D1.4: Data Management Plan (2)

WP1 – Project Management & Quality assurance

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Document History

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2.0	19/01/2021	Draft	Review feedback	AgroApps
3.0	29/01/2021	Final	Final version	KARAVIAS

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Abbreviations

Advisory Board	AB
Agricultural Insurance	AgI
Application Programming Interface	API
Climate Prediction Centre	CPC
Comma Separated Values	CSV
Data Management Plan	DMP
Digital Object Identifier	DOI
Dissemination Exploitation Communication	DEC
Earth Observation	EO
European Commission	EC
Findable, Accessible, Interoperable and Reusable	FAIR
Global Forecasting System	GFS
Graph Modeling Language	GML
Horizon 2020	H2020
Landsat-8 Surface Reflectance Level-2	LaSRC
Leaf Area Index	LAI
Letter of Support	LoS
Lighthouse Customers	LHC
Normalised Difference Vegetation Index	NDVI
Open Access	OA
Structured Query Language	SQL
Synthetic Aperture Radar	SAR
Variable Local Analysis and Prediction System	vLAPS
Vegetation Indices	VIs
Weather Intelligence Component	WIC
Web Mapping Service	WMS
Work Packages	WP

Executive summary

The present document is a deliverable of the BEACON project, funded by the European Commission's Directorate – General for Research and Innovation, under its Horizon 2020 Innovation Action Programme (H2020).

This deliverable presents the second version of the Data Management Plan (DMP) of the BEACON project. This second version lists the various new datasets (wherever they are applicable) that have been produced by the project, the main data sharing and the major management principles the project has implemented around them. Therefore, the deliverable includes all the significant changes, such as changes in consortium policies and any external factors that may have influenced data management in BEACON. It is submitted on Month 25 as a Mid-term review of the BEACON Data Management Plan.

The deliverable is structured in the following chapters:

Chapter 1: Introduction – Includes an introduction to the deliverable.

Chapter 2: DMP Components in BEACON – Includes a description of the datasets along with the documented changes and additional information.

1. Introduction

The Deliverable D1.4 Data Management Plan (2) represents the second version of the DMP of the BEACON project. BEACON is an Innovation Action project funded under the H2020 program of the EC that will last 37 months.

The current deliverable follows the FAIR template and the various identified datasets are analysed, while answers are provided about how the data have been and will be managed within the project and also is described how it will be to provide as much open and re-usable data as possible from the execution with the purpose of facilitating to others the reuse of such data.

Each dataset is identified, modified and described and information is provided on to which extent it is standard compliant, and how the data are available, accessible, interoperable and reusable, and corresponding procedures for the preservation and the data management.

The DMP is a living document which will be evolved during the whole lifespan of the project. The current document is the second of the three versions to be delivered throughout the BEACON project. The final deliverable is (D1.5) on M37.

The Work Packages that have not occurred any changes are also included in this deliverable.

2. DMP Components in BEACON

1.1. DMP Components in WP1 – Project management & Quality assurance (KARAVIAS)

DMP Component	Issues to be addressed
Data Summary	Contact details of the project partners Databases containing all the necessary information regarding the project partners. The project partners data are stored on a simple table (excel file) and it is stored on the BEACON dropbox folder, with the following fields (per partner): • Name • Email • Phone • Mobile • Skype id Furthermore, consortium meetings have been conducted remotely every month in order to discuss the project progress and address any important issue. Most meetings have been contacted using Gotomeeting. Minutes have been prepared after each meeting and are stored on the BEACON dropbox folder (docx. format). Furthermore, recording of each meeting is kept in the same folder (.mp4 format). The expected size of the docx. is not applicable. However, the size of each recording is approximately at 95 KB. Moreover, WP leaders have sent input on how they handle the data produced during the project and all the partners provided input with regards to the Risk Management Plan. Lastly, the presentations, agenda and the participants list of each plenary or review meeting are collected and kept.
Making data findable, including provisions for metadata	The data with regards to the remote meetings as well as the plenary and review meetings are stored on

	KARAVIAS server and in the BEACON dropbox folder. The data are not directly accessible from outside. Moreover, these data cannot be made available to third parties. However, the input provided with regards to the data and risk management will be available in D1.3 Data management plan, D1.4 Data management plan (2), D1.5 Data management plan (3), D1.6 Risk management plan, D1.7 Risk management plan (2) and D1.8 Risk management plan (3). The dissemination level of these deliverables is public and they are available in the project's website (http://beacon-h2020.com/), dropbox folder and in Zenodo[1] (https://zenodo.org/communities/beacon_h2020/) through the Digital Object Identifier (DOI): • D1.3 Data Management Plan (1): DOI: https://doi.org/10.5281/zenodo.3611345 • D1.6 Risk Management Plan (1): DOI: https://doi.org/10.5281/zenodo.3465497 • D1.7 Risk Management Plan (2): DOI: https://doi.org/10.5281/zenodo.4447235 The naming convention used for these data are: • Data_WP1_1_Data Management Plan • Data_WP1_2_Risk Management Plan As part of any stored data, metadata were generated, which include sufficient information with appropriate keywords to help external and internal users to locate data and related information.
Making data openly accessible	The datasets are not publicly available. All the data are made publicly available as part of the aforementioned deliverables and through BEACON website, dropbox folder and Zenodo.
Making data interoperable	N/A
Increase data re-use	Data are publicly available as part of the aforementioned deliverables and can be accessed and re-used by third parties indefinitely without a license.

[1] http://zenodo.org/

Allocation of resources	Resources have been allocated according to the project plan and WP1 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	The data have been collected for internal use in the project, and not intended for long-term preservation. No personal information will be kept after the end of the project. Furthermore, KARAVIAS pays special attention to security and respects the privacy and confidentiality of the users' personal data by fully complying with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.
Ethical aspects	N/A
Other issues	N/A

1.2. DMP Components in WP2 – Structural AgI value chain collaboration and co-evolution of business models and services (UBFCE)

1.2.1. User and technical requirements

DMP Component	Issues to be addressed
Data Summary	Questionnaires were designed during the user requirements collection and analysis process. The questionnaires were targeted to companies involved in AgI business, so called BEACON Lighthouse Customers. In addition, with 3 AgI companies (KARAVIAS, Agroseguro and Triglav) teleconference interviews were held and recorded. The responses collected both by questionnaires and interviews provided data such as: • General information • Companies' geographical area of business activity • Companies' specific practices and business models • Companies' preferences related to BEACON solutions

