



Deliverable 8.2

Part 2 - Plan for Dissemination and Exploitation of Results (draft)

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TETTRIs

Transforming European Taxonomy through Training, Research, and Innovations

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TETTRIs related product

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Abstract: This document presents the Plan for disseminating and better exploiting the expected results of the TETTRIs projects, in direct linkage with the External Communication Strategy to reach out a variety of audiences and engage with a broad range of stakeholders.

Keywords:

Dissemination, exploitation, results, channels, materials, reach, stakeholders, audiences, sustainability of outcomes, impact.

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Summary

This present document is a deliverable of the TETTRIs project, which is funded by the European Union's Horizon Europe Programme under Grant Agreement (101081903).

This document presents the project's "Plan for Dissemination and Exploitation of Results" (PDER). Its main purpose is to strategically define the path on how to maximize the impact of the project and reach the targeted audiences during the project's lifetime and beyond.

TETTRIs aims to bring about a significant transformation in the field of taxonomy to address biodiversity changes by enhancing the capacity for taxonomic research and transferring critical scientific knowledge to key societal stakeholders. Additionally, it seeks to raise awareness among the general public about the significance of taxonomy.

This PDER is written against this background and outlines the scope, objectives, approach, targets and time frame for the dissemination and exploitation activities to be implemented, as well as the key messages of the project to the intended audiences. It also provides a list of tailored key performance indicators that aim to provide a means to monitor the effectiveness of the dissemination and exploitation activities.

This PDER will serve as a living document that will be adapted to the changes and needs of the involved consortium and stakeholders. A final update of this plan will be delivered in M40 (March 2026) as planned in the Grant Agreement.

I. Introduction

Background of the TETTRIs project

Accurate taxonomic knowledge and tools are needed to understand the drivers and impact of biodiversity decline. However, the field of taxonomy is severely hampered by a continuous decrease in capacity. With TETTRIs, we envision a transformative change in the field of taxonomy to build and sustain taxonomic research capacity through increasing knowledge and developing systems. TETTRIs will achieve this aim by creating joint knowledge in reference collections, training frameworks, and with innovative tools as well as by developing centralized resources providing access to an expertise marketplace, the taxonomic knowledge platform, and career paths. The core methodology for reaching these objectives includes co-creation and co-design with citizen scientists and professionals in biodiversity hotspots.

The open-access knowledge and systems built into TETTRIs, together with citizen scientists, will accelerate the integration, utilization and expansion of taxonomy in education, governance, and multidisciplinary research. This will support the long-term relevance of taxonomy as an instrumental science, necessary to halt European and global biodiversity loss, and ensuring ecosystems and their services are preserved and sustainably restored on land, inland water and at sea. TETTRIs builds taxonomic research capacity near biodiversity hotspots by networking natural history museums and other taxonomic facilities through bottom-up co-creation between 17 partners. The consortium includes the European Citizen Science Association and several of Europe's leading natural history museums, botanic gardens and universities unified under CETAF, the leading European voice for taxonomy and systematic biology. Impact throughout the EU and beyond is secured through involvement of associated initiatives such as DiSSCo and DEST, partners in third party projects, and key TETTRIs dissemination activities towards a new generation of taxonomists, citizen scientists, users in need of taxonomic knowledge, and decision-makers.

Project Objectives and Outcomes

The objectives and outcomes of TETTRIs are only very briefly summarized in this section to aid the reader but are described in more detail in Section II (Results of the Survey).

In alignment with the main objective of TETTRIs, the vision for the main outcome of the project is the creation of a comprehensive Blueprint for Taxonomic Capacity Building. TETTRIs aims to achieve this with the 6 SMART (Specific, Measurable, Assignable, Realistic, Timely) Objectives shown in the table below.

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Table 1. Main objectives of TETTRIs.

<p>Objective 1 - INDEX Create an expertise marketplace to index currently available international taxonomic data and expertise</p>	<p>Objective 2 - INTEGRATE Develop an online knowledge platform for the integration of, and access to, taxonomic resources and tools</p>	<p>Objective 3 - PROVIDE Formulate a roadmap for physical and digital reference collections and validate it by creating a pollinator reference collection</p>
<p>Objective 4 - FACILITATE Develop a sector-specific training framework and demonstrate it by facilitating training programmes that increase professional and non-professional taxonomy expertise</p>	<p>Objective 5 - FOSTER Test and validate the innovations developed with new taxonomic tools</p>	<p>Objective 6 - SUPPORT Develop and secure a joint vision and action plan with academic and non-academic stakeholders to broaden the taxonomy career path and perspectives</p>

The Consortium has defined 9 important outcomes for TETTRIs. The first 6 expected outcomes directly reflect the objectives of the project shown above:

Outcome 1: A dynamic taxonomic knowledge marketplace for taxonomic Expertise

Outcome 2: A cross-cutting knowledge platform for linking taxonomic resources.

