Changelog:
27/07/2015: AEF: add sections 3.4, 3.5, 3.6
14/07/2015: AEF: extend section 3.3
13/07/2015: CXP: extend section 1 and 3.2
24/06/2015: integrated comments from CXP and AMA
10/06/2015: cleanup
09/06/2015: add roadmap
08/06/2015: information added
26/05/2015: created

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1 Introduction

1.1 Abstract

This document describes the features of the Climate Change Adaptation portal, referred as “Portal” and contains a plan for a complete reimplementation using a different technology.

1.2 Current Status of Climate-ADAPT

DG CLIMA funded all content and IT activities for Climate-ADAPT until the launch in March 2012, with extensive advice and involvement from EEA. In the work plan it is stated that EEA, supported by ETC CCA, provides the staff resources for the content updating and improvements, and the IT staff resources and costs of hosting the platform on EEA servers. DG CLIMA provides part of the content (through external contracts) and also the costs for IT improvements to the platform, through IT contractors.

In this context EEA is planning to migrate Climate-ADAPT website to Plone as content management system. Reason is that EEA technical team has experience with Plone as CMS used for the EEA website and hosted websites like e.g. BISE. Synergies and reducing overall maintenance cost can be achieved when we reuse components developed for Plone across all websites we maintain and even more important build and extend the technical knowledge base on our CMS.

The expectations and requirements towards EEA as a service provider for technical and content management of websites in one hand are a reflection of the fact that services we provide are of value. But this has to be balanced against resource implications, for both content and IT activities from EEA.

1.3 Benefits and opportunities of a migration

The main arguments are:

- Transfer from solutions between the different websites; implementations for EEA website, BISE or others
- Some of the new features for Climate-ADAPT are already implemented on Plone in EEA (e.g. workflow support, faceted search, interactive visualisation - DaViz, export to PDF, online commenting)
- Harmonising the technical infrastructure: support only one CMS for all public websites we operate
    - Knowledge sharing between EEA team
        - Easier to balance workload inside the technical team
        - Higher efficiency in site management (technical)
        - More accurate resource planning (based on broader experience)
    - Knowledge sharing with the Plone open source community
    - Use of existing framework contracts for maintenance is possible

- Reduce resources needed to maintain Climate-ADAPT (both content and IT)

1.4 Risk and shortcomings of a migration

The list of risks and negative aspects of a migration addresses aspects from user perspective, organisational and technical arguments.

- Additional costs in the short term (2016)
- Training needed for writers, reviewers and managers to deal with new website;
- Training needed twice for contributors and users, in particular cities (first in liferay and then in plone)
- A new system is a risk to introduce new bugs. Features of the already existing website need to be tested again in the new one.
- Operate Climate-ADAPT under liferay and in parallel migrate to Plone
  - Difficult planning
  - Risk of confusing operational with migration
  - Double development due to new content/features that cannot be postponed (to be avoided)
  - Experts (technical and thematic) have to think in “two worlds”
  - Continuous quality of user support
- Give away experience in liferay we have gained.

1.5 Estimated return on investment (RoI)

The efficiency gains on that area are difficult to quantify and are therefore not included in the estimate. Calculation is that we can reduce time from technical expert to maintain the website and advice contracted consultants from actually 80% - 100% of an FTE to less than 50%. We save maintenance time for system administration as we don’t have to operate liferay in future. And we save budget on extension (for Climate-ADAPT) about 50%.

This estimate is based on an analysis what the actual requirements are (from DG Clima, result of user feedback, change requests) and what an implementation based on Plone would cost compared to the contract from DG Clima for liferay (9 month duration). Synergies, reuse of existing features and improved stability are soft factors which are not quantified.

So the estimated RoI of a migration is 100k€ consisting of 40-50% of a FTE, 10K€ for budget savings for system administration and 50K€ of development for comparable services provided under Plone. The estimate has definitely a number of uncertainties but gives an indication that the costs saved are about the same as the costs to be made in about one year. Even if we can save only 20% of an FTE and increase efficiency of budget use only by 25% this period is still only 2 years.

With respect to the planned lifetime of Climate-ADAPT website beyond 2020 this is still a good approach.

1.6 Time needed

See section 3.2 for more details

Phase	Rough Estimate	Persons involved
1 Analyse & understanding of the requirements	2 weeks	Business Analyst Product Owner
2 Create Plone environment for initial data migration/draft	2-3 weeks	2x Developer
3 Developed the content migration procedure	4-6 weeks	2x Developer
4 Implement specific features	10-14 weeks	2x Developer 1x Designer
5 GIS related tasks	2-3 weeks	1x Developer
6 Final tests and acceptance	2-3 weeks	All Stakeholders 1x Tester 1x Developer
7 Documentation	1 week	1x Tester
8 Production environment setup	2 weeks	1x Developer
9 Production deployment	1 week	1x Developer
TOTAL:	26-35 weeks	Product Owner Business Analyst 2x Developer 1x Designer 1x Tester

1.7 Cost estimate

First rough calculation of budget is up to **80 k€** for consultan

2 Current Portal

Production URL: http://climate-adapt.eea.europa.eu
Testing URL: http://adapt-test.eea.europa.eu

2.1 Technology. Architecture

The portal was developed on Liferay 6.0 and then migrated to Liferay 6.2. It uses Tomcat 7 and PostgreSQL 8.4.20 on a CentOS 6 machine.