	These data were processed by the BEACON technical partners and used to exact the user requirements for the BEACON toolbox functionalities as well as the technical requirements of the BEACON services. Thus, the requirements enabled us to develop user friendly and highly useful solutions for AgI business models. The feedback on the first questionnaire was collected in word document, and second questionnaire was provided to the AgI companies as a Google Form. The answers are download and organized in an excel file (.xlsx) of 12KB. The recorded interviews are stored as MP4 files of 47-75MB.
Making data findable, including provisions for metadata	The data are stored on the UBFCE servers. As it contains confidential and personal data, the raw data will not be made available from outside but anonymized data can be made available upon request and after an evaluation of the request (i.e. purposes, goals. etc.). The naming conventions used are: Data_WP2_1_User requirements Data_WP2_2_Technical requirements
Making data openly accessible	The data will be kept closed until the end of the project due to data contain personal data and therefore, it cannot legally be made public.
Making data interoperable	N/A
Increase data re-use	Any data published in papers will be immediately available to meta-analysis. However, it is not legal to release personal data such as the questionnaire responses. Raw data contains personal data and cannot legally be made available.
Allocation of resources	Resources have been allocated according to the project plan and WP2 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	UBFCE servers are managed by the university IT services and they are regularly backed up and secure.

	UBFCE pays special attention to security and respects the privacy and confidentiality of the users' personal data by fully complying with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.
Ethical aspects	N/A
Other issues	N/A

1.2.2. Co-creation

DMP Component	Issues to be addressed
Data Summary	The purpose of the data collection was to document the process of co-creation of BEACON toolbox; the development & evaluation is one of the central objectives of the project. The AgI companies have been involved in testing of several BEACON versions during the development process. During each testing phase, the stakeholders provided feedback by answering a questionnaire and through teleconference interactions. The following data formats have been produced: - Excel database of stakeholders' feedback; - Audio documentation of teleconference interaction with stakeholders. The data were used in the BEACON development process following Lean startup methodology by the technical partners in order to learn where to improve the system upon the stakeholders' opinion and recommendations.
Making data findable, including provisions for metadata	The data are stored on the UBFCE servers. As it may contain confidential and personal data, the raw data will not be made available from outside. The naming convention that will be used is: Data_WP2_3_Co-creation
Making data openly accessible	The data will be kept closed until the end of the project due to data contain personal data and therefore it cannot legally be made public.

Making data interoperable	N/A
Increase data re-use	Any data published in papers will be immediately available to meta-analysis. However, it is not legal to release personal data such as the questionnaire responses. Raw data contains personal data and cannot legally be made available.
Allocation of resources	Resources have been allocated according to the project plan and WP2 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	UBFCE servers are managed by the university IT services and they are regularly backed up and secure. UBFCE pays special attention to security and respects the privacy and confidentiality of the users' personal data by fully complying with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.
Ethical aspects	N/A
Other issues	N/A

1.3. DMP Components in WP3 – Servitisation of AgI Business: Creating value by adding Earth Observation data products and servives (AgroApps)

2.3.1. Satellite Data Collection, Pre-processing System and EO Data Products

DMP Component	Issues to be addressed
Data Summary	In BEACON, EO data have been utilised, processed and "translated" to valuable information for the insurance companies to design their products and assess crop status and natural disasters. Applications based on EO Data, provide insurance companies with a robust and cost-effective tool allowing them to:

- monitor a client's crop status (vegetation, biophysical indices, yield estimation) through the use of EO-driven algorithms;
- assess crop damage, for claims pay-outs calculation, making use of time series of EO derived indices;
- inspect whether a submitted claim is legit, by remotely verifying if damage occurred in an insured parcel.

The data collected are satellite datasets from both optical and SAR instruments.

Optical reflectance imaging data originate from two missions:

- Copernicus Scientific Hub for the acquisition of Sentinel-2 satellite images (https://scihub.copernicus.eu/dhus/#/home);
- MODIS 8-day NDVI product (https://gimms.gsfc.nasa.gov/MODIS/std/GMOD09Q1/)

Synthetic Aperture Radar (SAR) originates from:

- Copernicus Scientific Hub for the acquisition of Sentinel-1 radar data (S1 L1 IW GRDH mode)

The task produces pre-processed data:

- Sentinel-2 BOA (GeoTiff format) will be generated using Sen2Cor processor for atmospheric, terrain and cirrus correction http://step.esa.int/main/third-party-plugins-2/sen2cor
- Sentinel-1 GRD, radiometrically calibrated, terrain corrected (GeoTiff format)
- MODIS 8-day NDVI Anomaly product

The data have been extracted for agricultural parcels registered for the validation and pilot phase of the project and stored in the BEACON operational database for further analysis.

Crop Monitoring Service

After pre-processing, EO data have been used in algorithms for the effective monitoring of the crop condition variability in both space and time. Towards that aim, crop specific biophysical indicators have been

calculated. Vegetation indices (VIs) have been used for the calculation of the following crop biophysical parameters:

- LAI (Leaf Area Index);
- canopy chlorophyll content;
- above ground biomass;
- estimated yield one month before harvest.

These equations have been calibrated and validated with in-situ data collected in the context of previous European projects (APOLLO, DIANA, etc.).

Damage Assessment Calculator

EO derived products have been used to assess crop damage. Damage-specific methodologies have been employed, considering:

- flooded areas detection (mapping and statistics of the flooded and non-flooded area), with the use of optical and radar data;
- burnt areas detection (mapping, grading and statistics of the affected area from the wildfire), with the use of optical data;
- hail and wind damage detection (mapping and statistics of the severity of damage), with optical satellite data;
- crop growth anomaly detection due to drought conditions, based on in-season (Normalised Difference Vegetation Index) NDVI deviations from recorded historical data.

Crop damage assessment calculator has been validated and calibrated based on recorded crop damage historical datasets provided by the Lighthouse customers and during the pilot phase. The first pilot year has been completed. Insured parcels were monitored throughout the growing season in three countries. The countries were Spain, Serbia and Greece and the crop types were soybean, maize, winter wheat and barley, as well as cotton.

Parcel Anti-Fraud Inspector

By combining remote crop damage assessment and weather events the insurer was able to verify whether a calamity has taken place and damage occurred in the insured parcel.

