ACT Knowledge Sharing Hub
Specification and Description of Services
Deliverable 5.1

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OBJECTIVES OF THE DELIVERABLE

This deliverable contains the technical specification and description of services of the technical infrastructure of the ACT project: an online Knowledge Sharing Hub oriented to provide the digital solutions for collaborative learning and practice sharing of a European network of Communities of Practice (CoP) on gender equality in Research and Innovation. The Knowledge Sharing Hub forms part of a larger online infrastructure that integrates the already existing GenPORT [1] platform and the GEAM tool. The ACT Knowledge Sharing Hub offers internet presence, discussion forums, file sharing options among other features for each Community of Practice.

CONSORTIUM

The ACT consortium consists of 17 partners: Fundació per a la Universitat Oberta de Catalunya (project coordinator, Spain), Portia (UK), NOTUS (Spain), Joanneum Research Forschungsgesellschaft MBH (Austria), Advance HE (formerly Equality Challenge Unit) (UK), Loughborough University (UK), Facultad Latinoamericana de Ciencias Sociales (Costa Rica [2]), Technische Universität Berlin (Germany), Karolinska Institutet (Sweden), Science Foundation Ireland (Ireland), Umweltbundesamt (Germany), Stiftung Deutsches Elektronen-Synchroton (Germany), Centre National de la Recherche Scientifique (France), Fundació Centre de Regulació Genòmica (Spain), Uniwersytet Jagiellonski (Poland), Znanstvenoraziskovalni Center Slovenske Akademije Znanosti in Umetnosti - ZRC SAZU (Slovenia), and Haskoli Islands (Iceland).

TERMS OF USE

This document has been developed within ACT, a Coordination and Support Action project funded by the European Union's Horizon 2020 research and innovation programme.

To address questions and comments please contact: jmuller@uoc.edu.

[1] GenPORT (https://www.genderportal.eu/) is an open collaborative internet portal on gender and science resulting from a 4-year project (2012-2016) funded by the 7th Framework Programme for EU research (FP7) of the European Commission.

[2] The action will be carried out in the department of UNESCO Regional Chair on Women, Science and Technology in Latin America FLACSO, located in Buenos Aires, Argentina.

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KEYWORDS

Knowledge sharing, Digital tools, Online hub, Collaborative learning, Internet presence, Visual identity

ACRONYMS

ACRONYM	MEANING
CCS	Cascading Style Sheets
CDN	Content Delivery Network
CoP	Community of Practice
DNS	Domain Name System
FP7	Seventh Framework Programme (European Commission)
GB	Gigabyte
GEAM	Gender Equality Audit and Monitoring
GEP	Gender Equality Plans
JS	JavaScript
LAMP	Linux + Apache + MySQL + PHP
LESS	Leaner Style Sheets
MB	Megabyte
PHP	Hypertext Preprocessor
R&I	Research and Innovation

RAM	Random-access memory
SASS	Syntactically Awesome Style Sheets
SEO	Search Engine Optimization
SKOS	Simple Knowledge Organization System
SSL	Secure Sockets Layer
W3C	World Wide Web Consortium
WCAG	Web Content Accessibility Guidelines

TABLE OF CONTENTS

1. INTRODUCTION

This document describes the technical infrastructure that ACT will develop to support an initial network of seven Communities of Practice in Europe. The ACT project strives to create several inter-locking online services to support the implementation of Gender Equality Plans and institutional change across Europe and beyond. Overall, the online infrastructure needs to respond to several objectives:

- The ACT project website is our main communication channel with the world. It informs about the project's content and progress but also to request collaboration with the wider community.

- Second, Communities of Practice need their specific online presence. Similar to the ACT project website, each CoP Site provides the main communication channel to the world about the CoP content (main topic of interest) and progress.

  In addition to an online presence, CoP sites also provide collaboration tools; since CoP members will be distributed across many organizations, the CoP site provides a central hub to collaborate online.

- An important aspect of the online infrastructure concerns mutual learning among Communities of Practice. We need to provide mechanisms to keep updated regarding the activities of each CoP, the ACT project itself as well as other activities of the wider gender equality community to facilitate the sharing of information and enable mutual learning.

  Syndication mechanisms have been put in place to aggregate CoP activities and visualize distributed activities on our main ACT project page. Similar mechanisms target the sharing of resources between GenPORT and individual CoP sites. The further development of a meta-data scheme for standardizing knowledge sharing addresses this need.

We have opted to address these needs by integrating three main components (or software platforms) to form an online "eco-system" of services:

First, the community owned GenPORT portal (http://www.genderportal.eu) on gender and science. GenPORT serves as a central gateway to gender and science resources and events at large. It has grown over the years both in terms of subscribed users and content. Thematically, GenPORT addresses broader issues of gender and science, apart from GEPs; however, ACT activities will contribute to consolidate the multistakeholder engagement of the GenPORT portal while centralizing access to resources across individual Communities of Practice. By using GenPORT we take advantage of the existing infrastructure and meta-data schemes for sharing events, resources, projects, organizations, and people.

Second, we will build the ACT Knowledge Sharing Hub which comprises the main project website and individual content management systems for each Community of Practice. The ACT main site bundles activities of CoPs; it is a central entry point for overseeing

activities across CoPs. At the same time, it provides the underlying infrastructure for each CoP to setup their personalized workspace.

Third, we will provide the Gender Equality Audit and Monitoring (GEAM) tool, a modular questionnaire framework based upon the LimeSurvey platform. The technical specification of the platform as well as its integration with the ACT Knowledge Sharing Hub is described in D5.2 Customizable Online Questionnaire Framework and is not part of this document.

It is important to note that although we use three different platforms to build the ACT technical services, the complexity of underlying infrastructure will be hidden from the end-users.

The work on the technical specification of the ACT Knowledge Sharing Hub requires to clarify the terminology. As the specification has evolved, differences to the initially used concepts in the ACT proposal have emerged.