There are two types of data managed by the portal: **Web Content** and **Database objects**. The Web Content is handled and stored internally by Liferay. Liferay uses a PostgreSQL database at `postgresql://localhost:5432/lfacegis` on the test instance. In the database the `journalarticle` table holds most of the content[1].

For the Database objects, the same PostgreSQL database is used, interesting tables being:

- `ace_aceitem`
- `ace_cswharvester`
- `ace_indicator`
- `ace_measure`
- `ace_project`
- `ace_wxsharvester`

A GeoServer[2] is installed at: http://climate-adapt.eea.europa.eu/geoserver/web/.

The Tomcat server runs on `:8081` and serves Liferay and GeoServer.

The source code for the Liferay Portal Application/Modules is available at: https://github.com/eea/eea.climateadapt .

2.1.1 Authentication & Permissions

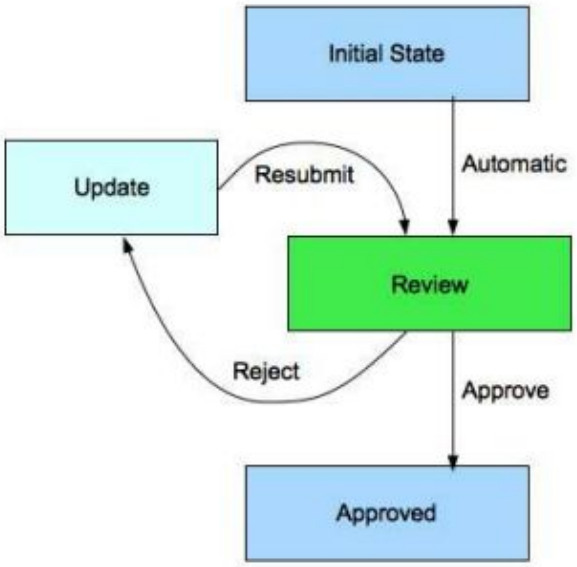
The authentication is done via CAS using EIONET accounts. Permissions are set locally in Liferay, using User Permissions and Group Permissions. The CAS server is located at http://sso.eionet.europa.eu.

Note: EIONET groups/roles are not currently used.

2.1.2 Publication Workflow

Workflow of content management is implemented via the 1-step approval mechanism. Web content items are created and/or edited and are subsequently submitted for review before they are published for the Portal visitors. Reviewers can approve or reject and comment submitted content, and in the case of rejection, the editor can update and resubmit the content item for review.

[1] http://www.liferay.com/community/forums/-/message_boards/message/15390031
[2] http://docs.geoserver.org/stable/en/user/index.html



The following roles are relevant for this workflow:

Role: **Writer**
Writers (e.g. EEA, ETCs) can edit existing web content and submit it for publication.

Role: **Content Reviewer**
Content Reviewers (EEA) review and reject (or ask for further changes) or publish submitted web content.

Content Reviewers at the EEA will receive automatic notifications on their individual email address when new/updated material (for both web content and database items) is submitted by ‘Writers’, ‘Users’ and ‘Power Users’.

- **Writers** can update web content (steps: initial state, update) and submit for publication (transitions: initial state □ review, update □ review)
- **Content reviewers** get a mail if content is submitted for review and have access to the submission queue (steps: review)
- **Content reviewers** can assign for quality control a submitted change in the submission queue (step: review)
- **Content reviewers** can comment and/or edit submitted changes (step: review)
- **Content reviewers** can reject submitted changes (transition: review □ update)
- **Content reviewers** can approve (and in that way publish) submitted changes
- (transition: review □ approved)
- **Writers** can view the submission progress

2.1.3 Database content

The Portal database contains information on climate adaptation related knowledge sources. To be more precise, the database items are not the knowledge source, but describe the source and thus contain metadata describing an information source and a reference to that source. These items can be accessed by the the Portal end user in several ways:

- Through the the Portal search page[3]
- In different sections of the Portal as targeted lists of items related to that section[4]
- In various interactive tools in the Portal
    - The adaptation support tool[5] (e.g. lists of document s in further reading)
    - The case study search tool[6] (for case studies)