Outcome 3: A platform for international access to reference collections

Outcome 4: A virtual reference collection of target pollinators

Outcome 5: Training pathways that build taxonomic knowledge together with new generation taxonomists, citizen scientists, and other taxonomy-related professionals in biodiversity hotspots

Outcome 6: Innovative taxonomic tools that are implemented and validated in biodiversity hotspots with an additional 3 expected outcomes that are fundamentally relying on an efficient, effective and targeted dissemination and exploitation strategy:

Outcome 7: Taxonomy is embedded in the multi-stakeholder ecosystem that fosters career development

Outcome 8: Increased level of information and awareness of citizen scientists in biodiversity hotspots

Outcome 9: Amplified diffusion of new taxonomic data, tools, methods, and knowledge in biodiversity hotspots

In this document, we will briefly define the fundamentals of this PDER, followed by setting the strategy's framework (section II), strategically define its building blocks (section III), iterate how to evaluate this defined strategy (section IV) and conclude with a wider perspective (section VI).

Definition of the PDER

A Plan for Dissemination and Exploitation of Project Results is made up of three essential components which need to be defined.

1. Communication

A strategic tool used to promote action and results to as many stakeholders as possible. This happens on the target audience tailored channels and continues throughout the project. Through a well-laid out communication strategy we can engage, attract experts, generate market demand, raise awareness of how public money is spent and show the success of European collaboration. In the context of TETTRIs' internal communication, efforts are intended to facilitate efficient exchange of information among project partners, strengthen coherence and enlighten the shared vision towards the dissemination of results. External communication aims to promote the action and its results, by providing wide ranging information to the media and the public.

2. Dissemination

The act of making project results public. Specifically targeting those who can use the results such as, scientists, nature managers, governmental agencies, industry or policy makers. Dissemination channels are open access scientific journals, conferences, platforms, databases and training activities. Dissemination should take place as soon as the action has results so that they can be maximized, and the derived knowledge can be utilized. In the context of TETTRIs, the results of the project once produced, reviewed internally, and assessed as final, will be uploaded in as many platforms and repositories as necessary to secure open and wide accessibility to the results obtained.

3. Exploitation

Whilst dissemination solely focuses on publicizing information, exploitation is oriented towards continuing development and the concrete use of results for commercial, societal or political purposes. By creating roadmaps for how expected results can be utilized by e.g., researchers, industry, or policy makers, we can maximize the benefit the project has for innovation, society and the economy. Exploitation occurs towards the end of the project and beyond.

In TETTRIs, such a combination of components and coordination within the consortium is pivotal for sustaining the transformation of taxonomy during and beyond the project. For this reason, the PDER closely relates the external communication (deliverable 8.2) and the tools and brand guidelines reported in the internal communication strategy (deliverable D8.1) of the project, since communication, dissemination and exploitation play a vital role in ensuring knowledge transfer and uptake of results of the project and form a specific project management cycle.

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The PDER can be summarized as the strategic tool to the consortium that defines the approaches of communication and dissemination to create sustainable impact through suitable methods of engagement, and appropriate timely information.

II. Framework for Dissemination and Exploitation

Guiding Principles of the PDER

TETTRIs is establishing a dissemination and exploitation strategy to ensure that information is adequately transferred to the relevant target audiences and can be used beyond the life of the project. TETTRIs expects a long-term exploitation and return from the generated knowledge and systems since it aims to achieve a paradigm shift in the taxonomy capacity in Europe.

All project partners take part in dissemination and exploitation in order to foster awareness and transfer results for impact, especially in their own countries and in their own communities.

The project outcomes of TETTRIs are multidimensional and intended for a large range of stakeholders. Several overarching principles will give a coherent framework to the PDER to be as specific as necessary and as inclusive as possible:

- **Transparent, FAIR and open:** project outcomes will be made openly available and free of charge through appropriate tools, data will be shared using FAIR principles and embracing the EU guidelines on Open Science and Responsible Research and Innovation whilst considering Intellectual Property Rights, privacy and security of persons and organizations, as well as commercialization interests.
- **Adaptable and flexible:** communication and dissemination tools in TETTRIs need to be flexible in order to create a responsive framework to changing needs and challenges of the project or its stakeholders. At the same time the communication and dissemination strategies need to be adaptable to the various research themes and stakeholder groups, and tools and channels need to be tailored to the needs of the different end users.
- **Precise:** the communication and dissemination as well as exploitation will be tailored to the different stakeholders and end users using appropriate language.
- **Achievable:** objectives and goals of the PDER are implemented adequately considering the available resources.
- **Impact-oriented:** the PDER will seek to maximize impact on all stakeholders and of the project results, exploiting synergies of the partners and their networks wherever possible.

Objectives of the PDER

General objectives of the PDER

Aligned with the vision and mission of TETTRIs, the PDER seeks to maximize the impact of the project by raising awareness on its activities, challenges and results towards a wide audience while contributing to decision making in the context of the European Biodiversity agenda 2030 and the Green Deal to tackle the global biodiversity loss.