	Size of the satellite raw data: • Sentinel-2 MSI L1C/L2: Raw zipped image per tile size, including all bands, is 600MB; • Sentinel-1 L1 IW GRDH: Raw zipped image per tile size, including both polarizations and two satellites (S1A, S1B) data, is 1 GB. • GIMMS MODIS Terra NDVI 9x9 degree Tiles (15 MB per Tile) Size of the input data: Considering that the project's pilot phase will last two years and that both winter (wheat and barley) and summer (maize and soybean) crops will be monitored, satellite imagery should be available for 24 months. Based on the satellite, the size of the required input data is as follows: • Sentinel-2 L2A, BOA: 600 MB x 52 days (considering a mean 7 days revisit period) x 6 tiles (pilot areas: Serbia 2 tiles, Greece 2 tiles, Spain 2 tiles), equals to 187.2 GB. • Sentinel-1 CGR: 1 GB x 61 days (considering a mean 6 days revisit period) x 6 tiles, equals to 366 GB. • MODIS NDVI Anomaly: 2 years x 46 (8-day composites) x 3 Tiles x 15 MB equals to 4.2
Making data findable, including provisions for metadata	INSPIRE metadata have been created for all the EO-based geospatial products that were and will be generated in the lifetime of the project. Metadata stored in the BEACON operational database together with the raster file such as date, bounding box, projection, mission will be useful for discoverability of the data. The collected imagery will not be available for insurers or farmers. The processed data and the derived indices and parameters are available to registered partners and lighthouse customers through map display and reports. In addition, each dataset produced has been associated to a unique ID corresponding to the area of interest requested. Naming conventions for the image data are: • S2_BOA_[ID]_[YYYYMMDD].tiff (e.g. S2_BOA_AGRO_158_20190808 for the tile requested by the Lighthouse customer

	Agroseguro and is associated to registered parcel AGRO_158, which was received on 2019/08/08) - S1_CGR_[ID]_[YYYYMMDD].tiff After processing, the produced data have the following names: - NDVI_[ID]_[YYYYMMDD].tiff (e.g. NDVI_AGRO_158_20190808 for the parcel AGRO_158 requested by the Lighthouse customer Agroseguro and was received on 2019/08/08) - LAI_[ID]_[YYYYMMDD].tiff - BIOMASS_[ID]_[YYYYMMDD].tiff - CHL_[ID]_[YYYYMMDD].tiff - YIELD_[ID]_[YYYYMMDD].tiff Change detection derived data have the following names, based on the parcel ID, the date of the extreme weather event and the type of the used index: - DAMAGE_NDVI_[ID]_[YYYYMMDD]
Making data openly accessible	Only project partners and Lighthouse customers participating in the pilot phase of the project have unlimited access to products related to their registered parcels, for the duration of the project. All the data, associated metadata and documentation are deposited into the official BEACON web server and made available through RESTful API and Geoserver's web mapping service (WMS). Raw satellite data that were used for the development and delivery of the relevant products are not available and accessible to partners and/or LHC and hence are not open for reuse. Only web browser and Internet access are required to access the data.
Making data interoperable	The input and output data are available in GeoTiff or (Graph Modeling Language) GML format with associated metadata and accessible through GeoServer application, Map server application, PostGIS database and RESTful API. INSPIRE protocol has been used for metadata descriptors. INSPIRE provides typical standard for geospatial data.
Increase data re-use	The EO-based products are accessible for use to all BEACON project partners and lighthouse customers participating in the pilot phase through RESTful API from

	the BEACON database. Raw satellite data that were used for the development and delivery of the relevant products will not be available and accessible to partners and/or LHC and hence are not open for reuse. Appropriate licensing agreement will be required for data access after the project's conclusion, which will be defined through the business model during the course of the project. The EO-based products will be usable by third parties through RESTful API, but only for those parties who are part of the project and during the lifespan of the project.
Allocation of resources	Resources have been allocated according to the project plan and WP3 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	All the data are stored in the BEACON server for the purpose of servicing data and also on a separate storage server, both with backup procedures. These servers are managed by the AgroApps IT department. AgroApps fully complies with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.
Ethical aspects	N/A
Other issues	N/A

2.3.2. Operational EO data provision and DIAS integration and Climate data provision

DMP Component	Issues to be addressed
Data Summary	***Operational EO data provision and DIAS integration*** Real-time atmospheric data have been produced by ingesting and assimilating data from surface weather stations and satellite radiances using the variable Local Analysis and Prediction System (vLAPS) and analysis and near to analysis forecasts from the Global Forecasting System (GFS). To enhance the accuracy and the spatial resolution of the minimum and maximum temperature at 2 m height, and of the daily amount of precipitation, the produced gridded

atmospheric fields from the vLAPS model have been further processed using a spatio-temporal Kriging regression methodology. These data were used for the verification of extreme weather events that take place in the insured parcels.

Climate Data provision

The high-resolution medium range weather forecasts were based on the operation of the WRF-ARW numerical weather prediction model, using the GFS analysis and forecasts fields of the 12 UTC forecast cycle to define the initial and lateral boundary conditions, accordingly. The produced weather forecasts have a forecast horizon of 7 days, with hourly temporal resolution and a varying spatial resolution ranging from 2x2 km for the first 72 hours to 6x6 km from the 73rd forecast hour until the 168th forecast hour.

The provided seasonal climate forecasts have been based on the CFSv2 and C3S forecasts produced by the Climate Prediction Centre (CPC) of the US and the Copernicus Climate Change Service, respectively. CFS forecasts are downloaded every 6-hours when forecasts from a new forecast cycle are available. Every day, the 40 downloaded forecasts of the last 10 days are used to compute the ensemble statistical moments of the temperature and relative humidity of 2m high, wind of 10m high and daily accumulated precipitation, as well as the probability distribution of the forecasted above-mentioned variables. The ensemble forecast has been further enhanced with the monthly addition of the 1st day of the C3S ensemble seasonal forecasts. The final product is updated every day and has been valid for the next 6 months.