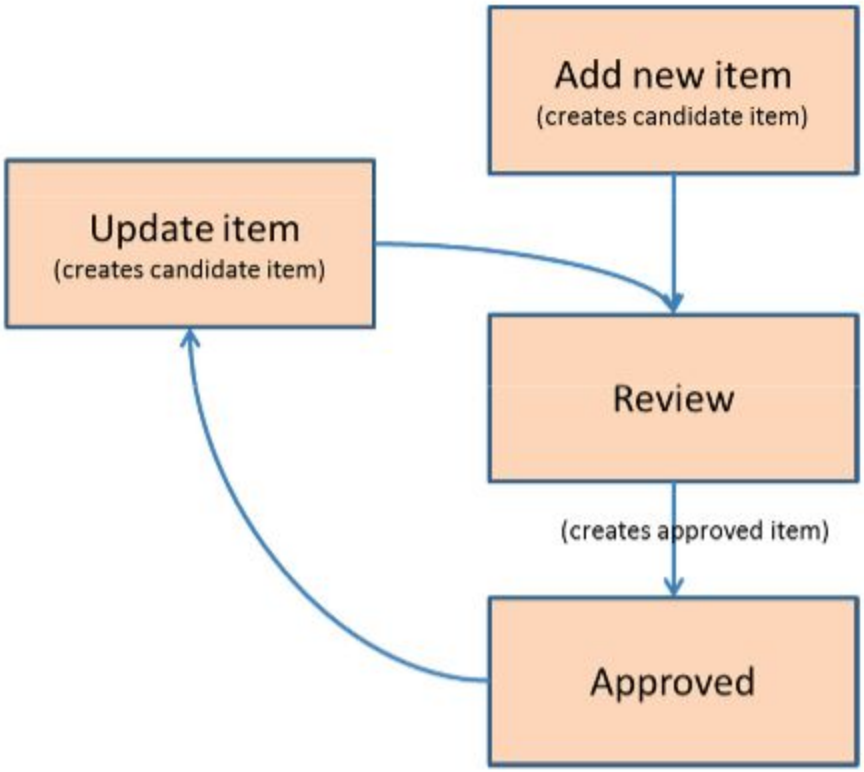
Besides, users registered as EIONET users can log in and propose new database items through the “Share your information” section.
The the Portal database contains different types of database items:

- Publications and reports;
- Information portals;
- Guidance documents;
- Tools;
- Research and knowledge projects;
- Adaptation options;
- Case studies;
- Organisations;
- Maps, graphs and datasets

These information types all required base set of descriptive metadata and can be tagged with keywords and tagged for different categories. Moreover, the information types research and knowledge projects, adaptation options, case studies and maps, graphs and datasets, have additional metadata field s. Annex 2 describes these different database items and especially the specific metadata fields to be provided for the different types.

The figure below describes the workflow for the management of the Portal database items.
Newly created items start their lives as (unapproved) candidate items.
Candidate database items are not visible to public users until they are approved. Upon review and approval the item becomes an approved item and becomes visible for public users. When an existing item is edited, a copy candidate item is created. This copy goes through the review/approval process and when approved, the item becomes an approved item, and replaces the former database item.

[3] Search the database: http://climate-adapt.eea.europa.eu/data-and-downloads
[4] Example page: http://climate-adapt.eea.europa.eu/vulnerabilities-and-risks (columns Selected Indicators, Publications & Reports and Information portals)
[5] http://climate-adapt.eea.europa.eu/adaptation-support-tool
[6] http://climate-adapt.eea.europa.eu/sat



The following roles are relevant for the implementation of this workflow:

Role: User
Users (all users of Climate-ADAPT can request an EIONET account and thereby become a 'user') can access the functions to submit a new database item when logged in with their EIONET account's username and password from the 'Share your information' page.

Role: Power User
Power Users (e.g. EEA, ETCs) can add and edit the Portal database items and create candidate item for approval by Content Reviewers.

Role: Content Reviewer
Content Reviewers (EEA) review and reject (or ask for further changes) or publish submitted the Portal database items.

- **Public users** (i.e. not logged-in with their EIONET account's username and password) can access the 'Share your information' page and access a link that allows them to log in and get the 'user' role.
- **Users** can access a link to submit information. An online template can be filled in and submitted, which creates a (new) candidate item to be approved in the review process

- **Power users** can review, add and maintain candidate the Portal database items (maintain menu). **Power Users** can edit earlier approved items. The proposed changes then become a candidate item. Meanwhile the existing database item stays visible to public users (the existing database item gets locked) until the candidate item is approved. It cannot be edited or deleted until it is approved or deleted.
- **Content reviewers** can approve new and edited the Portal database items
- **Power Users** can delete candidate items; they cannot delete approved items.
- **Content reviewer** can delete all database items (candidate and approved).

2.2 Database Application

2.2.1 Share your Information

The entry point to Database Application is the “Share your information”. Here the user (contributor) learns about the Portal’s role and chooses what type of information he wants to share.

The available types are:
Generic:

1. Publication and Report[7]
2. Information portal[8]
3. Guidance document[9]
4. Tool[10]
5. Organisation[11]

Project:

6. Research and knowledge project[12]

Measure:

7. Adaptation option[13]
8. Case Study[14]

For a complete description of the fields in these types, see Annex: Database Structure.

2.2.2 Item Details

The item details page consists of two sections: main content and sidebar. The data differs with type category.

