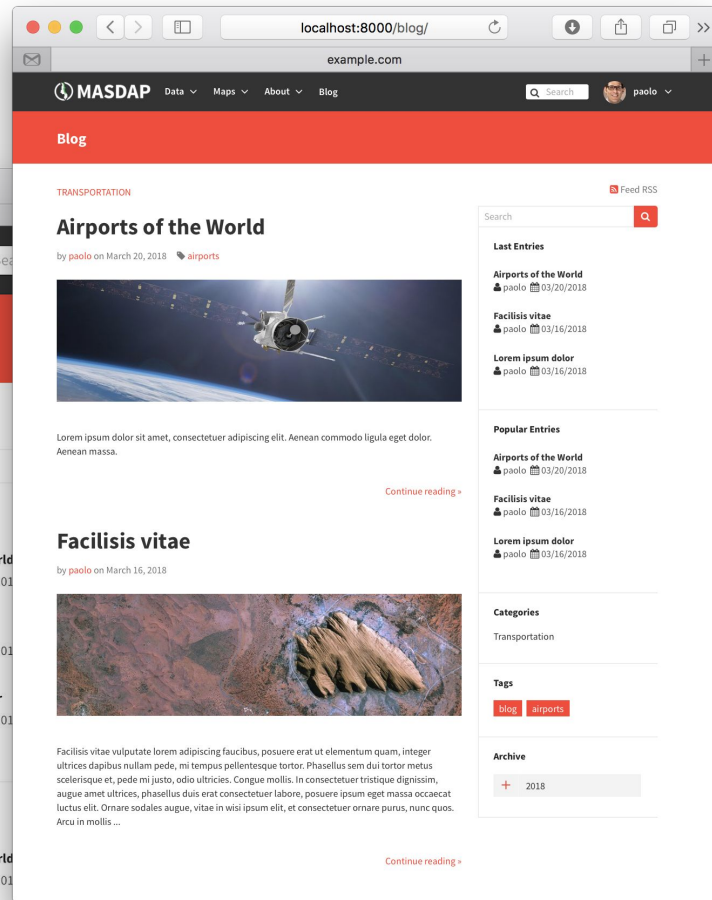
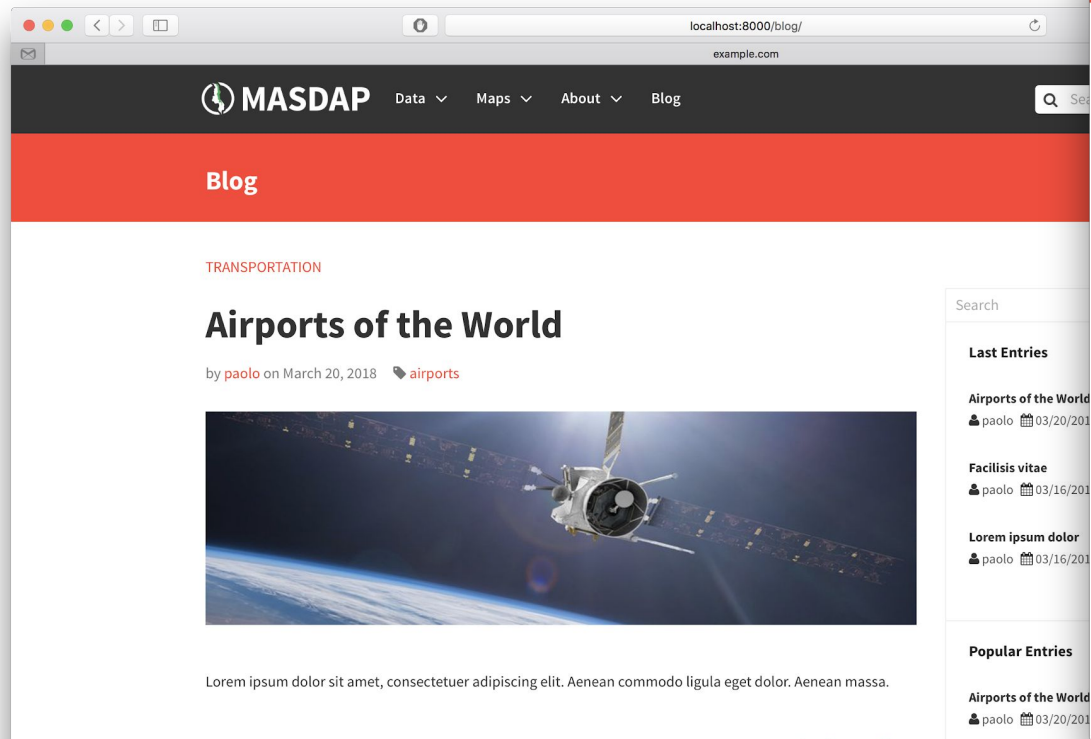
MAP Section:

- A map thumbnail is shown with the title "Airports by paolo". Below it are three buttons: "CLEAR CHOICE", "CHOOSE ANOTHER MAP", and "EDIT THIS MAP".