The communication, dissemination and exploitation activities addressed in this PDER are designed to ensure sustainability and increase the impact of TETTRIs by:

- informing the broader community and specific key actors of the outcomes achieved by the project.
- seeking support from funding agencies by promoting the pivotal role of taxonomy in tackling critical societal challenges such as biodiversity decline
- driving a deep change in perception towards taxonomy among all relevant stakeholders.
- providing a strategic tool to the consortium for the coordination for dissemination and exploitation

Specific objectives of the PDER

The specific objectives of the PDER to achieve this are:

- Identify the target audiences of the different facets of the project
- Present a plan for identifying the needs of target groups and stakeholders to be able to focus exploitation of TETTRIs results
- Identify the appropriate clear messages to the relevant target groups to raise awareness and increase visibility and engagement with the project
- Identify and describe the appropriate tools, channels and formats for the relevant target audiences
- Facilitate knowledge exchange among the project consortium, and by clustering with similar initiatives with similar aims, as well as with the stakeholder groups
- Support the exploitation and implementation of TETTRIs results by engaging in a two-way dialogue with stakeholders and identifying the appropriate tools and means to do so
- Assess the success of the dissemination and exploitation by identifying and monitoring a set of key performance indicators (KPIs)
- Presenting a time plan for the dissemination and exploitation activities throughout the project's different stages and beyond its lifetime

Scoping of the PDER (partner survey)

In order to design a complete and comprehensive dissemination and exploitation strategy for all project outcomes, a survey was launched and distributed to all work package leaders (WPL) in the TETTRIs project, to provide information and input from their areas of expertise. The survey was launched, and feedback collected as a google form (See appendix).

The Survey had the following objectives:

- Compile the set of project outcomes with expected key exploitable results (KER)
- Identify channels, tools and formats for the communication, dissemination and exploitation of results.
- Identify the related targeted audiences and the expected reach.
- Identify barriers to the application of results.
- Analyze the impact and sustainability of results.

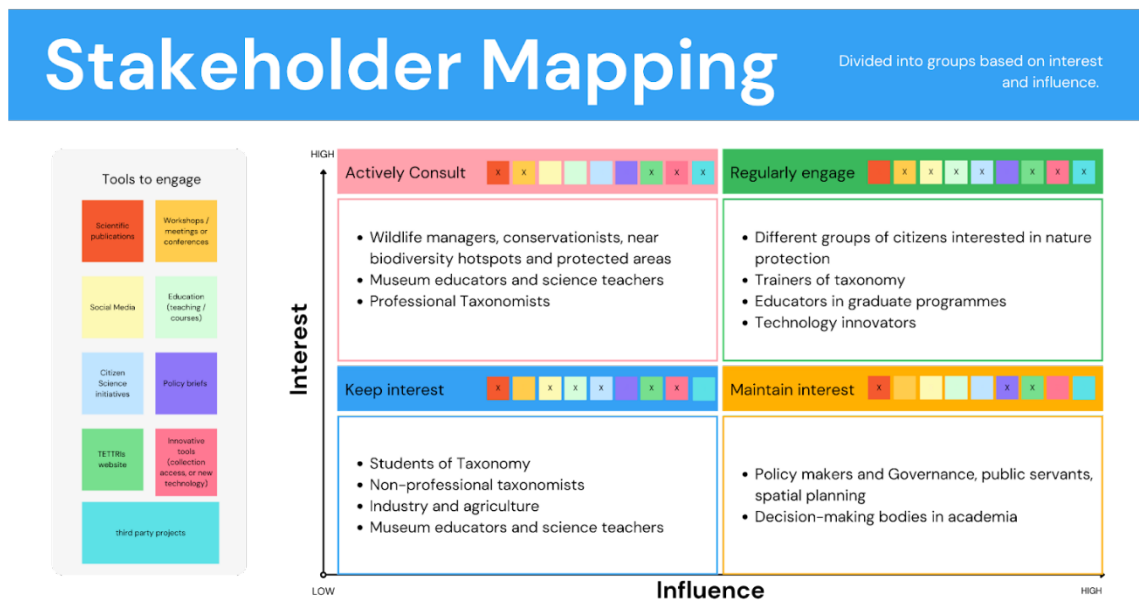
Results of the survey

The end goals should be in focus throughout the project and be clear in all that we do. Deliverables and expected results designed in the grant agreement were further qualified in the partner survey. The outcome, expected deliverables, tools, channels, stakeholders, key performance indicators (KPIs) and barriers predicted to be linked to each outcome are detailed in Section III in the relevant parts of the strategy.

Stakeholder assessment

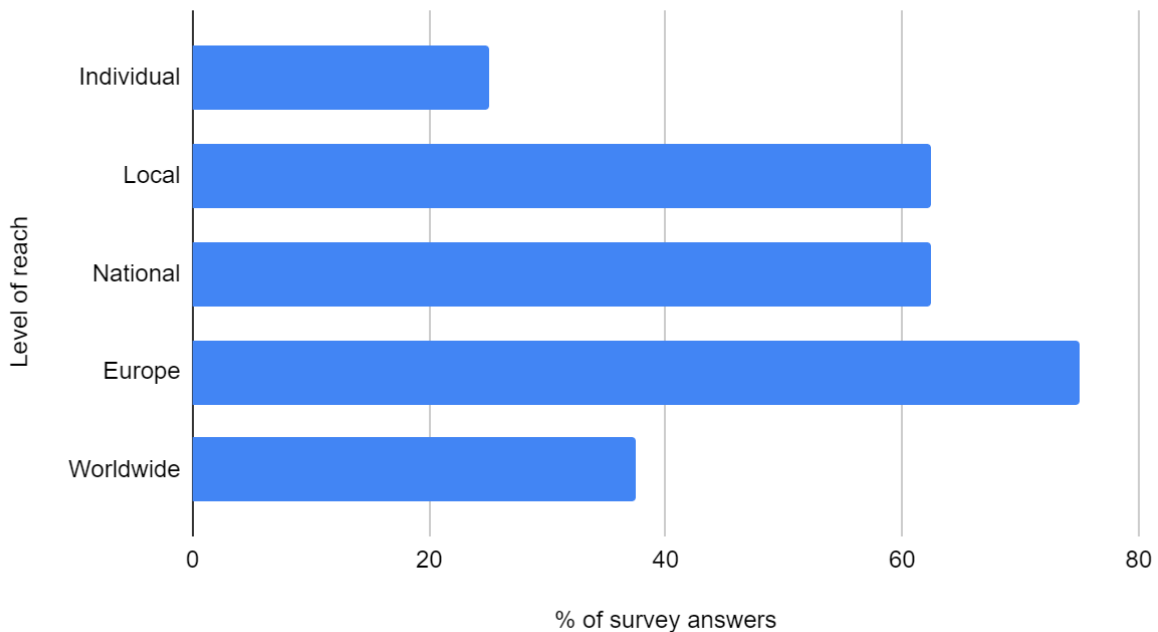
Communication and dissemination need to be tailored to the needs and level of understanding of the potential audiences to whom a message (project objective/outcome) should be delivered in order for the communication strategy to be well-focused and achieve the desired impact. Stakeholders of the different project outcomes were identified via the survey. Stakeholders were categorized according to their “interest” and “influence” in TETTRIs-related outcomes. Each quadrant of figure 1 gives an indication of the level of stakeholder management that should be employed and will influence the type of engagement technique to be used. The groups and the relevant engagement techniques for each are shown in the figure below, tools to be used for engagement are shown in the left panel.