[7] Example publication: http://adapt-test.eea.europa.eu/viewaceitem?aceitem_id=3245
[8] Example portal: http://adapt-test.eea.europa.eu/viewaceitem?aceitem_id=3255
[9] Example guidance document: http://adapt-test.eea.europa.eu/viewaceitem?aceitem_id=245
[10] Example tool: http://adapt-test.eea.europa.eu/viewaceitem?aceitem_id=314
[11] Example organisation: http://adapt-test.eea.europa.eu/viewaceitem?aceitem_id=2402
[12] Example research project: http://adapt-test.eea.europa.eu/projects1?ace_project_id=5
[13] Example adaptation: http://adapt-test.eea.europa.eu/viewmeasure?ace_measure_id=1102
[14] Example case study: http://climate-adapt.eea.europa.eu/viewmeasure?ace_measure_id=3311

For Generic: the sidebar contains: Keywords, Climate Impacts, Elements and Sectors information. In the main content, we have: Title, Description and Reference Information (Websites and source).

For Project: the sidebar also contains: Duration and Geographic characterisation. The main content adds: Project Information (Leader, Partners, Source of funding).

For Measure: the sidebar inherits Generic, adding: Geographic characterisation. The main content consists of: Abstract, Item Description, Additional Details and Reference Information.

2.3 Case Study Search Tool Application

The application allows a user to search Case Studies in the Database on an **interactive map** after defining the region of interest.

Available filters:

- Region of interest (Country or City) - mandatory for the first type of result
- Climate Impacts (Temperatures, Flooding, …)
- Adaptation Sectors (Agriculture and Forest, Biodiversity, …)

Two types of results are available, along with the map representation:

- Case studies in similar biogeographical region
- Case studies in non-similar biogeographical region

Clicking on a pinpoint shows a box with details on the study and a "read more" link pointing to the details page of the given study.

The application is made in Javascript and uses the Geoserver at `/geoserver/web/` for XHR queries that return XML responses.

2.4 Map Viewer Application

The old map viewer has been replaced by a new one on 18/06/2015. The new map viewer is an Iframe opening a map from ArcGis. So no development is expected here.

2.5 Search Application

The application features indexed search in the Database. Filters are activated from the sidebar menu, and a new click on "Search" is required to apply the filters.

Available filters:

- Type of Data (Publications and reports, Information Portals, Guidance …)
- Adaptation sectors (Agriculture and Forest, Biodiversity …)
- Climate Impacts (Temperature, Flooding …)
- Adaptation Elements (Observation and Scenarios, Vulnerability Assessment ...)
- Countries

- Year interval

A separate search inside Portal's Web content is available on the common header.

2.6 Administrative Tools

2.6.1 Web Content

The Liferay Site Administration allows management of the following categories:

- *Pages* - site URL structure and menus
- *Content* - web content units, that can be displayed inside a page; used categories are:
    - Web Content

      Generic:
        - Folder
        - Basic Web Content

      Project:
        - Project facts
        - Project Description

      Sector:
        - Sector Main Article (3 times)

      National page:
        - National Page middle

      Transnational region:
        - Transnational region Middle
        - Transnational region left

      AST:
        - AST Main Article

      Specific pages:
        - Share your info
        - FAQ (1 entry)
        - AceNewsStructure
        - AceEventStructure

      Mayors adapt:
        - City Profile
    - Documents and Media
        - Basic Document (165)
    - Tags (30)
- *Users*
    - Site Membership (41 users, no roles)
- *Control Panel*
    - Users (1139) / Roles (20)

No Teams, Organisations or Groups are set for users.

2.6.2 Database Content

The administrator can access a link named “Maintain” in the website header to access a generic interface for the database content.

The Available items are:

- AceItems (1821) - contains items of type: Action, Document, Guidance, Indicator, Information Source, Mapgraphdataset, Measure (Same as Measures bellow), Organisation, Research Project (same as Projects bellow), Tool.
- *Documents and Media (165) - just another view/template for Liferay’s administrator interface of the same content*
- Measures (170)
- Projects (424)
- Geonetwork (14)

The interface only allows listing and deleting content. “Add Content” and “Details/Edit” are just links to the frontend interface.

Regarding the Maps, Graphs and Datasets content, the following information should be kept in mind:

- A lot of this content (being from EEA and Eionet) can be automatically retrieved via sparql queries from semantic.eea.europa.eu OR if we want fast real-time queries we can retrieve from elastic search json API, from search.apps.eea.europa.eu
- The way the content is actually presented in the Portal, this needs further investigation.
- The content is retrieved from other sites; it would be better if it would just connect our catalogue
- We want to check if all the fields (metadata) are presents when extracting automatically (CXP).

2.7 Web Content

All the rich text plus images that can be edited dynamically by the users of the portal represents the Web Content. The content is available in English language.

Changes to a unit of Web Content are versioned. Multiple units can be stored together in folders that can be managed as a hierarchical structure.

The following “Structured” page types have been identified:

- Project (not to be confused with Database Research Project)
- Sector
- National page
- Transnational page
- City Profile

2.8 Web portal

A web portal is a site inside the Portal with the following properties:

- a different template
- a title and custom branding
- a sidebar with section navigation
- a step by step widget on the top of the sidebar

There are two web portals currently defined: Adaptation Support Tool (AST) and Urban AST.

Another exception from the main template is the Baltic Sea region: /transnational-regions/baltic-sea/general which has a different footer (including the partners logos) than the rest of the website 

2.9 Portlets

A selection of the portlets seen used in the Portal. Layout specific such as header or footer were intentionally ignored.