Footer:

- On the left, a user profile for "PAOLO" is shown.
- In the center, there are two buttons: "SAVE DRAFT" and "PREVIEW".
- On the right, it says "Last modified: March 22, 2018, 10:48 a.m. by paolo" followed by a "Revisions" link.

Wagtail Blog Posts



A Blog post with a GeoNode map

localhost:8000/blog/2018/03/20/airports/

Airports of the World | Blog

MASDAPDataMapsAboutBlog

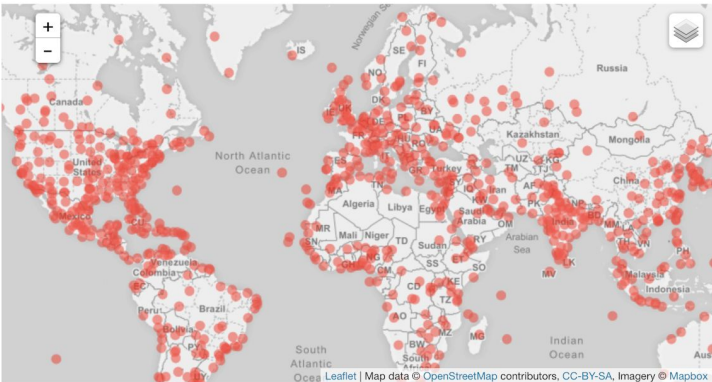
Searchpaolo

Blog

TRANSPORTATION

Airports of the World

by paolo on March 20, 2018 airports



Feed RSS

Search

Last Entries

Airports of the World
paolo 03/20/2018

Facilis vitae
paolo 03/16/2018

Lorem ipsum dolor
paolo 03/16/2018

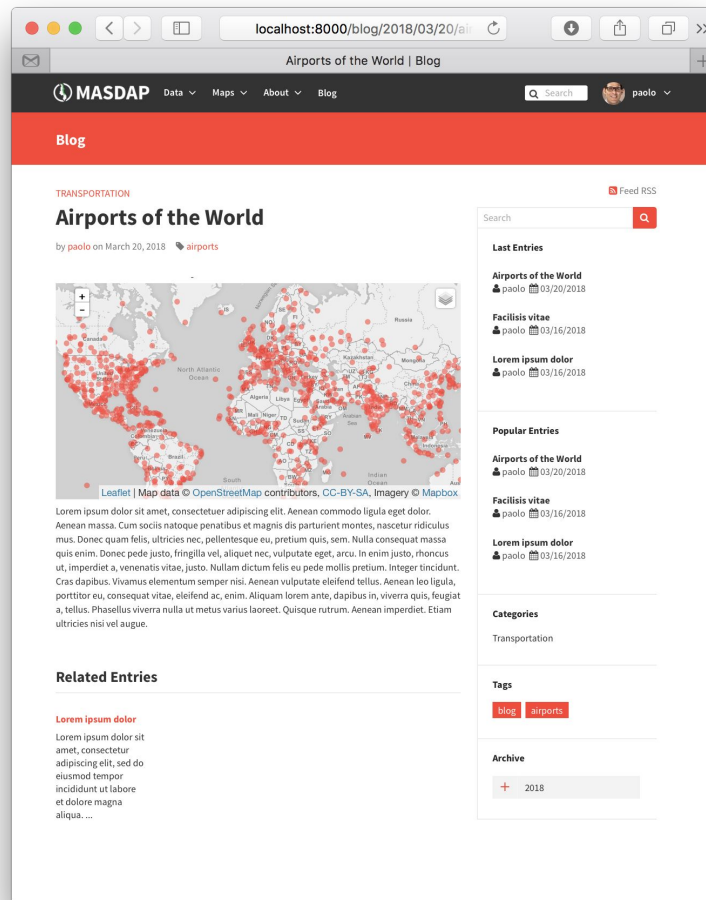
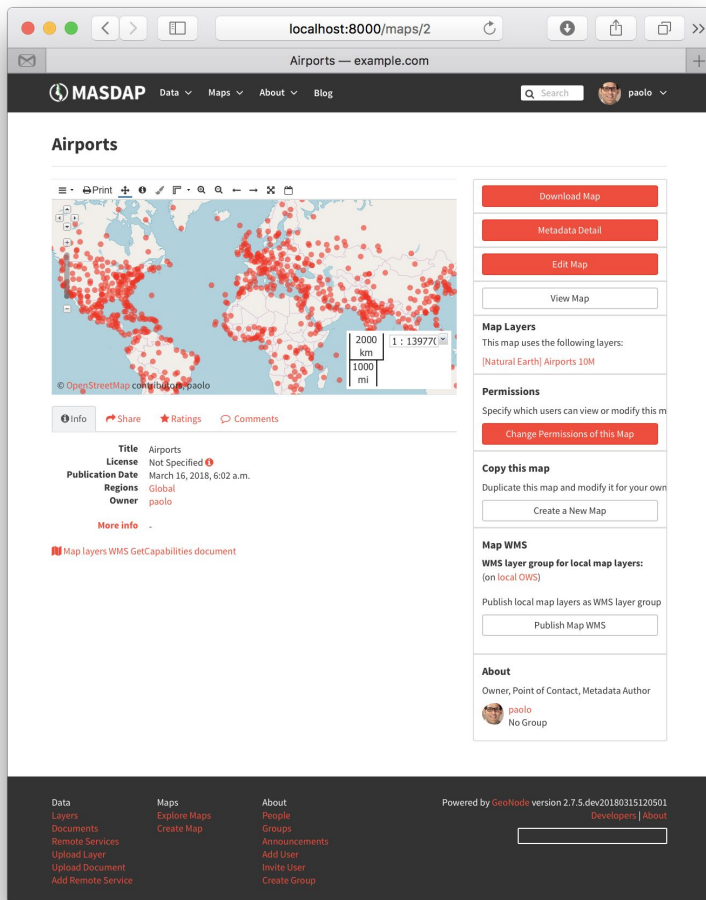
Popular Entries

Airports of the World
paolo 03/20/2018

Facilis vitae
paolo 03/16/2018

Lorem ipsum dolor

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean commodo ligula eget dolor. Aenean massa. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus



What's next?

ITHACA GeoNode (based on 2.8) will provide

- ERDS (Extreme Rainfall Detection System) products:
 - GPM Cumulated Rainfall
 - GFS Cumulated Rainfall
 - Extreme Rainfall Alerted Areas
- Drought Monitoring
- Early Impact Maps
- OSM Extracts and Analysis
- UI/UX Refactoring (Bootstrap 4?)