ACT – Knowledge Sharing Hub: refers to the newly implemented Drupal CMS that hosts the project website and the individual CoP sites. Initially this CMS was called "GenPORT+". However, the decision to setup an independent CMS for this purpose instead of extending GenPORT suggests to refer to this multi-site platform as "ACT Knowledge Sharing Hub" only and not "GenPORT+"

GenPORT: refers to the GenPORT platform in its current state at the URL www.gender-portal.eu. Since we do not implement the new services for CoPs on top of the same Drupal system, we use only "GenPORT" and not "GenPORT+". This makes the identity and connection between the projects and different sites clearer. The main function of GenPORT will be to serve as central gateway for sharing resources and events.

The **Gender Equality Audit and Monitoring tool (GEAM):** it provides an online modular questionnaire framework based upon the LimeSurvey platform that will be hosted on our servers but constitutes a separate software solution to be integrated with the ACT Knowledge Sharing Hub.

1.1 RATIONAL FOR USING DRUPAL CONTENT MANAGEMENT SYSTEM

The ACT project continues to trust in Drupal[3] as its main Content Management System. Drupal has been used for building the GenPORT site; in order to facilitate inter-operability between GenPORT and new sites, specifically build for ACT, it seems recommendable to use the same underlying CMS.

In addition, Drupal also offers a powerful solution to implement a "multisite" platform required for ACT with its seven individual CoP sites. By extending the Drupal core platform

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[3] https://www.drupal.org/

with some additional modules, we are therefore able to build a complex solution addressing the ICT needs of the project itself and individual CoPs. Building upon the positive experience of the GenPORT project and development, Drupal offers several advantages that provide the basis for successful deployment within ACT:

- A huge and high qualified community of developers is working on a continuous basis to develop and improve the CMS.
- 100% Open Source code
- W3C Code Standards (https://www.w3.org/standards/)
- Cross-browser compatibility
- Multi-platform and adaptive design oriented
- Main UX/UI standards out of the box
- Coherent database structure and a pack of SEO tools out of the box.
- Scalability. Drupal allows the project to grow up slowly in a production environment without problems.
- An advanced taxonomy system to classify contents.
- A rule system to manage actions and triggers.
- Views to generate dynamic content through interface.
- Advanced user management (role based) and content accessibility control.
- Common social tools and social network functionalities already integrated in the system.
- High flexibility for themes and setting a custom layout.
- Good integration with other systems and projects.

2. ACT KNOWLEDGE SHARING HUB: PROJECT WEBSITE

The ACT website (https://act-on-gender.eu/) contains all the information about the ACT project and is the main entrance to get to know about the supported Communities of Practice and to access CoPs' websites. It combines static sections that offer general information about the project with other dynamic pages that are currently updated and collect data from all CoPs websites and from the GenPORT portal.

The ACT site theme is designed according to the visual branding defined for the ACT project, which reflects continuity with the GenPORT portal while providing a new identity for ACT.

2.1 GENERAL ISSUES AND SPECIFICATIONS

Language: The interface of the main project site will be in English only.

Visual Identity: the graphic design of the ACT project website has been established in concordance with the overall visual brand of the project. The color code specification and logo is provided in Annex 4 of this document.

User Management: The ACT project site is managed by the site administrator; it does not offer user registration. It is a dissemination oriented site from the project to the world.

Accessibility Issues: ACT Knowledge Sharing Hub will implement and follow W3C rules for Web Content Accessibility Guidelines 2.0, level AA – which is obligatory for all new EUROPE websites since 2010[4]. Although ACT is not bound to any legal requirement, there is a commitment to make the content of ACT as widely accessible as possible, i.e. ACT should follow the "official" guidelines adopted by the European Commission at large regarding web accessibility.

The WCAG 2.0 is organized around four design principles for web accessibility that will be satisfied when possible:

Perceivable:
- Provide text alternatives for non-text content.
- Provide captions and other alternatives for multimedia.
- Create content that can be presented in different ways, including by assistive technologies, without losing meaning.
- Make it easier for users to see and hear content.

Operable:
- Make all functionality available from a keyboard.
- Give users enough time to read and use content.
- Do not use content that causes seizures.

[4]See http://ec.europa.eu/ipg/standards/accessibility/index_en.htm

- Help users navigate and find content.

Understandable:
- Make text readable and understandable.
- Make content appear and operate in predictable ways.
- Help users avoid and correct mistakes.

Robust:
- Maximize compatibility with current and future user tools.

2.2 CONTENT AND SECTIONS – ACT MAIN PROJECT PAGE

2.2.1 Section: Home

- Header: the upper area of the website home displays the ACT logo and the hashtag #ACTonGender inviting to find more content about the project on social media networks. A slider banner slides several images with highlighted information such as the project title (linking to the About page) and 2 ongoing activities with a "Read more" link to the corresponding page.

- Menu: the website menu is displayed at the top of the site. It leads to other main pages (About, Communities of Practice, Community Mapping, Project outcomes, Events, News). A Home link allows to return to the home page when navigating.

- News: also in the upper area, this section highlights 3 ongoing news that refer to the ACT project, to CoPs' activities or to other issues on gender and science posted on GenPORT. Therefore, this news area is fed with ACT information posted by the website administrators but also with information coming from the blog pages of CoPs and GenPORT. "News" include an image, title and date, and are linked to the page that contains the full text. In cases when no image is available a graphical element is displayed by default. A "Read more news" link leads to the "News" page in the ACT website that collects all ACT and CoPs' blogposts (see description of News page below).

- ACT & GenPORT: the connection between ACT and GenPORT is visually displayed in the home by connecting the projects logos and a short text description: ACT (Communities of Practice active to advance gender equality in R&I), GenPORT (Your gateway to gender and science resources). A link ("Visit GenPORT") leads to the GenPORT portal.

- Upcoming Events: the central area in the ACT home highlights 2 Upcoming Events. This section differentiates between "ACT events", which displays the most imminent ACT event in first place with a higher prominence, and two "Other events", referring to global gender and science events posted on GenPORT. These "Other events" are fed from the Events page on the GenPORT website, in which users will have the possibility to tick the option "Publish on the ACT website" when creating a new event.

- Newsletter, Twitter and Vimeo: the social media area in the ACT home includes the project Newsletter (linking to a form to subscribe), the Twitter stream of the ACT account (@ACTonGender) and an image with a link to the GenPORT Vimeo channel, where the thematic videos created by ACT will be published and stored.