Figure 1. Stakeholder mapping



In the survey, each WP Leader was asked to predict the potential scale of dissemination and exploitation activities. The categories and responses are shown below.

Figure 2. The expected scale of dissemination and exploitation activities



It is important to note that Task D5.1 will further assess stakeholders with particular interest in industry, decision makers and multipliers. The results of this assessment will be included in the next version of the PDER in month 5.

Stakeholders, the tools, channels, formats and messages to engage them are detailed in section III.

III. Strategy for Dissemination and Exploitation of Results

Defining the vision and mission of a project is vital for communicating and disseminating its results. With TETTRIs, we envision a transformative change in the field of taxonomy to build and sustain taxonomic research capacity through increasing knowledge and developing systems.

This PDER is to ensure that the activities undertaken in the project are effectively disseminated and exploited, resulting in defined TETTRIs outcomes. We have the ambition to disseminate the results of the project to a wide range of defined stakeholders. The following are the key messages in TETTRIs.

Key messages of TETTRIs (what)

Clear and concise messages are key for the successful communication of the project. We will develop an overall message for the vision of the project. At the

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time of writing there is an internal discussion on what the TETTRIs tagline should be, proposals are, **“Name it to save it.”** and **“We cannot protect what we don’t know.”** A tagline message like this is aimed to spark intrigue and immediately communicate the importance of TETTRIs, and can be used to communicate to all target groups.

In addition to this overall message, there is a need to further refine our messaging when segmenting our target audiences. Key messages to be communicated to different stakeholders in the TETTRIs project:

For researchers:

- TETTRIs is advancing the state of the art in European taxonomy research through innovative approaches, widespread, multidisciplinary collaboration, and the development of new tools and methodologies.
- TETTRIs will help researchers to provide tools and improve expertise Europe-wide by training future scientists and citizen scientists.
- TETTRIs is providing opportunities for training early-career researchers to develop new skills and expertise, and to collaborate with other researchers and contribute to the advancement of the field.
- TETTRIs is working towards the digitalization and accessibility of reference collections, facilitating research and access to knowledge.

For policymakers:

- TETTRIs is demonstrating the need for more taxonomic knowledge and resources to better understand and ultimately counteract the drivers and mechanisms of biodiversity decline.
- TETTRIs supports evidence-based policy actions against biodiversity loss.
- Taxonomy is the most important tool to further our understanding of pollinator biodiversity.
- TETTRIs is helping to bridge the gap between research and policy, by producing outputs that are actionable, relevant, and informed by a range of stakeholders.

For industry:

- TETTRIs is developing new tools, methods, and approaches that have practical applications for industry, including in areas such as biodiversity conservation, environmental impact assessment, natural resource management and reference collections.
- TETTRIs will distribute 1.8 million euros in cascade grants to third party projects that can contribute to translate research findings into practical applications for industry.

For the general public:

- TETTRIs is helping protect biodiversity, since Taxonomy expertise is pivotal for preventing biodiversity loss.
- TETTRIs is advancing our understanding of European biodiversity and helping to promote conservation and sustainable use of natural resources.
- TETTRIs is developing innovative tools and methods that can be used by citizens to contribute to biodiversity monitoring, conservation, and research.
- TETTRIs is contributing to the development of a more informed and engaged public, by providing accessible, relevant, and up-to-date information on the latest research findings and innovations in European taxonomy.

