

Project Characteristics

Project information

Please provide important facts for your project, e.g. acronym, title, proposed period, principal investigator and contractor.

Project

Acronym CODA

Title Open GI Services for Covid-19 Dashboards

Period	Start: 06.10.2020	End: 26.01.2021
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Principal investigator	Eike Blomeier, Gil Salvans Torras
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Contractor	SDI: Services Implementation - Universität Salzburg
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Document version

Nr.	Date	Version	Altered chapters	Type of altering	Author
1	06.10.2020	1.1	all	Creation	Eike Blomeier, Gil Salvans Torras
2	10.10.2020	1.2	p. 1 - 4	Addition	Eike Blomeier, Gil Salvans Torras
3	29.10.2020	1.3.	p. 5 - 12	Addition	Eike Blomeier, Gil Salvans Torras
4	19.11.2020	1.4	Frame of the project, Work Breakdown Structure (WBS), Detailed work plan,	Addition	Eike Blomeier, Gil Salvans Torras
5	10.01.2021	1.5	Milestone plan Detailed work plan, Milestone plan	Updating	Eike Blomeier, Gil Salvans Torras

Project Content and Project Goals

Please provide an overview of your project with its main activities. Additionally, give some information on the purpose, benefits and target groups as well as the proposed goals of your project. Please also provide explicit information on those aspects of the overall challenges, which you will not tackle with your project.

Kommentiert [EB1]: @Gil

Content & Goals

Project description (~100-150 words)

This project consists of three main stages. The first one, which regards to the data collection and setting it up into a geospatial database. Secondly, connecting this data to the GIS server in order to publish it as a standard GI service. Finally, a retrieval of the different services will be carried out by generating an interactive dashboard. This dashboard visualization will show the development of the Covid-19 pandemic on different scales. The user of the dashboard should get an intuitive overview of the Covid-19 development. In addition, all these exposed project steps will be entirely done by only using open source technologies.

Project purpose, benefits and target group description (~100 words)

This project aims to develop a Spatial Data Infrastructure (SDI) regarding the Covid19 pandemic development in near real time. This information will be conditioned to be represented in an interactive manner and therefore, it will be able to be understood by the public. With this, the user will get a quick and intuitive overview of the current pandemic situation. Additionally, the output dashboard will also help the users in their daily life decision making regarding their current personal health conditions and their daily routines.

Project objectives (please also include a listing of the sub-goals) (~100 words)

Main objectives:

- Retrieve Covid-19 infection numbers and store them into a spatial database.
- Use the stored data to generate an interactive dashboard which displays the current Covid-19 infection numbers for different regions and showing different graphical data representations.
- Make all the data (published services) displayed by the dashboard publicly available to be accessed by an HTTP request from any user.
- Use Geo Server technologies to carry out a map representation of the data and use it subsequently in the dashboard.

Sub-objectives:

- Develop the entire project by merely using open source technologies.
- Provide additional sources of information to the dashboard in an interactive way (e.g. Twitter).

Non-Goals

- Non-guaranteed of the data validity.
- Use of commercial software technologies.

- **Provision of additional database editing functions compared to the base functions of a spatial database.**

Frame of the project

Please provide a description of the existing situation. Therefore, please describe the actual state and the identified challenges. As a second part, please also provide the most important information regarding the proposed project period and the most important dates (Kick-off, interim/mid-term report/presentation, final report, paper submission etc.)

Context

Up-to-date status (*~50-100 words*)

The database is set up for Austria and the R-script is created and retrieves data on a daily base. Additionally, the GeoServer is set up and can be requester for the Austrian daily infection numbers as OGC standard services.

The frontend environment is setup with NodeJS. The design is sketched and already capable to retrieve data from the GeoServer with the OpenLayers API. Also, the frontend is connected to the database and qualified to retrieve data from there.

Dates

Time period

Start: 06.10.2020 End 26.01.2021

Important Dates

1	10.10.2020	Project Kick-off
2	3.11.2020	Resources research completed
3	30.11.2020	Services set up (data & GI Services) with scripts
4	15.12.2020	Backend done
5	25.01.2020	Publish Application

Resources & Budget

Please provide information on the project lead and the project team. Please include information on name, role and qualification. Additionally, provide information about the planned resources with regard to personal costs and other costs,

Project Team

Project Lead

Eike Blomeier, Gil Salvans Torras

Project Team

Eike Blomeier, Gil Salvans Torras

Resources

Personal costs

0 €

Project costs

0 €

Other Costs

0 €

Project structure, description and risk matrix

Please provide a description about your work plan (work breakdown structure) your work packages in tabular and graphical form.

