# Conclusions

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Each of the analysed tools has a different focus and idiosyncrasy, which makes them suitable for different use cases. Therefore, depending on the precise requirements, a different tool or a combination of different tools should be applied. In this section, different tool combinations are proposed, describing the scenarios for which this combination are suitable.

### Option 1: CKAN + Geonetwork + Geoserver

This combination uses CKAN as the main user interface to access the information, while Geonetwork and Geoserver are used behind the scenes to manage geographic information. In this scenario, CKAN is also used to manage non-geographic information.

CKAN is a perfect solution when most of the information is tabular, non-geographic information, which has to be published in the platform together with the metadata, using a one to one publishing workflow. In this scenario, CKAN offers a great user experience, offering simple data download and sharing, intuitive metadata access and powerful searching and filtering tools.

However, CKAN has severe limitations regarding ISO 19115 metadata support, so it has to be complemented with Geonetwork to properly store metadata about geographic information, which becomes eventually available in CKAN using CSW harvesting. In this way, CKAN is still used as entry point for the user, but the full metadata records are available in Geonetwork.

This approach makes CKAN also suitable for batch importing geographic information available on external Geonetwork servers. By contrast, batch importing of non-geographic datasets would require developing a CKAN plugin or using an ETL tool to publish the resources using CKAN API.

Note that geographic, harvested datasets can only be previewed in CKAN if a map server (Geoserver) is set up and properly linked in the online resource of each metadata record in Geonetwork. This requirement requires the installation of an additional piece of software (Geoserver) and it makes the publishing process more time consuming, as the layers have to be published both on Geonetwork and Geoserver. Therefore, this option is only recommended if there is a small number of geographic datasets to publish.

  
Figure 1: Bla bla bla

### Option 2: CKAN + Geonetwork + Geoserver + Geonode

This combination still uses CKAN as the main user interface to access the data, but it uses Geonode as a simpler way to publish geographic information. As Geonode is integrated with Geoserver and can be configured to work also with Geonetwork, any information published in Geonode becomes automatically published on Geonetwork and Geoserver. And again, Geonetwork metadata becomes eventually available in CKAN using CSW harvesting.

This approach offers an effective way to publish and manage both geographic and non-geographic information. The main drawback is the complexity of the installation and set up, with many components and technologies involved, which increases the resources required for administering and maintaining the platform.

  
Figure 2: Test test test

### Option 3: Geonode + Geonetwork + Geoserver

This combination uses Geonode as the only user interface for accessing, publishing and managing the information. In this case, Geonetwork and Geoserver are only used internally by Geonode. This solution offers a simple and effective way to publish and manage all the information, while reducing the number of software components compared with option 3.

Geonode also offers a great user experience, offering simple data download and sharing, intuitive metadata access and powerful searching and filtering tools. Compared with CKAN, Geonode offers more powerful tools for the visualization and analysis of geographic information, although it does not offer online preview for non-geographic information.

This approach also allows configuring Geonetwork in order to harvest metadata records from existing MP metadata catalogues.

  
Figure 3: Blah blah blah

### And the winner is...

Considering the diversity of dataset types that have been identified by the MPs (including both geographic and non-geographic information) and the scalability of the platform (potentially assimilating new MPs in the future), we believe the approach for LIBREOFFICE is the combination proposed in Option 2.

Despite the increased maintenance costs and risks of this approach, it offers the wider number of features, the best user experience, an effective workflow for data publishing and the flexibility to adapt to alternative workflows in the future.