2.9.1 Filtered Database Portlet

This portlet displays a list of Database Item names and links.

Options:

- Allow paging (0 = No)
- Number of items on page
- Fuzziness (?)

Item Filtering:

- All of these words (special tagging)

Type of data (tick boxes):

- Publications and reports
- Information portals
- Maps, graphs and datasets
- Indicators
- Guidance
- Tools
- Research and knowledge projects
- Adaptation options
- Case studies
- Organisations
- (none = all)

Extended search (tick boxes for categories):

- Adaptation sectors
- Countries
- Adaptation elements

2.9.2 Interactive Map Portlet

This portlet shows a list of items/links and a clickable map pointing to “/map-viewer”, s. Section 2.4.

When the extra parameter is set to 1, the filters selected under “Number of checkboxes” are shown to the user.

Options:

- extra parameter (0 = Skip)
- Number of items on page
- Fuzziness
- Sort by:
    - Search relevance
    - User Rating
    - A to Z
- Show only featured (tick)
- Number of checkboxes
    - 2: impact and sector
    - 4: also scenario and time period

Default values (dropdowns):

- Climate impact
- Sector
- Scenario
- Period

Item Filtering:

- All of these words (special tagging)

Type of data:

- Same as for Filtered Database Portlet, see above.

2.9.3 Explore adaptation Portlet

This portlet has the same settings as the Interactive Map Portlet. When extra_parameter is set to 1, the filters configured in number of checkboxes appear. No map is displayed.

2.9.4 Iframe View

A full width page containing an <iframe> element to an external application.

2.9.5 Europa Map Portlet

This portlet shows the Map of Europe. Clicking on a country takes the user to the country report page containing data from Database related to that country.

It can be found on the “/adaptation-strategies” page.

2.10 Home page

The homepage has the following sections:

1. Featured content - slideshow of images and description, link to read more
2. Search widget - keyword search with sector and country filters
3. Featured applications:
    a. Adaptation Support Tool (AST)
    b. Countries Overview
    c. Case Study Search Tool
    d. Share Your Information - add information to the Database
4. Latest content
    a. News
    b. Events
5. Miscellaneous: links to other information systems, EU Sectors policies.

IMPORTANT: The design and content will change with the new contract made by ADASA. I will give you update as soon as it's finalized.

2.11 Mayors Adapt

The mayors adapt feature allows mayors to produce City profiles, using temporary access tokens sent via email, and a similar validation process as Database content. The cities profiles are stored as Web Content.

Note: The feature is still work in progress, and this section should be updated

3 New Version

Before starting the new version, the following remaining points should be investigated in the current solution:

- *find out how GeoServer uses database information from PostgreSQL and what should be migrated to GIS.*
- *get special tags used in the final version*
- *document mayors adapt*

3.1 Key points

- The **search** in Web Content / search in Database features must be merged into a single indexed search feature
- The layout of the search will be changed and will include faceted search (like EEA website).
- The layout of the site will change at the end of the contract with ADASA. The new layout has to be kept (as much as possible).
- Permissions management should be moved in LDAP
    - When mapping existing Portal roles to Plone Roles, please remember to not "create new roles", instead map to existing plone roles:

        - Contributor (can add content),
        - Editor (can edit),
        - Reviewer (can review and publish),
        - Viewer (can view content).

    AMA: By doing so within a workflow, many things in plone will work out-of-the-box, e.g. the sharing tab and the default workflows. We learn this by mistake and experience. If you create your own Roles and permissions it will be much harder and costly to maintain.

    CXP: This needs to be done taking into account the new roles in both workflows for content and database item. I am not sure we will be able to match everything with Plone role.
- Responsive design (check EEA Template Service)
- Easy to maintain
- Dockerized from start; continuous delivery
- Stable, well tested
- Interoperative
    - We should add a phase where we create an export-to-RDF of all climate-adapt content, to be indexed in Semantic Data Service and/or CR. This will make the portal in-line with the other EEA portals interoperability approach via SDS/CR. The RDF export from plone is handled via eea.rdfmarshaller which is already included in the EEA-CPB.
- Other:
    - User eea.geotags for Geographical characterisation
    - Use eea.tags with Plone collections for listings

3.2 Roadmap / Work Plan

Rough estimate of the development plan.

Phases:

1. **Analyse & understanding of the requirements**
    a. analyse the current implementation
        i. content architecture
            1. current content types
            2. workflow
            3. content structure
            4. content relations
            5. summary report of the volume of content
        ii. specific Climate Adapt portal features
            1. Lucene index
            2. GeoServer implementation
                a. http://climate-adapt.eea.europa.eu/sat
            3. Timeseries tool
                a. http://ca-tst-test.eea.europa.eu/home.html