- Footer area: the bottom of the page contains information on the composition of the ACT Consortium and partners logos, displays the EU emblem and disclaimer, and includes a "Contact us" section linked to the page that contains name and email of the ACT contact persons (project coordinator and community manager).

- ACT numbers: the last footer will show indicators of the ACT project and CoPs websites activity, such as: number of supported CoPs, total number of CoP users, number of blog posts and number of forum comments.

2.2.2 Section: About

The About section in the menu is displayed in 3 items that link to the following pages: Project (description of the project goals and its expected impacts, European funding programme and duration, and information on the ACT connection with GenPORT); Consortium (list of partner institutions, linked to other specific pages that contain a brief description of each institution, location and link to the official websites), Advisory Board (list of Advisory Board members, including name, photo, institution, and short bio).

2.2.3 Section: Communities of Practice

During CoP Recruitment (M1-M13)

During the period while CoPs are being recruited, this page includes detailed information on how ACT can support CoPs and a link to the "Expression of Interest" form to create a CoP.

The application form to create a Community of Practice on the ACT Knowledge Sharing Hub includes the following fields:

- Name of the Community of Practice or network (Short text field 255 chars)
- Acronym (Short Text field. Max length 10 chars)
- Description (Open text field)
- Field/discipline (based on the GenPORT Taxonomy) (Multiselect from fixed discipline list)
- Involved organizations (Open text field)
- Geographic coverage (Country auto-complete) - Country or countries of participating organizations or individual members.
- Main language used (Single select; list of languages)
- Where would you situate your CoP in terms of its development? (Single select from: Starting, Consolidating, Advanced)
- What is the aim of the CoP? (Open text)

> Please describe briefly the main interests of this Community of Practice. What are your main goals?

- How can ACT help this CoP? (Open text)
- Contact person (name, institution and e-mail of the main CoP coordinator)
- URL for more information

The link to this page in the ACT website will be included in the invitation email of the Community Mapping survey ("For a more detailed explanation how ACT will support Communities of Practice over the coming years, please visit our website (link)").

Once the Communities of Practice are active, this page will contain a grid with the list of supported CoPs, including logo, name, short description and the link to CoPs websites.

After CoP Recruitment (M14-M36)

Once recruitment of CoP has finished and the ACT Communities of Practice are active, this page contains a listing of the active CoPs, i.e. their acronym, full title, link to their website, and short description of their main interest and/or activities.

The page will also display the latest blog entries (one-two entries) for each CoP site in order to provide a centralized overview of ongoing activities on each CoP (site).

2.2.4 Section: Community Mapping

During the preparation / implementation of survey

This is a text page that contains a short description of the Community Mapping objectives and links to the online survey:

> ACT is carrying out a Community Mapping survey to map key actors engaged in gender equality and institutional change in R&I across Europe. It will identify existing networks and detect current needs, as well as collecting expressions of interest to be part of a Community of Practice (CoP). The data gathered will be used to carry out a Social Network Analysis that will also suggest topics to be addressed in events with diverse stakeholders, aimed to cross engagement for innovation in Gender Equality Plans (GEP) at research performing and research funding organizations.

> Go to survey [link to Community Mapping online survey]

Later on, when the mapping survey and Social Network Analysis are concluded, this page will show the visualization of results, including the location of stakeholders and their network of relations.

After the completion of the survey

Once the Community Mapping has been completed, this section of the ACT project website features the survey results and the institution and contact details of survey participants (on a world map). Survey participants have been asked for consent if they want their contact details to be listed on the main ACT website.

2.2.5 Section: Project outcomes

This page contains the list of public deliverables of the ACT project, organized by work packages. ACT deliverables (mostly PDF files) but also thematic videos, will be uploaded in the GenPORT "Resources" section, in Zenodo and in GenPORT Vimeo channel. This page in the ACT website includes the links to download these resources in the GenPORT portal.

The list of deliverables that will be publicly disseminated include:

WP1 Strategic analysis: Domain, Community, Methodology
- Conceptual Framework: link to deliverable D1.1
- Community Mapping report: link to deliverable D1.2

WP2 Practice design and development
- Gender Equality Audit & Monitoring Tool: link to a deliverables D2.1 and D2.2
- Community of Practice co-creation toolkit: link to deliverables D2.3, D2.4
- Methodology for the Evaluation of CoP Development and Learning Outcomes: link to deliverable D2.5

WP3 Demand driven support scheme for CoPs
- Report on strengthening CoPs: link to D3.2

WP4 Targeted support scheme for implementing GEPs and scaling up the network of CoPs
- Booklet on Gender Equality and CoP approach: link to D4.3
- Thematic videos: link to the GenPORT Vimeo channel containing thematic videos produced by ACT.

WP5 Supporting Infrastructures for CoPs
- ACT Knowledge Sharing Hub: link to D5.1
- Customizable Online Questionnaire Framework: link to D5.2

2.2.6 Section: Events

The ACT events page collects the information about the two Synergy Conferences, the 3 EU innovation events, and the CoP workshops that will be organized during the course

of the project with the aim to foster synergies and explore the innovation potential on gender equality in R&I with its target stakeholders across Europe and beyond.

A summary page lists the ACT and CoPs events including event title, date and location, and links to a dedicated page of the ACT website containing the full information: description of goals and outreach of the event, programme and registration form. In order to enhance the GenPORT community, the ACT events registration form also contains a field asking participants to register as users in the GenPORT portal. The online registration process includes agreement with FUOC's "Privacy policy" for personal data collection and processing in accordance with EU and national legislation.

2.2.7 Section: News

This is the blog page of the ACT website. It includes the history of news about the ACT project activities and collects news of CoPs websites. In this way, the ACT website is a window to the blog pages of CoPs websites. CoPs will have the possibility to tick the option: "Publish in the ACT website" when creating a new post.

2.2.8 Social media links

A "Share this" plugin will be installed to enable social media buttons across the ACT website (e.g., Project, Events, Communities of Practice, Community Mapping, News).