Medium Range and Seasonal forecasting data originates from:

- the Weather Intelligence Component (WIC), delivered by AGROAPPS team, which is a suite of climate and weather services. The provided services include high resolution short- and medium-range weather forecasts, early warnings for extreme weather events, real-

	time and historical high-resolution gridded climate data, and they are produced by operating in-house state of the art numerical weather prediction models, combined with advanced data assimilation of open atmospheric and EO-derived land surface observations. The Weather intelligence service package component is offered through a RESTful API. **Size of the data:** Daily downloaded meteorological data from the Global Numerical Weather Prediction Models, including MADIS observations are approximately 8.4 GB. Daily meteorological products size for near real time weather observations and 7-day forecasting are approximately 12.3 GB. Seasonal weather forecasts (6-month products) result in 3.63 GB data per month, therefore a total of approximately 22 GB. Climatology data for the Weather Risk Probability service of BEACON occupy a standard size of 290 GB and originate from ERA5 historical observations. The ERA5 data are updated yearly with a total of 7.25 GB data covering the European Continent. Generated and collected data are available in the following types and formats: Gridded meteorological data are in .GRIB format and are transformed in .NetCDF file types.
Making data findable, including provisions for metadata	Metadata such as creation date, version, bounding box, projection, quality of the data will be useful for discoverability of the data. Only registered partners and lighthouse customers are able to find meteorological and climatic data for their parcels and for a specific date. Naming conventions for the data are in the form: - temp_[ID]_[YYYYMMDD] (e.g. temp_ AGRO_158_20190530), that is the temperature requested by Agroseguro lighthouse customer for day 30/05/2019 and for parcel with ID AGRO_158

Making data openly accessible	Only project partners and lighthouse customers participating in pilots have permissions to access the data. Clients (farmers) of the participants also have access to the data, during the pilot phase. All the data, associated metadata and documentation are deposited on official BEACON web server and are available through RESTful API and Geoserver's WMS. Raw data that were used for the development and delivery of the relevant products are not available and accessible to partners and/or LHC and hence are not open for reuse. Only web browser and Internet access are needed to access the data.
Making data interoperable	The data are in GeoTiff, csv or GML format with associated metadata and provided through RESTful API. Based on that, there is possibility for using in various open software applications.
Increase data re-use	The data are accessible for use to all BEACON project partners and lighthouse customers participating in the pilot phase through RESTful API from the BEACON database. Raw data that were used for the development and delivery of the relevant products are not available and accessible to partners and/or LHC and hence are not open for reuse. Appropriate licensing agreement will be required for data access after the project's conclusion, which will be defined through the business model during the course of the project. The products will be usable by third parties through RESTful API, but only for those parties who are part of the project and during the lifespan of the project.
Allocation of resources	Resources have been allocated according to the project plan and WP3 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	All the data are stored in the BEACON server for the purpose of servicing data and also on a separate storage server, both with backup procedures. These servers are managed by the AgroApps IT department.

	AgroApps fully complies with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.
Ethical aspects	N/A
Other issues	N/A

2.3.3. Crop Loss Assessment – Crop Growth Models

DMP Component	Issues to be addressed
Data Summary	A crop loss assessment methodology has been developed. Among other tools, crop growth models were used to predict the potential crop yield as affected only by the climate variability and forecasted weather trends. Seasonal climate forecasts until the end of the upcoming growing season will provide the required daily meteorological input for the crop models. Comparing seasonal yield prediction with historical yield data and past causality, provide insurance companies with the ability to estimate the magnitude of occurred damage with a greater accuracy. Input files include: • daily meteorological parameters for the duration of the growing season (gridded data). The forecasted values are updated with the observed values, at the end of each month during the simulation period. Through an iterative procedure, a new, more accurate yield prediction will be available by the end of the month. The process will continue generating and substituting yield predictions until the end of the growing season; • crop type; • parcel area; • growing season length and defined phenological growth stages per crop; • historical crop yield datasets (gridded data).

	The following data formats were used for the input files of the crop growth models: - .txt - .xlsx - .shp (raster and vector data) - .GRIB (gridded yield data) - .NetCDF **Size of the data** The output data (results) are available in NetCDF files, with a spatial resolution of 25 x 25 km. Output data per country were mapped and the final user has the ability to switch between crops and display the results. Information per parcel have also been provided, related to the grid cell where the parcel belongs. Results in the parcel level are displayed in graphs and tables. Gridded file size is 500 MB for each crop. Depending on the length of the growing season (6 or 7 months) a file is created and stored for every month. Accounting for 9 crops the estimated total annual file size is estimated as 500 MB x 9 crops x 7 months equals to 40.5 GB.
Making data findable, including provisions for metadata	Metadata such as creation date, version, bounding box, projection, quality of the data are useful for discoverability of the data. Only registered partners and lighthouse customers are able to find crop yield data for their parcels and countries. Naming conventions for the data are in the form: COUNTRY_[ID]_[CROP TYPE]_ [YYYYMM] (e.g. SPAIN_AGRO_158_MAIZE_201908, that is the predicted maize crop yield for Spain related to parcel AGRO_158 registered by Agroseguro lighthouse customer, updated for month August 2019).
Making data openly accessible	Only project partners and Lighthouse customers participating in the pilot phase of the project have unlimited access to results related to their registered parcels and country, for the duration of the project. All the data, associated metadata and documentation are deposited into the official BEACON web server and made available through RESTful API and Geoserver's WMS. Raw data that were used for the development

	and delivery of the relevant products are not available and accessible to partners and/or LHC and hence are not open for reuse. Only web browser and Internet access are needed to access the data.
Making data interoperable	The input and output data are made available in GeoTiff format with associated metadata and accessible through GeoServer application, Map server application, PostGIS database and RESTful API. INSPIRE protocol has been used for metadata descriptors. INSPIRE provides typical standard for geospatial data.
Increase data re-use	The data are accessible for use to all BEACON project partners and lighthouse customers participating in the pilot phase, through RESTful API from the BEACON database. Raw data that were used for the development and delivery of the relevant products are not available and accessible to partners and/or LHC and hence are not open for reuse. Appropriate licensing agreement will be required for data access after the project's conclusion, which will be defined through the business model during the course of the project. The products will be usable by third parties through RESTful API, but only for those parties who are part of the project and during the lifespan of the project.
Allocation of resources	Resources have been allocated according to the project plan and WP3 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	All the data are stored in the BEACON server for the purpose of servicing data and also on a separate storage server, both with backup procedures. These servers are managed by the AgroApps IT department. AgroApps fully complies with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.
Ethical aspects	N/A

Other issues	N/A

2.3.4. Operational Data Products Validation

DMP Component	Issues to be addressed
Data Summary	Historical reference data from various sources (measurements and ground truth data from partners and lighthouse customers) have been collected and harmonized to act as a baseline for EO products validation and evaluation. Data collected during the two-year pilot phase of the project were also used for validation purposes. The aim is the qualitative and quantitative assessment of the performance of the EO-derived algorithms and models in terms of precision (random errors) and accuracy (systematic biases) with respect to the spatio-temporal target scale of the BEACON services. Depending on the data structure and availability, appropriate validation methods and statistical procedures have been selected and applied. The results of the validation were documented in reports, along with recommendations about adjustments. • crop type • event causing the damage • date of damage • parcel size and polygon geospatial data • expected yield before the calamity • yield received after the calamity These data were used for validating the damage assessment calculator. During the pilot phase, in situ data have been collected in order to evaluate the performance and impact of the BEACON Toolbox. The data have been collected by the pilot partners and include all the required information on occurred damage and biophysical parameters. The following data formats were used for validation purposes: • .csv • .xlsx • .kml