Work packages overview:

WP	Name	Time Frame
1	Project Management	06.10.2020 – 02.11.2020
2	Data Retrieval and Storage	29.10.2020 – 15.12.2020
3	Publishing OGC Services	02.12.2020 – 8.12.2020
4	Dashboard Elaboration	15.12.2021 – 10.01.2021
5	Adding Extras	– 16.01.2021

Work Breakdown Structure (WBS)

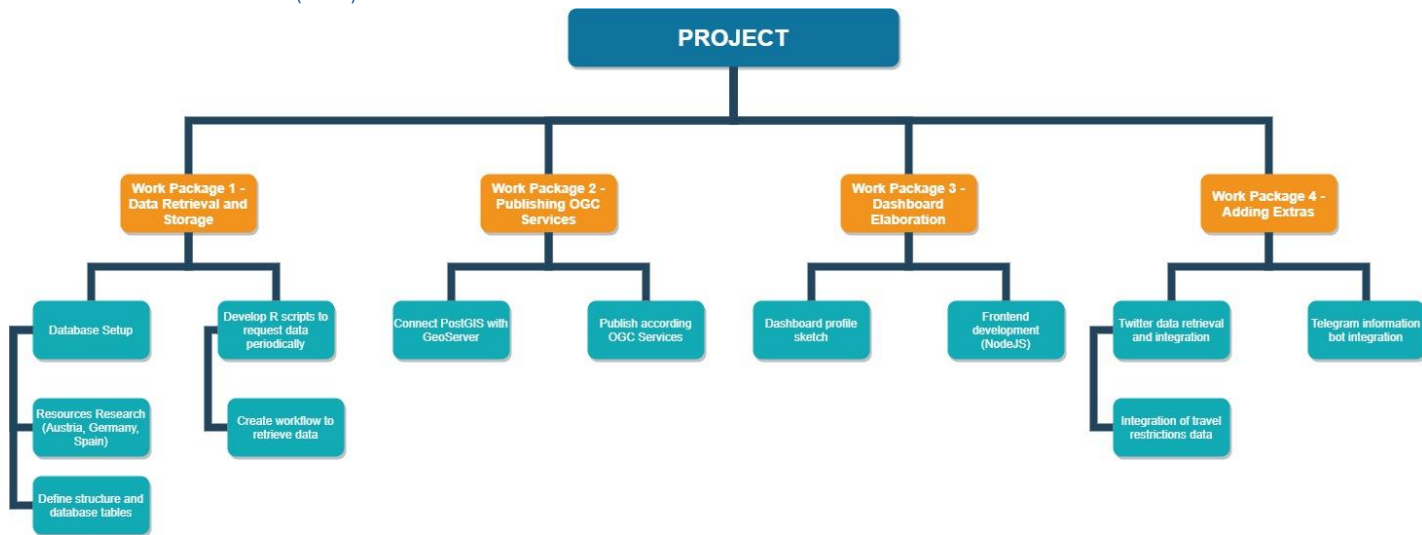


Figure 1 Work breakdown Structure

Detailed work plan

Please document the goals, content and expected results for each work package. Provide information on the planned approach and methods you want to apply as well as the expected results (including the planned milestones and deliverables). As a first work package please use 'project management'.

WP 1 Project management 06.10.2020 – 02.11.2020

Project Lead

Project team

Eike Blomeier, Gil Salvans Torras

Eike Blomeier, Gil Salvans Torras

Objectives

Main objectives:

- Retrieve Covid-19 infection numbers and store them into a spatial database.
- Use the stored data to generate an interactive dashboard which displays the current Covid-19 infection numbers for different regions and showing different graphical data representations.
- Make all the data (published services) displayed by the dashboard publicly available to be accessed by an HTTP request from any user.
- Use Geo Server technologies to carry out a map representation of the data and use it subsequently in the dashboard.

Sub-objectives:

- Develop the entire project by merely using open source technologies.
- Provide additional sources of information to the dashboard in an interactive way (e.g. Twitter).