3. ACT KNOWLEDGE SHARING HUB: COMMUNITIES OF PRACTICE WEBSITES

Each Community of Practice supported by ACT will have a specific website hosted in the same virtual server and domain extension (acronym.act-on-gender.eu). These sites guarantee the internet visibility of each CoP and, at the same time, are a space for facilitating the work and interaction of CoP members, offering digital solutions for collaborative learning and practice exchange such as file sharing options, a customizable online survey platform and visualization of results. Therefore, CoPs websites combine some public areas with other private areas that will be accessible only to registered users.

3.1 GLOBAL SPECIFICATIONS

Multilingualism: The user interface of the CoPs websites will be created in English and will be translated into 3 EU languages: French, German and Spanish to facilitate the interaction of local CoPs.

Visual Identity: The visual branding of the project provides a coherent framework to clearly associate the individual CoPs to the overall ACT graphical identity. At the same time, CoP websites are designed according to the visual identity defined for each CoP, which differentiates each CoP with an acronym, name and color while being recognizable as ACT participants. Annex 5 provides the overview of individual CoP logos and color scheme.

Security and spam protection: In addition to tools provided by the hosting provider and the native Drupal configurations, each CoP site has a "Captcha" technology installed, to prevent automated account registration or content creation (spam). Content creation (such as posting in the discussion forum or uploading of files and resources) is restricted to authenticated users. User registration requires manual approval by the CoP admin.

In addition, ACT has contracted SSL certificate for its main domain (act-on-gender.eu) as well as the corresponding subdomains for each Community of Practice site (subdomain.act-on-gender.eu) in order to encrypt and transfer data securely over the Internet (using "https" protocol).

3.2 CONTENT AND SECTIONS: ACT INDIVIDUAL COP SITES

3.2.1 Section: Home

The front page of the CoP sites is composed of an **upper area** displaying the CoP logo next to a color banner that includes the CoP's full name, a short text and a "Read more" link to the full description of the CoP (About page). The top side includes the Login and Register links, for users to sign in or to request to register as a new CoP user (registration form).

A color stripe shows the **website menu**: About, Members, Blog, Tools, Workspace, Surveys, and links to the corresponding pages.

The **central area** includes an interactive image that shows the connection between the Community of Practice (Collaborative knowledge, mutual engagement and practice to advance gender equality in R&I), the ACT project (Building and supporting Communities of Practice across Europe) and GenPORT (Your gateway to gender and science resources), and displays the logos of all CoPs linking to their respective websites.

Below, three icons present three types of content: Institutions, Blog and Resources:

- Institutions: link to a public page that lists the CoP's member institutions, including institution name, logo, country and website.

- Blog: link to the blog page. The blog entries refer to CoP's news about ongoing or upcoming activities that are visible to the wider public. CoPs will have the possibility to tick the option: publish on the ACT website when creating a new post.

- Resources: this page displays the recommended resources and available outcomes of the Community of Practice.

A banner highlights the Active Surveys, leading to ongoing surveys on GEP Audit or Wilder Collaborations Inventory that can be accessed by CoP users.

The **footer area** includes the contact details of the CoP: CoP's name, full address of the coordinating institution and e-mail. Below, reference to the ACT project together with the EU emblem and disclaimer. Finally, the main numbers of the CoP are displayed at the bottom, including: number of registered users, submitted resources, blog posts, forum topics and forum comments.

3.2.2 Section: About

The About page provides with the description of the CoP, including its objectives, main language, date of creation, contact person, field/discipline (according to GenPORT taxonomy) and thematic coverage in relation to the gender equality ERA priorities:

- Name
- Acronym
- CoP's logo
- Description
- Main language
- Date of creation
- Member institutions
- Thematic coverage – ERA priorities
- Field/discipline – GenPORT Taxonomy
- Contact person (name, institution and e-mail of the CoP coordinator)

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous
	all rights	read, edit	read	read

3.2.3 Section: Blog

Blog page that lists the CoP latest news about its ongoing and upcoming activities. Activities include CoP events such as workshops and seminars as well as information about raising awareness meetings, training sessions, and updates about CoP progress. This page will be visible to the public and CoPs will have the option to publish the information on the ACT website when creating a new post.

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous
Rules	all rights	read, create, edit	read, create	read

3.2.4 Section: Members

Contains two sub-sections: publicly visible listing of institutional members and restricted listing of users.

Institutional members

Listing of all institutional members of the CoP that signed the Memorandum of Understanding. Required files are: Institution Logo, Name, Website, Country.

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous
	all rights	read, create	read	read

Users (personal members)

The list of CoP users in this page is accessible to CoP members only. It will include a picture, name, institution, area of expertise, short bio and e-mail.

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous

	all rights	read, create	read	none

3.2.5 Section: Tools

Resources

Unlike the file sharing area, it is a publicly visible page that compiles recommended re-sources and available outcomes of the Community of Practice. The contents of the re-sources section are mirrored to the GenPORT repository.

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous
	all rights	read, create, edit	read, create	read

Co-creation toolkit

This section contains the learning content, participatory methods and tools of the Community of Practice Co-creation Toolkit. It uses an interactive search and selection tool to filter for the adequate participatory methods according to "CoP Success Factors", "Area of Activity", "CoP Lifecycle Phases".

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous
	all rights	read	read	read

3.2.6 Section: Workspace

This section contains four sub-sections all of which are accessible to CoP members only.

Files

The file sharing area of the CoP is a page only accessible to registered users. It allows to create/delete folders and upload/download files.

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous
	all rights	Create, read	Create, read	none

Forum

Besides exchanging information in a mailing list, CoPs will be able to hold conversations in a forum page of their site in the form of posted messages around specific threads.

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous
	all rights	Create, edit, read posts	Create, edit, read posts	none

For having online discussions beyond the CoP (e.g.; among CoP facilitators and with other CoPs or with groups of people), there is available the space of Groups in GenPORT, a tool that can be used to post requests, suggestions or organize e-discussions on specific topics. A GenPORT group can be private or public, so CoP members decide if the e-discussion and the contents of the group are visible or not.

Video Meetings

To hold online meetings, CoPs sites include a link to the video conference system hosted by DESY. This online conference system has a space for the whole ACT project and a specific meeting space for each of the supported CoPs.

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous
	all rights	Join meeting	Join meeting	none

Polls

A poll module allows to create and manage polls so that CoP members can capture votes on different topics in the form of multiple-choice questions.