4. New Map Viewer
    a. http://adapt-test.eea.europa.eu/tools/new-map-viewer
5. CAS (sso.eionet.europa.eu)

iii. presentation layer

iv. technical aspects
1. current hardware resources used
2. traffic analytics
    a. anon
    b. auth

b. decide generic aspect of the migration to Plone CMS

i. export / import procedure

ii. content architecture
1. content types mapping
2. workflow specifics
3. scale the Plone CMS system to handle the content volume

iii. specific Climate Adapt portal features
1. Elasticsearch vs eea.facetednavigation
2. GIS (ESRI) implementation
3. LDAP authentication and permissions
    a. as default in EEA-CPB
    b. drop CAS authentication

iv. presentation layer
1. skeleton with current design
2. enhancement to design (either from scratch or fixes to current)

v. technical aspects
1. usage of EEA-CPB (https://github.com/eea/eea.plonebuildout.core)
2. hardware resources needed by Plone deployment

2. Create Plone environment for initial data migration/draft

a. setup Plone buildout
b. setup Docker orchestration
c. design and implement Content Types for both web and db
d. basic workflow
e. setup default Plone add-ons
f. initial/basic content structure

3. Developed the content migration procedure

a. export from Liferay (*XML or other format*)
b. import procedure into Plone
c. Migrate Web&DB Content

4. Implement specific features

a. refine add/edit/view forms for all content types
    i. current: http://climate-adapt.eea.europa.eu/share-your-info
b. custom portlets

c. content presentation templates, listings and custom logic
d. DB interface, listing & search
    i. current: http://climate-adapt.eea.europa.eu/data-and-downloads
e. implement mayors adapt workflow
    i. temporary access tokens
    ii. current: http://adapt-test.eea.europa.eu/mayors-adapt
f. fine tuning of the workflow
g. define permissions and roles
h. LDAP Authentication
i. content review / manage DB
    i. http://adapt-test.eea.europa.eu/aceitems1
j. setup & define special areas, e.g.:
    i. frontpage
    ii. main sections
    iii. content review
    iv. overviews

5. **GIS related tasks**
    a. Migrate from GeoServer to ESRI
    b. Integrate “Timeseries tool”
    c. Integrate “New Map Viewer”
6. **Final tests and acceptance**

After that, we will need some test to be done by the Commission (the real PO) and the team providing the content. So we need time to do it and time to solve the bugs/modifications coming up.

7. **Documentation**
    a. user manual
    b. how to setup local development
    c. how to upgrade production
8. **Production environment setup**
    a. backup policy
    b. monitoring and logs
    c. setup dependencies
    d. setup cache server
    e. setup web server
9. **Production deployment**

Phase	**Rough Estimate**	**Persons involved**
1 Analyse & understanding of the requirements	2 weeks	Business Analyst Product Owner

2 Create Plone environment for initial data migration/draft	2-3 weeks	2x Developer
3 Developed the content migration procedure	4-6 weeks	2x Developer
4 Implement specific features	10-14 weeks	2x Developer 1x Designer
5 GIS related tasks	2-3 weeks	1x Developer
6 Final tests and acceptance	2-3 weeks	All stakeholders 1x Tester 1x Developer
7 Documentation	1 week	1x Tester
8 Production environment setup	2 weeks	1x Developer
9 Production deployment	1 week	1x Developer
TOTAL:	26-35 weeks	Product Owner Business Analyst 2x Developer 1x Designer 1x Tester

Except for specific features, such as Mayors Adapt that are still under development, all other tasks in the plan (steps 1-5) can begin independently of the current contract.

The content migration process will be designed to be easily run again with newer sets of data.

3.3 Staff and contractors involved

Concerning the final acceptance test, the person involved are:

- From DG-Clima: Alfonso GUTIERREZ-TEIRA, Jelena MILOS, Sandro NIETO-SILLERAS
- From EEA:
  - ACC4: André Jol, Kati Mattern, Blaz Kurnik, Birgit Georgi, Stéphane Isoard
  - IDM2: Christian-Xavier Prosperini
- From ETC CCA: Silvia Medri, Ana Gomes, Eleni Karali
- From Mayors-Adapt: Thomas Dworak, Julia Peleikis

In the development team, from Eau de Web, the following roles are defined:

- Alex Eftimie - Business Analyst - Analyse specifications and existing systems and defines requirements and planning

- Tiberiu Ichim - Developer - Senior Plone developer in charge with the architecture and design of the application. Has a full overview of the development and other persons involved.
- Valentin Popescu - Designer - takes care of the usability and user experience assessment, and also the frontend development - HTML/CSS and Javascript
- Taygun Agiali - Developer - develops modules of the new application; writes and runs unit test and functional tests against the code.

3.4 Risks and vulnerabilities

Phase	Possible Risk	Possible Solutions
Analysis	Wrong understanding of the requirements	Involvement of the EEA staff through the migration process and incremental publication of the progress will help reduce the risk of going off the plan
Migration	Unusable/Incomplete data export from Liferay	Database connector for low level content migration. Tests for completeness of the data run against the migration staging instance in comparison with current production instance.
Migration	Broken links between data items	Keeping the same URL schema. Importing order: from the most generic elements to the most specific ones.
Development	Confusion between old and new instances	Clean DNS differentiation of the instances. Restrict access to the new portal to a specific subset of users. Visual notifications on every page, for example the text “This is a the staging instance of the new Climate-Adapt website”.
Development	Incapacity of developing/integrating the new modules in time	Increasing the Development Team with one more developer (a Plone developer is already in stand by for this project).
Deployment	Duplicate/inconsistent content on old and new instances	Continuous importing of the content from the old instance to the new one. Freezing of the old instance by setting the database to “read-only” mode for example. Clean DNS differentiation once the new instance becomes production.