- .shp (raster and vector data)

Size of the data

For the validation of damage assessment services, the Lighthouse customer AgI company AgroSeguro provided a number of in-situ data from wheat and barley damaging events occurred in Spain. These pre-pilot events took place during the 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019 growing seasons. A number of in-situ damage data were also collected during the pilot phase in Spain. For testing and development of the methodologies, damaged and non-damaged parcel data were provided. Apart from the parcel's geospatial data, all cases included crop metadata:

- crop type
- event causing the damage
- date of damage
- parcel size
- expected yield before the calamity
- yield received after the calamity
- damage percent

The following table presents the number of provided damage cases by AgroSeguro during the pre-pilot and pilot cases:

Year	Drought	Hail	Non-Damaged
2014-2015	12	-	-
2015-2016	-	17	117
2016-2017	95	-	53
2017-2018	13	32	-
2018-2019	42	-	-
2019-2020 pilot	-	23	109
Total	162	72	280

The Lighthouse customer AgI company Triglav provided a number of in-situ data from wheat, maize and soybean damaging events occurred in Serbia. These pre-pilot events took place during the 2015-2016, 2016-2017, 2017-2018, 2018-2019 growing seasons. A number of in-situ damage data were also collected during the pilot phase in Serbia. For testing and development of the methodologies, damaged and

non-damaged parcel data were provided. Apart from the parcel's geospatial data, all cases included crop metadata:

- crop type
- event causing the damage
- date of damage
- parcel size
- expected yield before the calamity
- damage percent

The final received yield was not provided in the case of Serbia. The following table presents the number of provided damage cases by Triglav during the pre-pilot and pilot cases:

Year	Hail		
	wheat	maize	soybean
2015-2016	-	26	22
2016-2017	-	16	11
2017-2018	59	1	24
2018-2019	-	-	-
2019-2020 Pilot	33	26	39
Total	91	69	86

Year	Non-Damaged		
	wheat	maize	soybean
2015-2016	-	-	-
2016-2017	-	-	-
2017-2018	-	-	-
2018-2019	-	55	66
2019-2020 Pilot	16	15	7
Total	16	70	73

The above event cases required the acquisition of optical multispectral and SAR imagery. Each EO tile date represented an event and covered a number, if not all, parcel cases.

A rough estimation is that 80 multispectral images (Sentinel 2), with an estimated size of 120 GB, and 80 SAR images (Sentinel 1), with an estimated size of 80 GB, representing the pre- and post-event status of the parcels, were acquired for the validation and evaluation of the hail damage assessment EO product.

	The Drought damage assessment product validation and evaluation required the full acquisition of MODIS NDVI timeseries from 2001 until current dates, with an estimated size of approximately 6.3 GB. For the flood damage assessment, 3 event cases of Copernicus Emergency Management Service (CEMS) were used to validate and evaluate the flood extent and delineation. For each event, stacks of S1 SAR images were created (flood and reference stack) in order to capture the flood phenomenon evolution, and to test the change detection tool. This accounted for 147 Sentinel-1 images, of approximately 242 GB of space. For burnt areas detection, grading and crop loss assessment, 3 event cases of CEMS were used to validate and evaluate the wildfires EO product. A total of 20 Sentinel-2 satellite images were acquired, resulting in 21 GB of space.
Making data findable, including provisions for metadata	Validation data are locally hosted at BEACON server. For each dataset, related metadata describe data structure and methodology used to collect and validate the data. Only the technical team has access to these data and they are not used on the BEACON platform. The naming convention used is: Data_WP3_1_Validation data.
Making data openly accessible	Damage data used for validation purposes is confidential and provided under a confidentiality agreement between AgroApps and the partners or lighthouse customers. All data are locally hosted at the BEACON server. The validation process follows the current state-of-the-art methodologies and the results will be presented as a report. Reports are available to the partners.
Making data interoperable	The following data formats have been produced: - .csv - .xlsx - .pdf - .shp (raster and vector data)

	These data files have been useful mainly to the BEACON project partners and BEACON Lighthouse Customers for evaluation purposes.
Increase data re-use	The validation report is available only to the partners of the project.
Allocation of resources	Resources have been allocated according to the project plan and WP3 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	The confidential data (raw data) have been placed in a password area on the BEACON database which is managed by the AgroApps technical team. AgroApps fully complies with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679. Furthermore, the technical team (AgroApps) has signed three Confidentiality Agreements with the partner UPM and the Lighthouse Customers (Interamerican & Triglav) in order to process and use these data.
Ethical aspects	No data referring to parcels' geospatial information, as well as personal farmers' information will be distributed within the described historical or pilot cases reports.
Other issues	N/A

2.4. DMP Components in WP4 – BEACON toolbox services & functions ecosystem: design and implementation (BEACON toolbox design and implementation) (AgroApps)

2.4.1. System Architecture

DMP Component	Issues to be addressed
Data Summary	Functional and non-functional aspects, technical capabilities, components descriptions and dependencies, API descriptions, information flow diagrams, internal and external interfaces, software

	and hardware requirements and testing procedures related to data specified and validated among the BEACON technical, pilot partners and Lighthouse Customers (LHC). Technical requirement reports have been created in order to describe the aforementioned procedures and requirements for all the pilots. These reports were the basis upon which the system has been developed and will further be modified.
Making data findable, including provisions for metadata	The reports are stored on AgroApps server and are not directly accessible from outside. Moreover, these data are neither available to third parties nor discoverable and accessible to the public, since the level of dissemination of the respective deliverable D4.1 Overall architecture and system design specification is confidential. The naming convention used is: Data_WP4_1_System Architecture. No metadata are produced.
Making data openly accessible	Only the technical team has access to these data.
Making data interoperable	N/A
Increase data re-use	N/A
Allocation of resources	Resources have been allocated according to the project plan and WP4 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	The data have been collected for internal use in the project, and it are not intended to be preserved for long-term. Furthermore, AgroApps fully complies with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.
Ethical aspects	N/A
Other issues	N/A