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous
	all rights	Create poll, read, vote	Read, vote	none

3.2.7 Section: Surveys

Page that explains the Gender Equality Audit and Monitoring (GEAM) tool and the Wilder Collaborations Surveys content and guidelines. It includes a link to ACT LimeSurvey implementation.

Access rules

Role	Super admin	CoP admin	Registered user	Anonymous
	all rights	create, read	read	none

3.3 SYSTEM FUNCTIONALITIES

3.3.1 User Management

User roles

CoP sites function with four different user roles:

- Super admin: reserved for global management of system.
- CoP admin: user responsible for management of common site functionalities such as user and content approval, poll creation.
- Authenticated user: individual CoP members having access to restricted areas of the site and creation of some contents.
- Anonymous user: non-authenticated user (general public)

The Super admin creates the initial CoP admin account and delivers access credentials to the CoP Facilitator.

User creation / management

New users need to register on a CoP site by filling out the publicly available register-form (Header > Register link). This will generate a message for the CoP admin who then has to approve the account. In case an account is not explicitly approved, the account remains inactive. The CoP admin can also suspend an account if necessary.

Contrary to the initial planning, a registered user account on one of the CoP sites does not provide a single-sign on to other CoP sites, the GenPORT site or the GEAM online tool. Separate accounts are required for that. The required configuration for the single-sign on solution is currently not supported by our hosting provider out of security concerns. It therefore seems reasonable to not use this technology/service within the framework of ACT.

3.3.2 Content creation

Content creation is restricted to the CoP admin or authenticated users. Exclusive responsibilities for the CoP admin include:

- User account approval/removal
- Editing of central site sections (Home, About, Institutional Member Section)
- Creation of new "Polls"

Shared responsibilities between CoP admin and authenticated users include:

- Creation and editing of Blog posts
- Uploading of Resources or Files
- Contribution to discussion forum
- Response to "Polls"

3.4 SYSTEM ARCHITECTURE: DRUPAL MULTISITE

The ACT Knowledge Sharing Hub is a "multisite" architecture which integrates the ACT project website and several instances of individual Communities of Practice sites. The main advantage of a multisite architecture consists of defining and implementing a "master" CoP site that provides the back-end solution to build new sites quickly easily as many times as needed with almost no additional effort. It therefore offers an efficient management solution of shared site features while providing flexibility for individual sites/solutions. In addition, it offers a highly scalable solution: although ACT foresees to actively support "only" seven CoP during the project's lifetime, due to the multisite architecture we can easily offer an online presence and collaboration platform to additional CoPs.

The multisite architecture consists of one "master" installation which contains the main code to create the architecture and features of individual CoP sites. Each individual CoP site operates as an "instance" of the "master" installation with the possibility to customize most available features and its content.

Centrally / "master" controlled features

- User roles and permissions are created on the master site and replicated on each CoP instance.

- Main content sections are defined centrally. We use the "Features" module for Drupal to create "packs" of configurations and merge it into a custom content block. Once defined on the "master" site, the content block is available on all other instances. Our approach works bi-directionally: changes made to one "Features" module on an instance site can also be communicated to the "master" site; if accepted they can be replicated across all site instances. This architecture does not affect the general "master"-"instance" architecture which allows each site to

introduce individual adaptations/customizations without affecting the master site or other CoPs.

- Pre-defined content sections (shared content) include the Co-creation toolkit.

Instance specific customization

New CoP sites are initially "empty". Although main sections and functionalities are defined and can be used, CoP specific information needs to be provided such as "About" section, "Members" institutions or "Blog" entries.

- Every site instance has its own database to store site specific content, users and configuration.
- Every site has its own sub-domain ("cop-name.act-on-gender.eu) and a new DNS register is setup which points to the specific folder of the master installation (///sites/name-of-the-site).
- Every site instance has its own theme files (CSS, JS and templates files) and modules folder for storing custom code used on the specific site only. This is crucial in order to adapt the look and feel (color, logo) of each site.
- Every site has also its own "files folder" where we store the images, PDF, docs, etc. independently.
- Every site has its own default email address used for internal notifications from any of the platforms (GenPORT, ACT LimeSurvey platform, or ACT project site).

3.4.1 Principal Drupal modules deployed

Following Best Practices for Drupal development[5] and coding standards[6] we have chosen several modules to build the ACT Knowledge Sharing Hub Drupal site. The most significant ones are listed below:

- Addtoany: Sharing any content in social networks in flexible way
- Advanced Forum: Building all the forum section
- Advpoll: Allow creation and managing of voting polls
- Captcha: Ensure protection for the public forms by Google standards
- Drupalchat: Users chat
- Display Suite: Complex site building with advanced functionalities
- Entity Reference: A way to relate fields and entities
- Features: Create a module from a set of configurations
- Global redirect: SEO proposals
- Libraries: Manage of external libraries
- Node Access: Restrict access to certain contents for some roles
- Rules: Define events to trigger operations automatically
- Strongarm: Export/import variables inside the multisite environment
- Views: Point any kind of database query in the public interface
- Webform: Manage forms

[5] https://www.drupal.org/docs/7/site-building-best-practices
[6] https://www.drupal.org/docs/develop/standards

3.4.2 Controlling the look and feel

One of the strong points of Drupal is the independence of code and design layers. They are completely separated so one can independently manage them. The appearance of the website depends, therefore, only on the used theme.