3.5 Quality Assurance / Quality Checks

Eau de Web uses a set of practices developed around Agile methodologies to ensure the quality of the software products it provides.

All the source code is kept under a version control system, the code logic is covered by unit tests (usually around three quarters at minimum). Medium features are developed in branches that go through code review before merging in the master branch.

A staging instance is usually configured for automatic deployment and continuous deployment[15].

The main tools used to monitor and control deviations are:

- On a daily basis: daily meetings, when potential impediments are raised by the team;
- For each iteration: retrospective meetings, when the process is evaluated and potential improvement opportunities are identified;
- Automated tools measuring the quality of deliverables (source code quality and testware)
- Expert review (requirements, source code, documentation, usability)
- Project audit performed by quality assurance responsible who checks that:
    - Internal software engineering practices, development environment, test environment, libraries etc. are compliant with the contract, quality management plan and established standards and procedures;
    - Team members have the necessary skills to perform their assigned tasks;

Summarizing, quality assurance is a repetitive cycle of: *Auditing, Analysis and Action*. When deviations are discovered, they are recorded in the audit report; appropriate improvement actions are established and communicated to stakeholders. The main measure is the number of deviations per process area.

3.6 Starting/Ending Date

1st of August 2015 - 1st of April 2016.

Due to the fact that most of the development can be done independently from the current contract (see note at the end of section 3.2), we propose the starting date of 1st of August 2015. Work has already begun in the Analysis phase, with this document and other documentation materials of the existing solution.

According to the planning, the ending date is foreseen after 35 weeks from the beginning, so 1st of April 2016.

[15] https://puppetlabs.com/blog/continuous-delivery-vs-continuous-deployment-whats-diff

4 Annexes

4.1 Sitemap

https://docs.google.com/spreadsheets/d/10DFkt2daQsbxGmaUz0L0qUEKR6njSD09IrKilmy8CWk/edit#gid=0

4.2 Database Structure

4.2.1 Database Types

Types of database items, their definition and also examples of the current sources described by them.

Category	**Definition**	**Current content**
Publications and reports	Reports, documents, publications. Policy documents and acts, e.g. adaptation plans of member states	Consistent. Also contains policy documents listed with EEA (www.eea.europa.eu/themes/climate/national-adaptation-strategies)
Information portals	Information portals related to adaptation. Includes e.g. wiki's and (interfaces on) databases	- Information portal - databases (e.g. EM-DAT, OURCOAST) - web pages (e.g. EVDAB composite indicators)
Guidance	Guidance documents, portals, sections of portals and web pages specifically aimed at guidance	Guidance documents & pages "Everything that is agreed upon as being guidance"
Tools	Interactive Tools / Decision Support systems, models, tools for CBA.	Decision support systems
Maps, Graphs, Datasets	Datasets, maps and graphs related to climate change adaptation -> observations, projections, impacts, risks. Including also map viewers	- maps - map viewers (floods portal, MARSOP viewer) To be extended with (interactive) maps

Indicators	Specific datasets of high European relevance and quality, indicative for adaptation elements and sectors	At present mostly the EEA Indicators. Links to web page may contain maps links in the future
Research and knowledge projects	Research and knowledge projects (and programmes) aimed at developing the CCA knowledge base	Includes EU FP projects, national research projects (only through Infobase), and Interreg and possibly Life+ projects. Projects that are more a case studies to be extracted.
Adaptation options	Descriptions of options (methodologies, possible actions) for climate adaptation	Currently: ClimWatAdapt, options entered by hand. Aim for comprehensive set(s) in future rather than exhaustive.
Case studies	Descriptions of practical cases, projects, studies that implemented / investigated (a set of) adaptation options in practice	criteria: - EEA 32 - Deal with adaptation - has location and organisation - can be big or small - to include more from interreg
Organisations	Organisations and cooperative programs working in the domain of climate change adaptation	Consistent. Cooperative programs such as PROVIA are included here (excludes research programs)

The following tables describe the metadata fields available for the different types of database items.