Content & Tasks

Package 1 -> Data Retrieval & Storage

- PostGIS storing
- Data structure and quality
- R scripts for retrieving (one time per day)
- Sources of retrieval

Package 2 -> Publishing OGC Services

- Connect PostGIS and GeoServer accordingly

Package 3 -> Dashboard elaboration

- Dashboard sketch
- Technology to use: Javascript –NodeJS- (Openlayers, Plotly.js, Grid.js)

Package 4 -> Adding extras

- ~~Twitter data integration (from API)~~
- Telegram information bot (subscription)
- Integration of travel restrictions data (as a standalone dashboard)

Expected results

Package 1: We're able to retrieve the data and store it into a DBMS

Package 2: The services are published and can be accessed

Package 3: The dashboard and its functionalities are designed

Package 4: If possible, the extras are added to the dashboard

Milestones & Deliverables

M1: Management work finalized → The working environment (Git, Wiki, Gantt-Chart) is setup and ready to use

M2: Resource research → The resources for the data retrieval are defined

M3: Publish services → The services (geo & data) are defined, published and accessible

M4: Dashboard → The structure of the dashboard is defined and implemented

M5: Database → The database schema is defined and implemented

M6: Node-Red → The flows are created, and node-red is installed on the server

WP 2 Data Retrieval and Storage 29.10.2020 – 15.12.2020

Project Lead

Project team

Eike Blomeier, Gil Salvans Torras

Eike Blomeier, Gil Salvans Torras

Objectives

- Retrieve Covid-19 infection numbers and store them into a spatial database.
- Development of a R script to retrieve and store the data on a daily base
- Notification handling via E-Mail
- Creating Views to serve out the updated data to the Web-App

Content & Tasks

- PostGIS storing
- Data structure and quality
- R scripts for retrieving (x times per day)
- Sources of retrieval

Kommentiert [EB2]: @Eike Blomeier

Kommentiert [EB3]: @Eike Blomeier

Kommentiert [EB4]: @Eike Blomeier

Expected results

The backend data handling is set up and can be accessed

Deliverables

- The R script for retrieving and storing data
- The database-structure defined and created

WP 3 Publishing OGC Services 02.12.2020 – 08.12.2020

Project Lead

Project team

Eike Blomeier, Gil Salvans Torras

Eike Blomeier, Gil Salvans Torras

Objectives

- Use GeoServer technologies to carry out a map representation of the data and use it subsequently in the dashboard.

Content & Tasks

- Connect PostGIS and GeoServer accordingly
- Creating styles using SLDs

Expected results

- The WFS layers for the countries can be requested
- The styled WMS legend for the map can be requested

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Kommentiert [EB6]: @Gil

Deliverables

The services are defined, published and accessible

WP 4 Dashboard Elaboration 15.12.2020 – 10.01.2021

Project Lead

Project team

Eike Blomeier, Gil Salvans Torras

Eike Blomeier, Gil Salvans Torras

Objectives

- Use the stored data to generate an interactive dashboard which displays the current Covid-19 infection numbers for different regions and showing different graphical data representations
- Publish the Application on a university server to make it universally accessible from the WWW

Content & Tasks

- Dashboard profile sketch
- Elaborate the dashboard by using NodeJS environment, the OpenLayers API, Plotly.js, Grid.js
- Deploy the App on the production server

Kommentiert [EB7]: @Gil

Expected results

The dashboard and its functionalities are designed, and the dashboard can be accessed via WWW

Deliverables

The deployed dashboard

WP 4

Adding extras

... – 16.01.2021

Project Lead

Project team

Eike Blomeier, Gil Salvans Torras

Eike Blomeier, Gil Salvans Torras

Objectives

- ~~Provide additional sources of information to the dashboard in an interactive way (e.g. Twitter).~~
- Adding a Telegram-Bot which allows the user to sign up for notifications
- Adding travel restriction areas to the dashboard

Content & Tasks

- ~~Twitter data integration (from API)~~
- Telegram information bot (subscription)
- Integration of travel restrictions data

Kommentiert [EB8]: @Eike Blomeier

Kommentiert [EB9]: @Gil

Expected results

~~Twitter data: A twitter feed with the latest new regarding the selected country and COVID-19 is displayed in the dashboard~~