2.4.2. BEACON Platform

DMP Component	Issues to be addressed
Data Summary	Various data, like insured farmers' personal information, farm information, farm logs, reports and shapefiles containing farm location, have been generated via the platform. All of these data are useful in order the BEACON services and products to function properly and provide accurate information (such as vegetation indices, damage assessment calculation, weather alerts). The aforementioned data have be saved in the BEACON central database. All user actions (login, logout, account creation, visits on specific parts of the platform) are logged and kept in the form of a text file. This log is useful for debugging purposes. Reports containing information on user devices (which browsers and mobile phones) as well as number of mobile downloads (taken from play store for android downloads) are be useful for marketing and exploitation purposes, as well as decisions regarding the supported browsers and operating systems. Furthermore, damage assessment results alongside with monetary estimation has been generated through the system. These results have been available through the Damage Assessment calculator and have been saved in the BEACON central database. Only the insurers are able to view these results.
Making data findable, including provisions for metadata	The data have not been directly accessible from outside. These data are neither available to third parties nor discoverable and accessible to the public, since the level of dissemination of the respective deliverables D4.2 First version of the BEACON toolbox and D4.5 Final version of the BEACON toolbox is confidential. The naming convention used is: Data_WP4_2_BEACON platform. Every action on the platform produces meaningful metadata such as time and date of data creation or data amendments and owners of actions that took place as well as damage assessment calculations and

	risk types have been saved along with the inspection results to enhance the discoverability of the results. The database is not discoverable to other network machines operating on the same LAN, VLAN with the DB server or other networks. Therefore, only users with access to the server (BEACON technical team members) are able to discover the database.
Making data openly accessible	Only registered users and administrators have access to the data. The data produced by the platform are personal data and will not be shared with others without the user's permission. No open data will be created as part of BEACON. The database will only be accessible by the authorized technical team.
Making data interoperable	N/A
Increase data re-use	BEACON may be integrated with third parties applications, currently being used by the insurance companies, in order to re-use information already inserted in those systems. The raw data are not publicly available.
Allocation of resources	Resources have been allocated according to the project plan and WP4 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	All platform generated data have been saved on the BEACON database server. Encryption has been used to protect personal user data like emails and passwords. All data have been transferred via SSL connections to ensure secure exchange of information. If there is need for updates, the old data will be overwritten and all actions will be audited in detail and a log will be kept, containing the changed text for security reasons. The system is weekly backed up and the backups are kept for 3 days. All backups are hosted on a remote server to avoid disaster scenarios. All servers are hosted behind firewalls inspecting all incoming requests against known vulnerabilities such as SQL injection, cookie tampering and cross-site

	scripting. Finally, IP restriction enforces the secure storage of data. AgroApps pays special attention to security and respects the privacy and confidentiality of the users' personal data by fully complying with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679. Moreover, "Personal Data Protection Policy " and "Terms and Conditions" have been included in the BEACON, in order to inform the users of how BEACON collects, processes, discloses and protects the incoming information. The BEACON platform will not keep personal data and other information after the end of the project.
Ethical aspects	All the generated data will be protected and will not be shared without user's consent.
Other issues	N/A

2.4.3. Blockchain

DMP Component	Issues to be addressed
Data Summary	The Blockchain components do not collect data on their own, they only process data which have been collected/ generated in other parts of the BEACON toolchain. The Blockchain component re-uses data from other parts of the BEACON toolchain, especially: - pesudonymised client data according to GDPR - parcel/ field data - contract data - weather data The exact scope of data to be used depends solely on the supported insurance products which are useful for the insurance companies and their clients. In general, only small portions of data are processed on chain.
Making data findable, including provisions for metadata	Registered users are able to discover the data stored in the Blockchain corresponding to the insurance

	products and are identifiable via business process identifiers. Meaningful metadata have been produced as a result of every transaction such as transaction hash, block number and timestamp. Clear version numbers are provided via semver (semantic versioning). The naming convention used is: Data_WP4_3_Blockchain
Making data openly accessible	The Blockchain component has been run as private, permissioned chain. The data are stored on blockchain, a distributed ledger. All data are replicated over all participating nodes. For the private, permissioned chain that means that a closed group of validating nodes exist, which mine blocks and validate transactions. Further nodes can enter the network and read the distributed ledger. The Blockchain data are accessed: • in raw form via blockchain nodes • in readable form via special services and API calls • optional: via specialized applications which read API and offer a visual representation.
Making data interoperable	N/A
Increase data re-use	The data are available for re-use only for the registered users in the BEACON toolbox.
Allocation of resources	Resources have been allocated according to the project plan and WP4 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	All data are stored anonymized in the private Blockchain. Etherisc pays special attention to security and respects the privacy and confidentiality of the users' personal data by fully complying with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.

Ethical aspects	N/A
Other issues	N/A

2.4.4. Maps produced by the EO and meteorological models

DMP Component	Issues to be addressed
Data Summary	One of the main offerings of BEACON is the generation of maps, based on EO and meteorological models and on climatology service, that can help insurers to increase their efficiency. The geolocation metadata, for each type of map produced by each service (monitoring, damage assessment and climatology) have been produced and been depicted in the map as layers.
Making data findable, including provisions for metadata	Registered insurers are able to discover maps corresponding to the farms of their clients. Meaningful metadata have been produced as a result of every action (time and data of data creation or data amendments, actions that took place, service that produced the map, crop type of depicted farm). The naming convention used is: Data_WP4_4_Maps
Making data openly accessible	Maps that have been produced are not openly accessible. Users must sign in in order to access the produced maps. The maps and the metadata are made available for use by the BEACON applications through the secure API that has been created. The raw data, used for the generation of the maps' layers, that are stored in the BEACON database are only accessible by the authorised technical team.
Making data interoperable	N/A
Increase data re-use	Maps that have been produced during the project are offered to anyone who requests them. After the completion of the project, these data will only be available to users who will buy the product.
Allocation of resources	Resources have been allocated according to the project plan and WP4 allocated resources. No

	additional costs are foreseen for making this dataset FAIR.
Data security	All data generated by the platform have been saved on the saved on the BEACON server. All data are transferred via SSL connections to ensure secure exchange of information. In case of necessary updates, the old data are overwritten and all actions are audited in detail and a log is kept, containing the changed text for security reasons. Daily backups for a period of 3 days are kept. All backups are hosted on a remote server to avoid disaster scenarios. All servers are hosted behind firewalls inspecting all incoming requests against known vulnerabilities such as SQL injection, cookie tampering and cross-site scripting. Finally, IP restriction enforce the secure storage of data. AgroApps pays special attention to security and respects the privacy and confidentiality of the users' personal data by fully complying with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.
Ethical aspects	N/A
Other issues	N/A