On the other hand, the architecture of content, usability and user experience are some of the most important points for achieving a successful site, so we need a powerful and flexible tool to generate the interface and also to be able to apply the graphic design specifically created for ACT and CoP's sites. For that reason, we decided to use Bootstrap as a front-end framework to implement the whole interface. This open framework is expected to be available for any programming environment, so we can make our own bridge if it is necessary. By using Bootstrap, we get some advantages like:

- Use of HTML5 / CSS3 / LS (mainly JQuery) according to the W3C standard rules.
- Clean, light and focused on legibility design.
- Responsive and mobile first layout.
- Use of pre-processors like SASS or LESS.
- Ability to run internally (100% installed on our server) or hosted by a CDN (external libraries hosted by third-party provider).
- SEO friendly
- Industry standard, high performance

3.5 TECHNICAL INFRASTRUCTURE

3.5.1 Hardware

The ACT Knowledge Sharing Hubs is currently hosted by cdmon.es using a "virtual server" with the following features:

- 2 VCores
- 100GB Disc Space
- 4096MB RAM
- 500Mbits bandwidth
- Unlimited data transfer

3.5.2 Software / Operating system

Any Drupal site needs to be deployed on top of a web server. In our case, we have a typical configuration of a LAMP platform (Linux + Apache + MySQL + PHP) running on the server described in the previous section. Currently now, the server is running the following services:

- Drupal 7.59
- PHP 7.0.22
- Linux vxadk-17.srv.cat 3.2.0-6-amd64 #1 SMP Debian 3.2.102-1 x86_64
- APACHE 2.2.22-13+deb7u11
- MYSQL 5.5.57-0+deb7u1

3.6 OTHER TECHNICAL SERVICES

In addition to the ACT Knowledge Sharing Hub other technical support services provided by ACT are the following:

- Registration of CoP subdomain – according to the CoP acronym
- One central email account / webmail for each CoP
- One mailing list for CoP members

4. GENPORT

GenPORT (https://www.genderportal.eu) has been developed during a previous FP7 project (2013-2017). It provides a gateway to gender and science resources and currently (September 2019) has more than 724 registered users and +1200 resources. GenPORT main features and services currently operative include:

- A structure for content storage and provision (Resources, Projects, People, Events, Organizations) with an ontology for describing relations among these entities (e.g. Organization – participates in – Project; or: Person – attends – Event). Semantic descriptors are key for contextualizing resources and knowledge discovery.

- GenPORT incorporates an internal reputation system in order to assist the prioritizing of search results. The system is composed of "User points and roles" and "Energy of resources" which combine data from users' activity and resources' usage.

- Users can setup public or private online discussion groups.

- The platform incorporates an internal "flagging" system to "bookmark", "like", mark as inappropriate, or request the update of a given resource.

- A general "Comments" function facilitates exchange on any content stored in the platform.

- The Gender & Science Blog has been established as a popular entry point for discussing and disseminating gender and science concerns.

- A community developed and validated meta-data scheme for describing content, including a meta-data quality index, facilitates the curation of resources and assessing the completeness of their descriptors.

The Gender & Science Taxonomy developed during the project has been made available in SKOS format.

In order to integrate GenPORT into the overall online "eco-system" of ACT, including the ACT Knowledge Sharing Hub, several modifications have been implemented:

- Syndication system to synchronize "Resources" uploaded to individual CoP sites to the GenPORT database.

- "Events" posted to GenPORT can be published on ACT site.

- Feed of last published resources can be displayed on each individual CoP site.

- Adding new roles and permissions settings to GenPORT to manage the new CoP Members and CoP Admin users and its contents

- New section and features for the "Database of Modules for Surveys Questionnaires": A tool to manage, describe and download individual GEAM questionnaire modules used on the ACT LimeSurvey platform.