Telegram: The user can subscribe to a Twitter-Bot to retrieve dashboard information right to his personal handheld device

Travel restrictions: Regarding the selected country, the user gets information on the current travel restrictions

Deliverables

~~Twitter data: A windows within the dashboard to display the Twitter feed~~

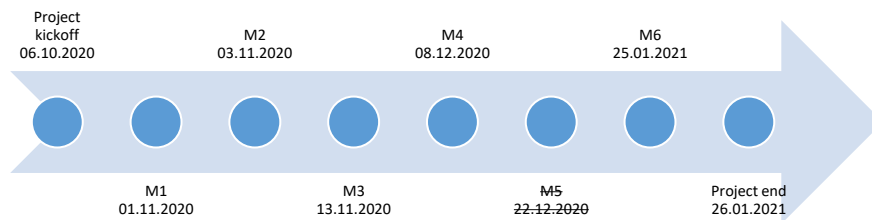
Telegram: Node-Red application for the bot

Travel restrictions: Integration of travel restrictions into the dashboard

Milestone plan

Please provide a summary of the planned milestones and provide an according overview graphic.

	Name	Date Completion
M1	Management work finalized	01.11.2020
M2	Resource research	03.11.2020
M3	Database	13.11.2020
M4	Publish services	08.12.2020
M5	Node-Red	22.12.2020
M6	Dashboard	25.01.2021



Gantt Chart

Please provide an image of your Gantt Chart as overview graphics. Please attach the Gantt chart and its monthly updates in addition to this document.

CODA

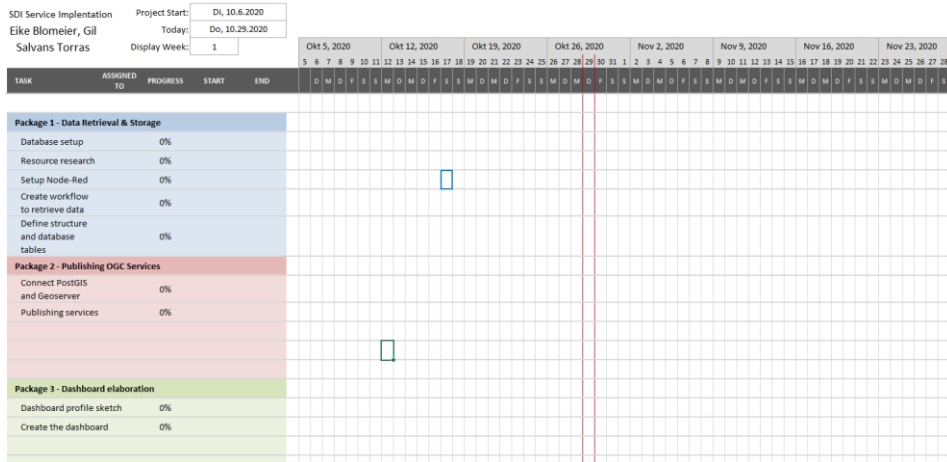


Figure 2 Gantt Chart

According to Figure 2, this screenshot was taken at the kick-off of the project. Therefore, in the folder of this assignment 4, there is a pdf with the current Gantt Chart.

Risk matrix

In this table, please provide the important risk information. Please categorize the risks accordingly. (L)ow, (M)edium, (H)igh, (C)leared as well as your mitigation strategy. Please update this list accordingly during your project execution time frame.

Kommentiert [EB10]: @Eike Blomeier

	Risk	Mitigation Strategy	Type	Update
1	Lack of data sources	Find out sources of current Covid-19 dashboards	L	29.10.2020
2	Complex raw data structure	Have a clear data schema (regarding structure and quality) and an according enhanced retrieval process	H	29.10.2020
3	Node Red dashboard capabilities do not fit in the project purpose	Find new dashboard methodologies or even code it ourselves.	H	29.10.2020
4	University GeoServer cannot be setup	Setup our own GeoServer and host it in an external server.	L	29.10.2020

Additional comments

Add additional comments if necessary.

Comments

Approval

Please provide further information if necessary.

Freigabe

Approval:

Date: 19.11.2020

Eike Sebastian Blomeier

Gil Salvans Torras

Signature principal investigator

Signature project lead/contractor

Attachments

Attachment 1: Gantt Chart (monthly updated).