1.4. DMP Components in WP5 – Creating Business Experience & BEACON Accreditation path (KARAVIAS)

DMP Component	Issues to be addressed
Data Summary	The purpose of the WP5 data is to identify all needs for the pilot implementation, to define the specifications of each pilot case and to perform the pilots testing in an operational environment. Furthermore, the WP5 data serves to improve and further validates the services and delivery the final BEACON toolbox. A detailed plan of pilot execution, evaluation methodology and monitoring has been made, as well

	as adequate training sessions were organized to support LHCs and pilot testing of the BEACON solution in the evaluation and assessment of the resulting services. The data were collected from project coordinator KARAVIAS (Greece) and LHCs: Agroseguro (Spain) and Triglav (Serbia) that are the ones among other LHCs who were willing to deep dive into pilot and provide project partner AgroApps, responsible for the deployment of the final software system as a whole to address the project's business requirements, with the tangible data in order to support successful development of the services. More specifically, this dataset includes the following details: • Historical records on damages/calamities and exact dates when these occurred • The list of geo-referenced parcels with coordinates/boundaries or/and in extended .SHP file format exported from public service in the specific country e.g. Geoserbia platform available in Serbia • The results of the damage estimation for given parcel (in %) • Parcel ID • Parcel size • Area of interest • No of different clients • Crop type • Type of calamity event • Date of assessment • Growing Season for each crop type/ Crop growth stages for each crop type (whether is type of insurance Clam-based or Index-based) • Expected yield (kg)/ha – insured yield (kg)/ha • Expected yield (kg)/per parcel size • Final Yield (kg)/ha - the yield that would have been if the insured risk did not happen • Final Yield (kg)/ha - the yield that would have been if the insured risk did not happen on the whole parcel

	Moreover, the other table (excel format) with regards to pilot indicators will be circulated to the LHCs and contains the following information: • Assumption of administrative and operational costs before BEACON for the selected area (costs of inspections, costs of inspectors) • No of damages that took place • No of inspections performed • No of inspectors deployed • Policies paid (€) • No of Contracts/policies paid • Time of response after a claim • Time needed to organize resources • Time needed to complete the calamity process (including the payment) • % of true claims • % of claims that could be avoided (weather extreme alerts) Likewise, this table includes the sheets with the questions about testing experience, degree of satisfaction and general questions such as What are the main Strengths/Weaknesses/Barriers of the BEACON toolbox and suggestions for future improvements to the BEACON toolbox functionality. The dataset received from LHCs are stored in a simple table (excel format) along with the Confidentiality Agreement (CA) signed by their side. Both dataset and CAs are kept in the KARAVIAS, AgroApps and InoSens servers. InoSens, as pilot execution and training task leader ensures execution of the pilots. Therefore, all actors are able to use the provided data and services effectively and are thus able to provide the most relevant and accurate feedback. A set of the training material was designed (pdf file format) and a number of training were provided to LHCs in different stages. The Excel has been chosen as a main tool for the pilot monitoring and monitoring of the parcels in order to test the accuracy of the BEACON services and accordingly store the results from the testing. Moreover, Trello is serving as a tool for the collection

	of feedback from the potential end-users to ensure timely reaction on any failures in the pilot approach and in the solution. Most of the trainings were conducted remotely either using Skype or Zoom.
Making data findable, including provisions for metadata	The raw data collected in WP5 are not be made publicly available as it might include confidential and personal data. Not even the results derived from these data process will be made publicly available since the dissemination level of the respective deliverables (D5.3 Pilot data validation report and D5.4 Validation report) is confidential. The naming convention used is: Data_WP5_1_Evaluation data. However, the pilot partners and the LHC have been provided with training material in order to better facilitate the pilot implementation phase. This material was requested to be translated into its pilot country's language. The D5.2 BEACON training material is openly accessible through Zenodo: D5.2: BEACON training material: DOI: https://doi.org/10.5281/zenodo.4447222 The naming convention used is: Data_WP5_2_Training material. No metadata have been or will be generated
Making data openly accessible	All raw data collected in WP5 are and will be for internal use within the project consortium and especially for the validation of the BEACON services. As these data might contain personal data, the databases will not be publicly available. The data are stored on KARAVIAS, InoSens and AgroApps servers.
Making data interoperable	N/A
Increase data re-use	The data that have been and will be collected and processed during this WP will be exclusively for analytical and statistical purposes and will not be re-used.

Allocation of resources	Resources have been allocated according to the project plan and WP5 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	The data are collected for internal use in the project and not intended for long-term preservation. The data are stored on KARAVIAS, InoSens and AgroApps servers. Both companies fully comply with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.
Ethical aspects	CA document has been prepared specifying the main purpose of the data collected and/ or generated within WP5, i.e., these data will be neither available to third parties nor discoverable and accessible to the public, since the parties disclosed to each other information and documentation, which is proprietary and confidential or otherwise generally not available to the public.
Other issues	N/A

1.5. DMP Components in WP6 – BEACON Commercialisation Playbook and Growth Hacking (INOSENS)

DMP Component	Issues to be addressed
Data Summary	The purpose of data collection in WP6 is to support commercialization of the BEACON toolbox, to define the business models for sustainable growth and to attract attention of global Agricultural Insurance (AgI) players engaging them in the BEACON development. The data that will be collected and/ or generated within WP6 are representing the mix of the foreground knowledge derived from the experience in project implementation together with new knowledge. In majority, such data is intangible by nature and brings the following results of the project such as: business modeling information, know-how, network of partners, etc.