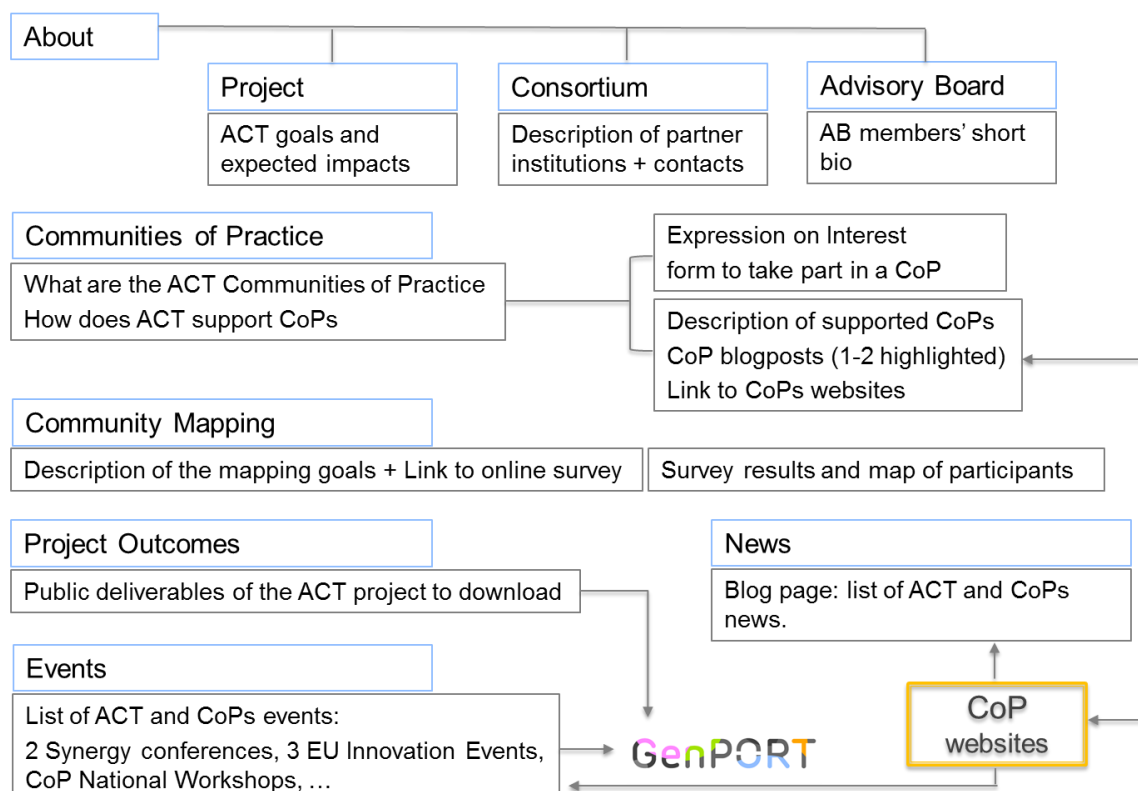## ANNEX 1: SCHEME OF THE ACT KNOWLEDGE SHARING HUB
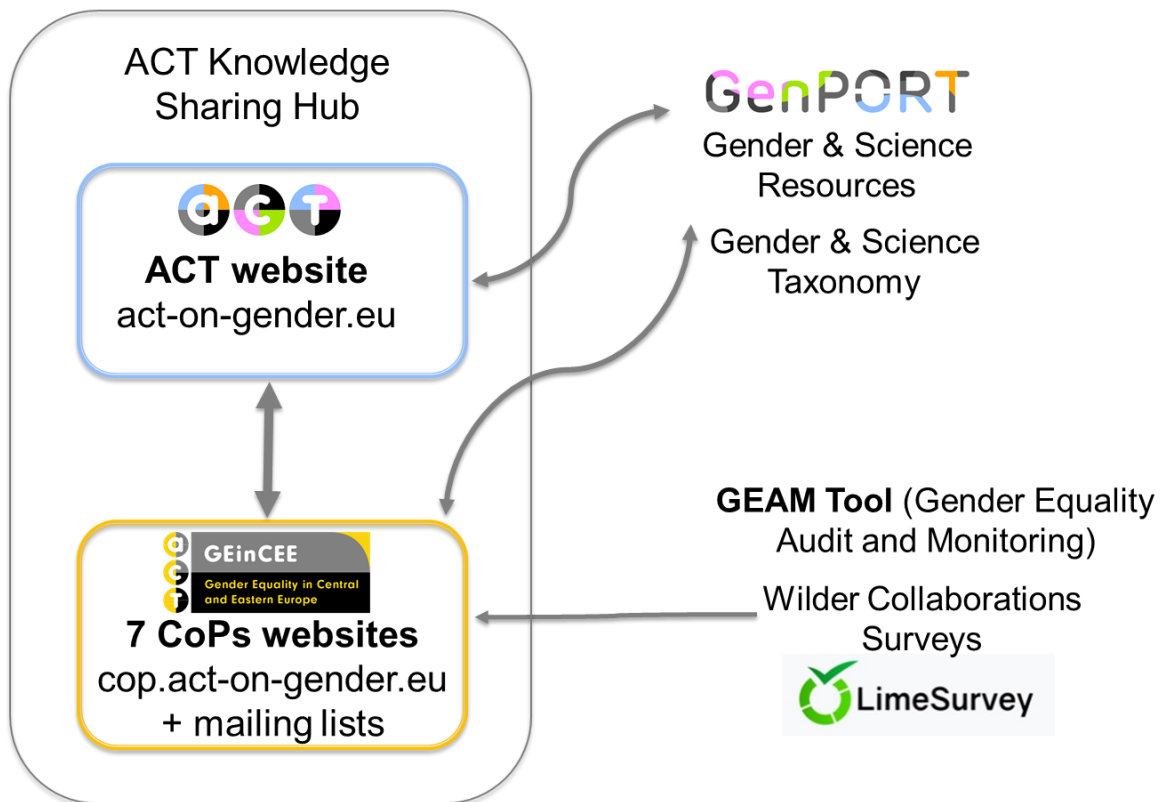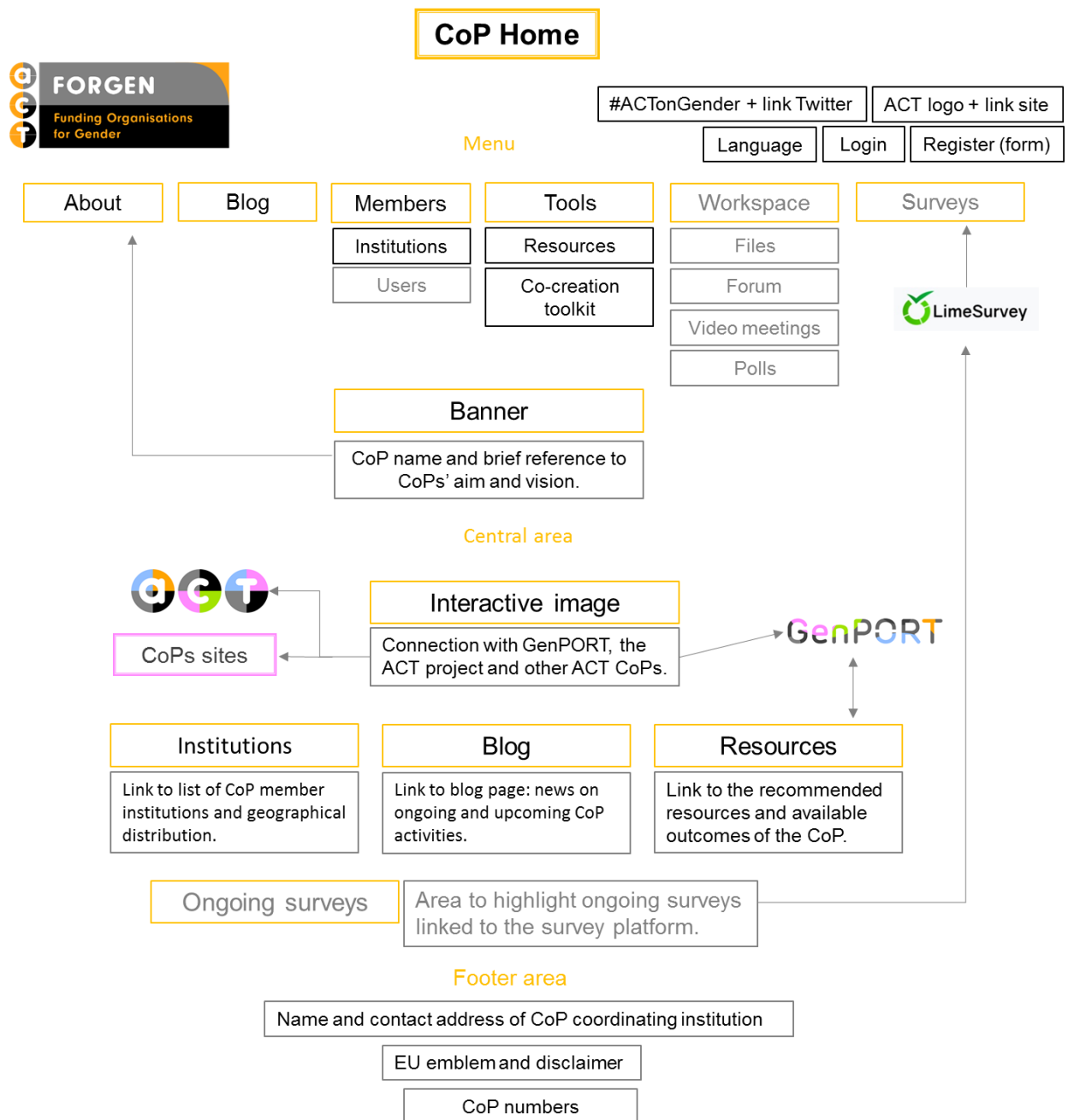
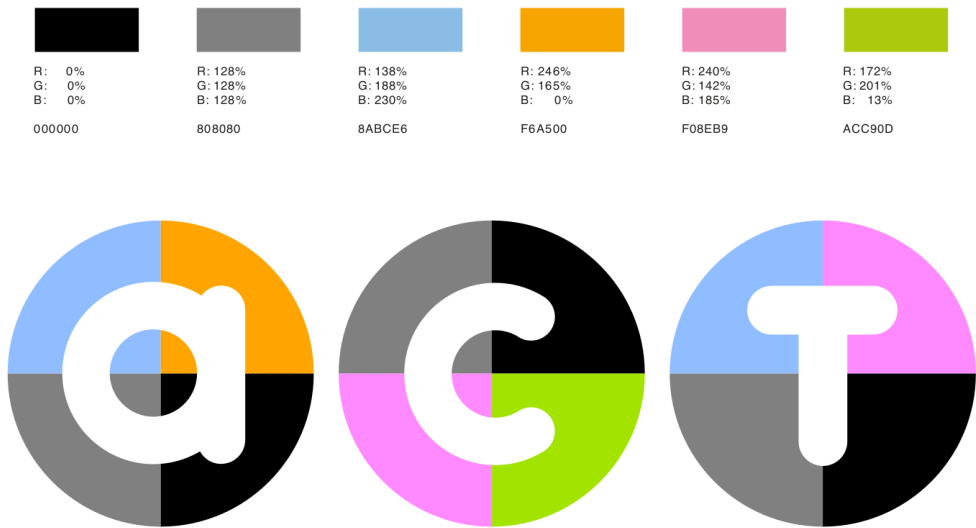## ANNEX 2: ACT WEBSITE WIREFRAMES