Target audiences and key stakeholders (to whom)

Engagement of target groups in the project is crucial to assess ways of scaling the methods and tools produced. Additionally, engaging the general public and societal actors at large also increases the awareness of taxonomy to a wide range of audiences. Different stakeholders (figure 1), including from civil society, will be engaged through co-creating and co-designing workshops. This is particularly important because involvement in the design process increases engagement and makes it more sustainable, so that the training and results of the project are tailored to their respective needs and interests. Furthermore, we will create several opportunities for civil society organizations to act as gateways between relevant research information and decision makers, for example through science policy dialogues. The existing networks of the civil society stakeholders will become advantageous in order to reach a broader audience and engage important players. The co-creating and co-designing workshops will also help us understand the existing knowledge and skills as well as interest in civil society working on biodiversity, in order to integrate and complement them throughout the project, thereby helping us guide the research project. The below list provides an overview of TETTRIs' target groups and the stakeholder engagement plan.

a) New generation of taxonomists

Professional Taxonomists: Taxonomists' needs for increased knowledge and capacity in order to truly protect and restore biodiversity are addressed in all work packages. They are actively asked to participate via pilot projects.

Non-professional taxonomists: Taxonomic experts not employed in the field but creating scientific data. They will be encouraged to apply to the 3PP through the entities they are affiliated to and/or collaborate with.

Students of Taxonomy: The new generation of taxonomists will be addressed through an inclusive and truly integrative graduate program.

Trainers of taxonomy: Conservationists, museum educators, and science teachers are reached through efforts in WP4 where the training framework is developed and encouraged to participate in 3PP.

Educators in graduate programs: TETTRIs will collaborate closely with university and educational partners to design curricula to increase taxonomic research capacity.

Technology innovators: Biodiversity informatics experts, programmers, molecular biologists, others.

C) Users in need of taxonomic knowledge for their practice

Wildlife managers, conservationists, near biodiversity hotspots and protected areas: 3PP near biodiversity hotspots and protected areas will be initiated via the wider CETAF community together with local actors (e.g., nature conservation societies, nature protection agencies, national park administrations etc.). These joint projects foster links between local actors and (nearby) taxonomic facilities.

Museum educators and science teachers need knowledge on taxonomy and biodiversity to be able to transfer it to the museum visitors and their students respectively. With TETTRIs they will be reached through the pilot trainings designed under the training framework developed in WP4 and implemented via the 3PP in WP7.

Industry and agriculture: Several industrial sectors with vast impact on biodiversity, private companies related to environmental topics and bio-farmers: access to and integration of taxonomic knowledge and capacity in their processes is urgently needed. These connections will be built in WP5 with the stakeholder process, as well as in WP8 via communication, dissemination, and exploitation activities.

D) Decision-makers

Policy makers and Governance, public servants, spatial planning: Access to relevant knowledge and capacity in the field of taxonomy within governance structures is limited. Conversely, links of taxonomists to governance are still rare. By creating connections via communication, dissemination, and exploitation in WP8, increased recognition of the need and impact of taxonomy in governance is created. In WP5 a stakeholder process to explore societal needs is set up and career paths in this branch are explored. Policy makers will also be involved in drafting the business case for a European Agency for Taxonomy (WP5).

Decision-making bodies in academia: Universities will be directly approached in WP5 to support and jointly work towards an inclusive educational landscape that delivers taxonomic expertise.

Ethics, Gender and Diversity

Encouraging diversity in high-level education and specifically in STEM is imperative for a more diverse and inclusive contribution in research and this also holds true in the field of taxonomy.

The gender dimension will be addressed within the following activities:

- As part of the method to build a marketplace for taxonomic services and expertise (WP3), TETTRIs will develop automatic mapping methods of taxonomic expertise where gender balance is transversal and will report and recommend improvements to address any gender biases.
- Gender aspects will also be considered in the establishment of training formats in WP4 and in the composition of the network of trainers (WP4).

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- The stakeholder process for integration of taxonomy into society will specifically address the challenges for non-males in the development of novel career paths, and also the agreements with universities will include the aim for gender balance in higher education (WP5).
- The 3PP specifically encourages the application by and inclusion of non-males in the project as the concrete capacity-building activities are a strong lever to reach and gain diversity for the science of taxonomy. The success will be monitored in the evaluation of the 3PP (WP7).

The objective of the communication, dissemination and exploitation actions is to methodically engage and communicate with stakeholder groups identified above and maximize the uptake and impact of TETTRIs' project outcomes. Consortium partners are experts in their respective fields, united under the CETAF organization. Their joint involvement and individual networks provide important platforms and channels for dissemination and exploitation of the project results towards important stakeholders and potential users, expanding outreach further.

Tools and channels

Tools for reaching stakeholders for dissemination and exploitation purposes are listed below.

Tool: Open access Publications;

Targeted audience: Scientists, policymakers, non-professional taxonomists

The project results will be shared via relevant peer-reviewed scientific journals. Special reference is made to EJT, the community endorsed European Journal of Taxonomy (EJT). If the impact of the scientific journal is similar, preference will be given to open access (direct free online access by the publisher). A RIO (Research Ideas and Outcomes) Collection for TETTRIs will allocate all relevant project work and results.

Tool: Workshops, meetings or conferences;

Target audience: CETAF and ECSA members and researchers

TETTRIs needs support from CETAF and ECSA member institutes that are not a direct beneficiary to TETTRIs. To acquire their input and collaboration, the project will be a topic of discussion during meetings at CETAF and ECSA and discussed in relevant workgroups. T.5.1 plans to develop a participatory station at deck 50 in NHMW together with stakeholders as a tool for further engagement activities.