	All findings, derived knowledge, experience from the project implementation as well as expanded network of partners will be used in future business ventures. Beside WP leader (InoSens), all partners will contribute the data input with regards to reaching of the critical KPIs for growth hacking activities as well as for the creation of BEACON Business Plan. This dataset includes the following details and date related: - Market analysis - Competitive analysis - Business proposition - Service value chain - Identification of economic and non-economic risks - BEACON Business canvas - Roadmap for service implementation and exploitation - Marketing, dissemination and exploitation - Call (date) - Status (LHC, Pending, Not interested) - Result/ Comment Furthermore, interviews and B2B meetings have been conducted with LHCs in order to inform them about the project status & progress, to explore their involvement and contribution into the project as well as during the business training sessions. Interviews are mostly conducted remotely either using Skype or Zoom (due to a COVID-19 pandemic, only several are conducted in face-to face manner). The expected size of the data is not applicable here, as the size is not a meaningful measure for the respective WP6 activities (B2B meetings, interviews, market outreach activities, etc.) Data can be utilized in future business ventures through applied experience.
Making data findable, including provisions for metadata	The data with regards to the interviews with the LHC and the LoS data are stored on AgroApps server and are not directly accessible from outside. Moreover, these data are neither available to third parties nor discoverable and accessible to the public, since the

	level of dissemination of the respective deliverables D6.8 Lighthouse Customers Group, D6.9 Lighthouse Customers Group (2) and D6.10 Lighthouse Customers Group (3) is confidential. The naming convention used is: Data_WP6_1_LHC Regarding the input provided for the Business Plan and Market Analysis as well as for the growth hacking activities, these data are neither available to third parties nor discoverable and accessible to the public, since the level of dissemination of the respective deliverables (D6.2, D6.3 and D6.4 Report of Growth hacking activities and D6.11, D6.12 and D6.13 Business models and go-to-market strategy) is confidential. Some business modeling and market analysis findings are stored in InoSens server, still not directly accessible from outside. The naming conventions used are: - Data_WP6_2_Growth hacking activities - Data_WP6_3_Business Plan - Data_WP6_4_Market Analysis No metadata have been or will be generated.
Making data openly accessible	The datasets are not be publicly available. Only the partners have access to the data through the dropbox folder.
Making data interoperable	N/A
Increase data re-use	N/A
Allocation of resources	Resources have been allocated according to the project plan and WP6 allocated resources. No additional costs are foreseen for making these datasets FAIR.
Data security	All the data are saved on the InoSens (WP leader) and AgroApps servers. InoSens and AgroApps pay special attention to security and respects the privacy and confidentiality of the users' personal data by fully complying with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679.

Ethical aspects	N/A
Other issues	InoSens applies ISO 9001 standard within the organization structure of the company, which acquires the data management procedures for improvement of data quality across data collection system. From the national regulations, InoSens will follow the rules of Law on data security – Republic of Serbia.

1.6. DMP Components in WP7 – Dissemination, Communication and Diffusion of BEACON (ETAM)

DMP Component	Issues to be addressed
Data Summary	The aim of the data collected and/ or generated within WP7 is to develop and implement an effective dissemination, exploitation and communication strategy as well as to attract and engage as many AgI enablers as possible, establishing an interactive Advisory Board (AB). The AB members data is described by the following fields (in excel format): • Name • Description • Affiliation • Organisation • Country • Proposed by Interviews have been conducted with the AB members and webinars will be held in order to inform them about the project status and progress. Most interviews and webinars will be conducted remotely either using Skype or Gotomeeting. The expected size of the data is not applicable, as the size is not a meaningful measure. Up to now, 4 interviews have been held. Furthermore, all the partners provide reports with regards to the dissemination activities they have performed.

	Personal data of newsletter subscribers will be collected, such as: - Email address - First name - Last name - Organisation - Country Personal data of the BEACON website users requesting for further information through the Contact Form, such as: - Name - Email - Subject - Message Regarding direct engagement activities, personal data of stakeholders are collected in order to personally invite them to support the project. These data are: - Email address - First name - Last name With respect to the communication of the project's press releases, for printed and online media, their email addresses are stored. Lastly, for the engagement polls an email address is requested before enabling participation.
Making data findable, including provisions for metadata	The data with regards to the interviews of the AB and the contact details are stored on ETAM server and are not directly accessible from outside. Moreover, these data cannot be made available to third parties. However, the interviews are available in D7.4 "Agricultural Ins. Enablers" – Advisory Board report, D7.5 "Agricultural Ins. Enablers" – Advisory Board report (2), D7.6 "Agricultural Ins. Enablers" – Advisory Board report (3) and D7.7 "Agricultural Ins. Enablers" – Advisory Board report (4). The dissemination level of these deliverables is public and they are available in the project's website and in Zenodo through the DOI: - D7.4 "Agricultural Ins. Enablers" – Advisory Board report: DOI: https://doi.org/10.5281/zenodo.3339150

- D7.5 “Agricultural Ins. Enablers” – Advisory Board report (2): DOI: https://doi.org/10.5281/zenodo.4447269
- D7.6 “Agricultural Ins. Enablers” – Advisory Board report (3): DOI: https://doi.org/10.5281/zenodo.4475915

The naming convention used is: Data_WP7_1_Advisory Board

Regarding the input for the dissemination activities, the data are also stored on CREVIS servers and are not directly accessible from outside. These data will be presented in the respective deliverables (D7.2, D7.3 BEACON promotional activities and engagement report), which are publicly available either through the project website or through Zenodo.

The naming convention used is: Data_WP7_2_Promotional and engagement activities

The general approach regarding the DEC activities and plan is presented in the respective deliverable D7.1 Dissemination, Exploitation and Communication as well as the D7.2 BEACON promotion activities and engagement report (1) and is accessible through the BEACON website and Zenodo with the following DOI:

- D7.1 Dissemination, Exploitation and Communication: DOI: https://doi.org/10.5281/zenodo.3339140
- D7.2 BEACON promotion activities and engagement report (1): https://doi.org/10.5281/zenodo.4447249

The naming convention used is: Data_WP7_3_DEC

As part of any stored data, metadata have been and will be generated, which include sufficient information with appropriate keywords to help external and internal users to locate data and related information.

With regards to the newsletter subscribers, the data are stored in the BEACON website database and are not directly accessible from outside. These data will not be presented in any report or deliverable but an indicator (the sum of the subscribers) will be presented in the respective reports. The same approach will be

	followed with the data collected from the Contact Form. The name conventions used are: • Data_WP7_4_Newsletter subscribers • Data_WP7_5_Contact form No metadata have been or will be generated.
Making data openly accessible	The datasets are not publicly available. All the data will be made publicly available as part of the aforementioned deliverables and can be accessed and re-used by third parties indefinitely without any restrictions.
Making data interoperable	N/A
Increase data re-use	Data are publicly available as part of the aforementioned deliverables and can be accessed and re-used by third parties indefinitely without any restrictions.
Allocation of resources	Resources have been allocated according to the project plan and WP7 allocated resources. No additional costs are foreseen for making this dataset FAIR.
Data security	All data collected data are saved on BEACON website database. ETAM fully complies with the applicable national, European and international framework, and the European Union's General Data Protection Regulation 2016/679. Moreover, "Privacy Policy" and "Terms and Conditions" have been included in the BEACON website, in order to inform the users of how BEACON collects, processes, discloses and protects the incoming information.
Ethical aspects	N/A
Other issues	N/A