a) Home of the ACT website
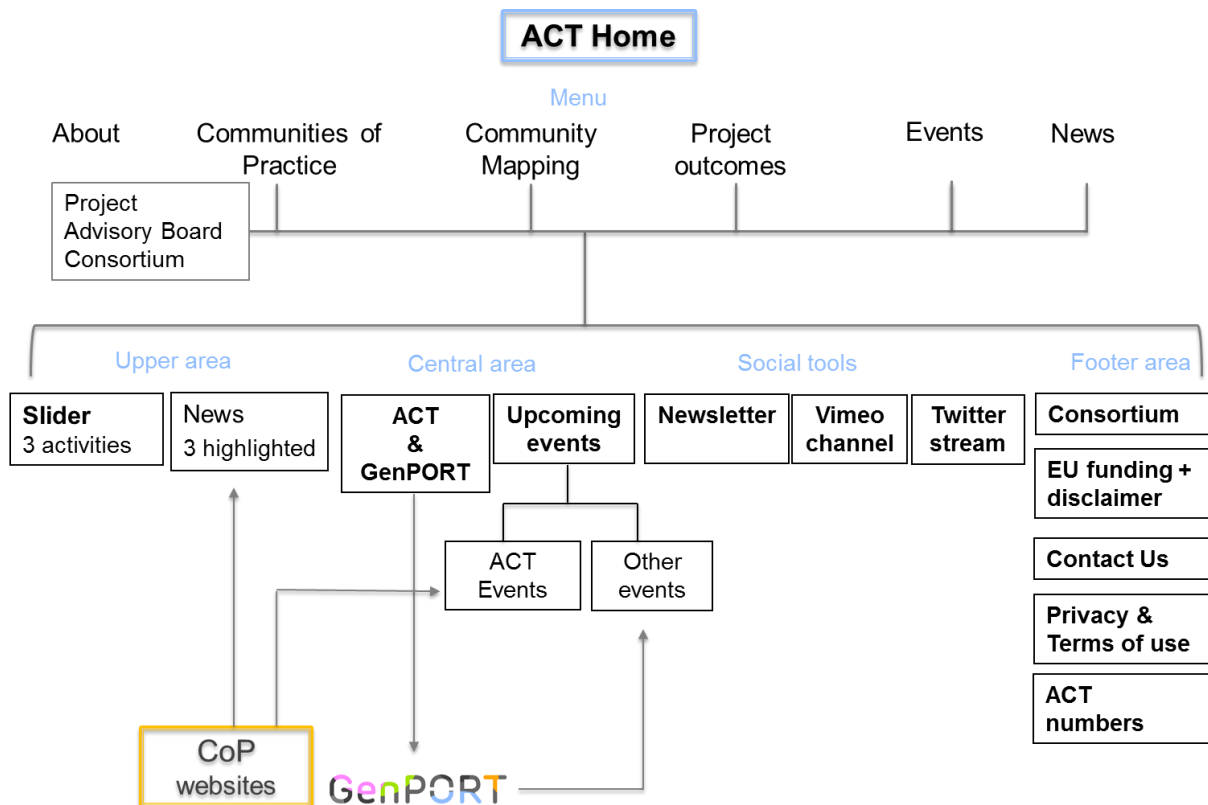
b) Pages in the ACT website

ANNEX 3: COP WEBSITE WIREFRAMES

ANNEX 4: VISUAL IDENTITY – ACT PROJECT SITE

R: 0%   R: 128%   R: 138%   R: 246%   R: 240%   R: 172%
G: 0%   G: 128%   G: 188%   G: 165%   G: 142%   G: 201%
B: 0%   B: 128%   B: 230%   B: 0%   B: 185%   B: 13%

000000   808080   8ABCE6   F6A500   F08EB9   ACC90D

ANNEX 5: VISUAL IDENTITY – INDIVIDUAL COP SITES