Tool: Social media;

Targeted audiences: All stakeholders

Partners will communicate on TETTRIs to wider audiences through social platforms such as Twitter, Facebook, LinkedIn and ResearchGate. They will communicate TETTRIs progress, conference attendances, and publications to get valuable insights from external audiences. As influencers and educators in their

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fields, they will be able to reach public, scientific, economic, and regulatory stakeholders. Social media pages for the project will also be created and used to report progress as well as tag individual experts to maximize public outreach. A social media work plan will be developed in WP8 and executed by a communication assistant. Where appropriate, partner institutions are asked to share the contact details of their communications officer with the TETTRIs communications team to streamline widespread communication.

Tool: Project Website;

Targeted audience: All stakeholders

The TETTRIs project site has been published in D8.1 and will be maintained by CETAF (tettris.eu). It contains all essential information regarding the project's objectives and outcomes. The website serves as the foundation of TETTRIs' communication, exploitation, and dissemination plans. It will present the consortium members, provide links to relevant websites and social media accounts, announce important events and trainings, embed a repository of open access publications and their abstracts, include the communication material (e.g., newsletter, press releases and articles), store content on project activities, and link to the 3PP portal.

Tool: Educational Website, Webinars, and videos;

Targeted audience: Researchers, Citizen Scientists, Students

CETAF has in D8.1, established an innovative, engaging website that contains accessible content such as animations, explainer videos and graphical explanations. The target audience is youth and students (of any age and needs), who will be offered possibilities to contribute content. The Moodle platform for online training is also linked here.

Tool: EU-Citizen.Science;

Targeted audiences: Citizen Scientists and interested citizens

EU-Citizen.Science is an online platform for sharing knowledge, tools, training and resources for citizen science for the community. TETTRIs results pertaining to these stakeholders will be communicated here to engage and empower this diverse group of users to reach out to their respective networks and further increase impact.

Tool: EU Services to support dissemination and exploitation of HorizonEurope funded projects

Targeted audiences: all the previously indicated

Horizon Dashboard: is an interactive reporting platform allowing the user to discover and filter Horizon projects and data. TETTRIs will use the platform to identify related projects in the field of biodiversity and taxonomy and to contact these projects to create synergies, knowledge transfer and strengthen European networks.

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-results>

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Cordis: is the collating platform for EU projects since 1990. TETTRIs will use Cordis to research the results of relevant projects in the field to avoid duplication of research efforts, and to publicize and promote TETTRIs' own activities and results.

<https://cordis.europa.eu/projects>

EU innovation radar: is a platform that allows citizens, policy makers and business professionals to discover innovative outputs of EU funded projects, and facilitate these persons to seek out innovators who are receiving EU funding in the early project days. For TETTRIs this platform would allow for example technology companies to contact TETTRIs partners, and in turn could be used to identify interesting initiatives for the 3PP.

<https://www.innoradar.eu/>

Tool: Third Party Projects (3PP)

Target Audience: Amateur naturalists and researchers

We will also collaborate with citizen scientists in the 3PP (supported in WP7) and the Community Implementation Board (CIB) to ensure the specialists and amateur naturalists are involved in engaging the broader public and to promote the new tools developed in this project. For example, the dissemination and communication will happen through events co-created with citizen scientists held in a space provided by NHMD (and other participating museums), as well as co-created events held in the field in biodiversity hotspots (bioblitzes), and by the co-creation of pop-up museum exhibitions in Naturens Hus at NHMD to engage and inform visitors.

Tool: External Communication Strategy;

Target audience: Consortium members, external stakeholders, and the 3PP applicants.

An internal and external communication strategy has been published, which includes guidelines to describe and measure communication activities.

Tool: Communication plan;

Target audience: eLTER

eLTER is a world-class ecosystem research infrastructure that connects an extensive community of experts that is supported by advanced sites and facilities and openly shared data and capacity building programmes. A communications plan will be developed to engage eLTER in providing insights to optimize the 3PP. For example, identifying biodiversity hotspots that need taxonomic knowledge, training, and/or innovative tools.

Tool: Newsletters and press releases

Target Audience: Wide ranging

We encourage partners to refer to TETTRIs as much as possible in their newsletter and relevant communication material. Our communications assistant will draft PRs for particularly relevant topics to be tailored by any partners to their audiences. In Task 5.1 there is a plan for a newsletter-tool for the group of stakeholders (industry. i.e CEOs, innovation managers, CSR managers, and other

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Multiplikators like strategic communication agencies and decision makers) based on the content that we would also like to share via linkedIn.

Tool: Policy Briefs;

Target audience: Policy makers

Access to relevant knowledge and capacity in the field of taxonomy within governance structures is limited. Conversely, links of taxonomists to governance are still rare. By creating connections via communication, dissemination, and exploitation in WP8, increased recognition of the need and impact of taxonomy in governance is created. In WP5 a stakeholder process to explore societal needs is set up, and career paths in this branch are explored. Policy makers will also be involved in drafting the business case for a European Agency for Taxonomy (WP5). Universities will be directly approached in WP5 to support and jointly work towards an inclusive educational landscape that delivers taxonomic expertise.