How can I customize the UI/UX?

- GeoNode UI is based on Bootstrap 3
- HTML, CSS, JS are documented in Bootstrap
- Always create a Django project to customize your GeoNode installation
- Modify the Less files (e.g. variables.less) and then compile in CSS

Example: About 20 years ago

```
<table style="width:100%">
  <tr>
    <th>...</th>
    <th>...</th>
    <th>...</th>
  </tr>
  <tr>
    <td>...</td>
    <td>...</td>
    <td>...</td>
  </tr>
  <tr>
    <td>...</td>
    <td>...</td>
    <td>...</td>
  </tr>
</table>
```


HTML5 Best practice

```
<header>...</header>
```

```
<nav>...</nav>
```

```
<article>...</article>
```

```
<aside>...</aside>
```

```
<footer>...</footer>
```

Solution

Use CSS to style your HTML pages

Use mixins = you can include the Bootstrap classes in your stylesheet!

- Bad:

```
<a href="#" class="btn btn-primary btn-lg">Button</a>
```

- Good:

```
<a href="#" class="my-style">Button</a>
```

```
.my-style {  
  .btn  
  .btn-primary  
  .btn-lg  
}
```

Conclusions (or Recommendations)

- Easy to add Django apps
- Keep the pace with recent Django version
- Translations: Don't mix content (Django v. Angular)
- Use Front-end framework (Bootstrap?) in a smarter way
- Light pages (more speed, more compatibility, more suitable)
- Less is more but Sass is even more
- Avoid inline styling