4.2.2 Metadata fields - Publications and reports, Information Portals, Guidance, Tools, Indicators, Organisations, (Maps, graphs & datasets)

Field	Definition	Comments

Name	Name of the item	Free text. Compulsory field. Suggested length max. 10 words
Website	Website where the item can be found or is described	Free text. More than one site possible, separated by ';'
Datatype	Data type of item	Dropdown box [Publications and Portals, Information Portals etc]. Will not be displayed
storagetype	URL or geonetwork	Dropdown. Geonetwork is to be used for interactive WMS maps with metadata available in GeoNetwork. Default: URL
Description	Description of the item	Free text
keywords	Keywords related to the item	Free text
Source	Source of the item	Free text. E.g. organisation or project from which item was derived
special tagging	Special tags that allow for linking the item to a specific page in the Portal or search term	Free text. This field is not displayed to the user
Geographic characterisation	Allows for characterisation of the area to which the item applies	Free text. Select from [Global, Europe / Transnational / National / Regional / Local / City] [Add location name if provided] [add name of county or transnational region if the item is to appear on national or transnational pages][optional: add other qualification as 'mountain area' as appropriate]
Countries	Nuts member state country codes separated by ';'	Needed for country search
Sectors	EU policy sectors that the	Tick box. Tick the related

	database item relates to	sectors. Multiple sectors can be selected.
Elements	Adaptation element that the database item relates to	Tick box. Tick the related element. More than one allowed
Climate Impacts	Climate Impact that the database item relates to	Tick box. More than one allowed
High importance	To indicate particular importance of item	Tick box (tick: Yes). Influences rating (in search and e.g. links list)
Approved	Information about (previous) edits and reviews	Edited by: list of usernames. Tick box for indicating that current user approves item. *Note:* it will not appear in the new version, being replaced by the workflow.

4.2.3 Metadata fields - Research and knowledge projects

Field	**Definition**	**Comments**
Acronym	Acronym of the project	Free text. Compulsory
Title	Project title or name	Free text. Compulsory
Lead	Lead organisation or individual of the project	Free text
Website	Project website	Free text. More than one allowed, separated by ';'
Abstract	Project abstract	Free text. Focus on project outputs. Possible on specific website features
Partners	Information about project partners (organisation names)	Free text
keywords	Keywords related to the project	Free text

Sectors	EU policy sectors that the database item relates to	Tick box. Multiple selection
Elements	Adaptation element that the database item relates to	Tick box. Multiple selection
Climate Impacts	Climate Impact that the database item relates to	Tick box. Multiple selection
Funding	Source of funding	Free text (?)
Duration	Duration of project. Start and end date [years]	Free text
Source	Source from which project was retrieved	Free text. E.g. specific database
special tagging	Special tags that allow for linking the item to a specific page in the Portal or search term	Free text. This field is not displayed to user
Geographic characterisation	Allows for characterisation of the area to which the item applies	Free text. Select from [Global, Europe / Transnational / National / Regional / Local / City] [Add location name if provided] [add name of county or transnational region if the item is to appear on national or transnational pages][optional: add other qualification as 'mountain area' as appropriate]
Country	European countries	Tick box. Needed for country search
Comments	Any comments provided with the item	Free text. Not visible to user
High importance	Particular importance of item	Tick box (tick: Yes). Influences rating (in search and e.g. links list)
Approved	Information about (previous) edits and reviews	Edited by: list of usernames. Tick box for indicating that current user approves item.

4.2.4 Metadata fields - Case studies, Adaptation Options

Field	Definition	Comments
Name	Name of the item	Free text. Compulsory field. Suggested length max. 10 words
Website	Website where the item can be found or is described	Free text. Note: may refer to the original document describing a measure and does not have to refer back to the project that e.g. collected measures
Description	Description of the item	Free text
Legal aspects	Information about legal aspects and institutional barriers	Free text
Stakeholder participation	Information about actors to be involved and stakeholder participation	Free text
Contact	Contact details	Free text. Especially relevant with case studies
Success / limitations	Information about success factors of possible limiting factors	Free text
cost / benefit	Information about coast and benefits	Free text
keywords	Keywords related to the item	Free text
Sectors	EU policy sectors that the database item relates to	Tick box. Multiple selection
Elements	Adaptation element that the database item relates to	Tick box. Multiple selection
Climate Impacts	Climate Impact that the database item relates to	Tick box. Multiple selection

Implementation time	Indication of time needed to implement the measure	Free text. Typically entered as a time range (e.g. 5-10 yr)
Lifetime	Indication of the lifetime of the measure	Free text
Source	Source of measure. The project or database from which the measure was retrieved	Free text
special tagging	Special tags that allow for linking the item to a specific page in the Portal	Free text. Not displayed to the user
Geographic characterisation	Allows for characterisation of the area to which the item applies	Free text. Select from [Global, Europe / Transnational / National / Regional / Local / City] [Add location name if provided] [add name of county or transnational region if the item is to appear on national or transnational pages][optional: add other qualification as 'mountain area' as appropriate]
Type	Adaptation option OR Case study	Radio selection.
Locate	Location of the case study (this option is not provided if type is 'adaptation option')	Clickable map or fields to provide latitude / longitude. This location is used to put case study on map.
Countries	Nuts member state country codes separated by ';'	Click boxes. Needed for country search.
Comments	Any comments provided with the item	Free text. Not displayed to the user
High importance	Indicate particular importance of item	Tick box (tick: Yes). Influences rating (in search and e.g. links list)

Approved	Information about (previous) edits and reviews	Edited by: list of usernames. Tick box for indicating that current user approves item.

4.3 Special tagging

Adding the given special tag to the metadata field special tagging will force the item to appear in the targeted item list.

Tagging is NOT case sensitive.

The field for special tagging can contain more than one tag. Tags are separated by spaces (or commas).