Activities

Stakeholder engagement

Organization of a CIB: The Community Implementation Board (CIB) (link to come) is composed of individuals who represent key institutes and organizations throughout all societal sectors that are relevant to TETTRIs and its partnership. They ensure a holistic understanding of taxonomy across the project and provide advice on how to better and most efficiently connect with external stakeholders during project implementation. Their contributions will also be relevant to perform qualitative analysis of the progress of pilots and projects funded using the third-party funding program. The CIB will have in-depth knowledge on the critical areas where support is needed on current initiatives and be able to help prioritize the scientific and technical focus of the consortium. The consortium will contact LERU, CAESAR, EOSC, EEA, Biodiversa+, ENVRI, DiSSCo and other RIs and other relevant initiatives to participate.

Project Conference: When bringing the TETTRIs project to a close in the fourth and final year, CETAF will organize an international conference that brings together the expertise of their vast network, other institutions outside CETAF and international organizations relevant to taxonomy and taxonomic expertise and knowledge. Additional valuable knowledge contributions from CIB members will be included.

Knowledge transfer events using House of Nature, pop-up exhibitions & digital taxonomy communities: Events such as workshops, BioBlitzes and digital communities established on biodiversity platforms (i.e., Arter) planned as part of the citizen engagement model will foster the dissemination of projects and tools developed under TETTRIs.

Consortium members will attend conferences linked to their field of expertise and where scientific, industrial, regulatory and public representatives are in attendance. In general, conferences are an excellent platform for networking and meeting an array of representatives from various target groups to whom the

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results of this project are of interest and by whom impacts can be maximized. Proposed conferences include:

- Neobiota (attended by wildlife managers)
- Conference on Mediterranean Ecosystems (ecologists)
- Annual meeting of Biodiversity Information Standards (Biodiversity Informaticians)
- Alliance for Biodiversity (Research infrastructures)
- ECSA bi-annual scientific conference (Citizen Science practitioners / Scientists)
- SPNCH

Disseminating early findings (with posters, symposia and workshops) will help build scientific evidence and accelerate research. Especially in cases where these findings prompt other researchers in the field to share experiences, data and/or findings for mutual benefit. We aim to harmonize the use of tools, methods, and services, and share our protocols for developing training, reference collections and innovative methods.

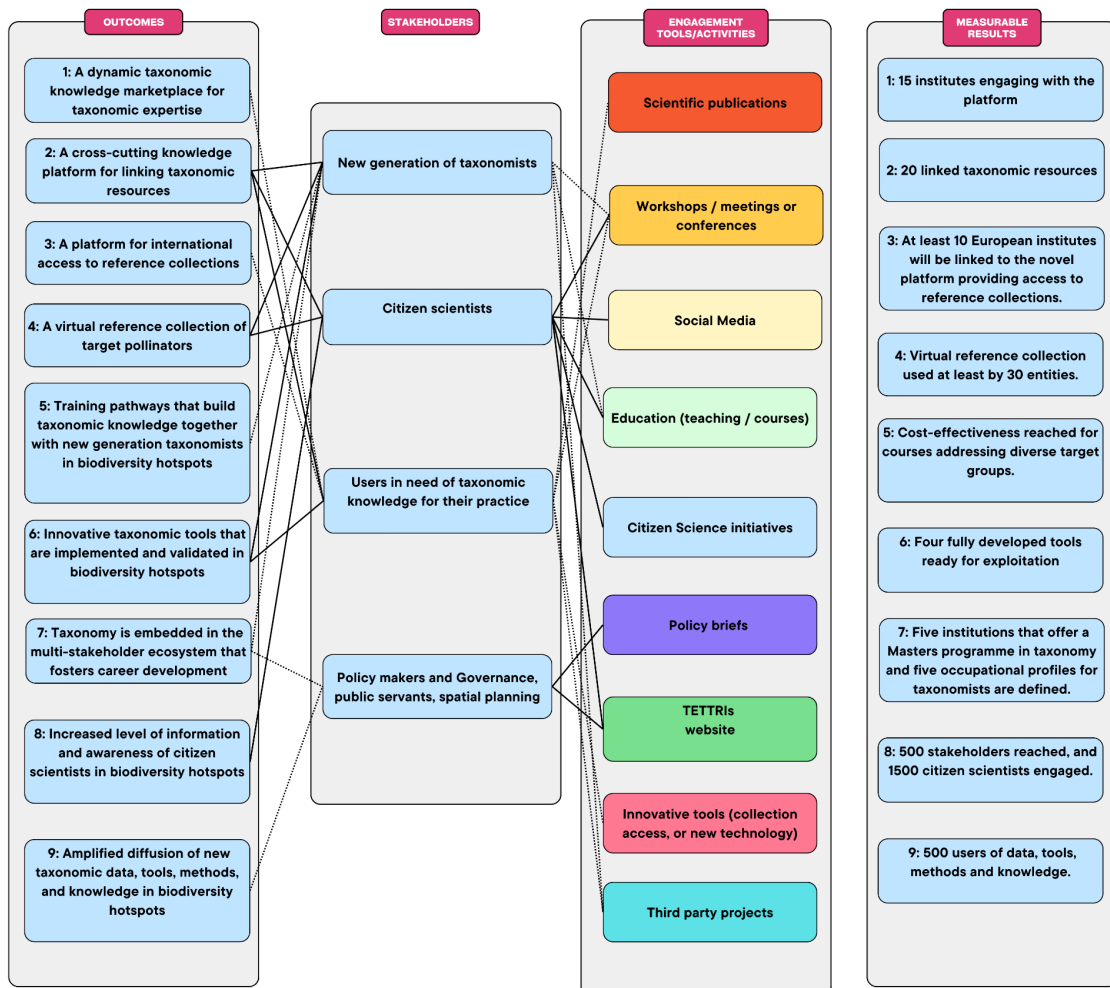
Industrial and regulatory stakeholders are important stakeholder groups that also attend conferences on taxonomic topics. This provides opportunities for the consortium members to schedule joint events in tandem, to convey the critical need for integration of taxonomy in all layers of our society and foster career development.

Stakeholder engagement must be goal oriented. The diagram below maps how tools and activities are related to outcomes and stakeholders.

Diagram 1. Linking outcome oriented engagement activities with stakeholders and measurable results.

Outcome-oriented engagement

Work package deliverables and milestones are designed to facilitate 9 measurable project results. Each result is linked to the project outcomes.



Exploitation

Biodiversity will be threatened beyond the TETTRIs project, therefore the results and impact of TETTRIs need to be sustainable in the long-term. Exploitation of results is a mechanism whereby the transformation of taxonomy in Europe continues beyond 2026.

Transfer of knowledge: A key component to empowering stakeholders for dissemination and exploitation is the transfer of (Open Access) knowledge which constitutes sustainable implementation of knowledge into existing and new systems (such as COL and DiSSCo), and targeted communication efforts of these results to stakeholders identified within the PDER. The University of Gothenburg will develop a sustainability plan to structure implementation of the created knowledge into existing (governance) networks and secure long-term impact of project results.

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Methods include the creation of:

- 1) a Taxonomic Knowledge Transfer forum (TKT), in collaboration with academia, European Citizen Science Association (ECSA) and other supporting NGOs,
- 2) The Taxonomy Recognition Day which is an iterative annual rotating event to promote strategic opportunities for taxonomists in Academia, Local and regional Governments, Institutions and Industries to address the current shortage of experts in the field. It will link to similar initiatives outside Europe (e.g., Australia) to reach out globally and maximize impact.
- 3) A novel model for citizen science engagement will be developed as the main knowledge transfer mechanism at local or National levels via the guidance of the EU-wide TKT forum. This bottom-up model will involve specialists and amateur naturalists in engaging the broader public and promoting new tools and projects developed in TETTRIs, and in co-creating museum attractive resources (as pop-up exhibitions and events). The engagement model will be developed and piloted in Denmark and adapted for at least two other European countries with different societal structures/cultures. New ways of involving and engaging citizen scientists in the process will be tested, including establishing a physical free-for-use and open space "the House of Nature" located at NHMD where target audiences can unite and co-created activities can be launched, e.g., pop-up exhibitions on taxonomic groups or local findings, events sharing new findings from field or science, and open microphone gatherings. Events led by citizen scientists will also be held in the field (Bio Blitzes) in hotspots and protected areas, and on-line biodiversity platforms will be used to provide digital spaces for sharing biodiversity findings and connecting with expert taxonomists (i.e., Arter.dk, iNaturalist).

Exploitation of developed tools and training: Several tools and training will be developed and validated during TETTRIs, which can be exploited following their validation. Especially training related to the tools developed for non-professional use offer a highly specific value proposition that can be (commercially) exploited on the (non-academic) market. It is the responsibility of the IP owners to develop tools and methods towards the market.

Collaboration with synergistic partners: In addition to exploitation of the outcomes from the TETTRIs project, the consortium will also proactively approach consortia working on similar or synergistic projects to broaden the impact of the project outcomes. A direct collaboration is envisioned for projects from the HORIZON-CL6-2021-BIODIV-01-02 topic, to generate data required for reference collections.

Stages of the PDER

The dissemination activities aim to share the project's research findings, training activities, and innovative solutions with a wide range of stakeholders. This occurs throughout the project when results are delivered and approved. While the

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exploitation activities aim to identify opportunities and strategies for policy reform and sustainability of the project's outputs.

During the first three months of the project the internal communications strategy is delivered, the social media pages as well as the website are published. The external communications strategy is also published.

During the first 6 months the plan for dissemination and exploitation of results is published. Communication about the TETTRIs project continues throughout the first year.

Project results, especially the results of 3PP will be disseminated in year two. In year four, the PDER is updated with a particular focus on the strategy for exploiting project results.

Rules for performing dissemination activities

Dissemination of results in the TETTRIs project is governed by a set of rules and guidelines to ensure that the dissemination is effective, ethical, and compliant with the project's objectives and principles.

The dissemination activities should consider ethical and legal matters, including issues of data privacy, intellectual property rights, and commercial confidentiality.

To ensure compliance with these rules, the executive assembly has established an ethics officer. and gender champions.

Unless otherwise agreed with the granting authority, the beneficiaries must promote the action and its results by providing targeted information to multiple audiences (including the media and the public), in accordance with Annex 1 and in a strategic, coherent and effective manner.

The EU rules for dissemination, as outlined in the grant agreement and the External Communication Strategy (D8.2) will be followed.

IV. Evaluation and Monitoring

Evaluation Methods

A validation strategy is important to ensure sustainability of implemented outcomes beyond the TETTRIs project duration. As TETTRIs will develop various methods and tools throughout the project to generate impact, it is imperative to submit these to validation by end-users to assure adoption and implementation. To that end, 30% of the project budget will be allocated to the 3PP (WP7). These will play a crucial role in ensuring several project outcomes as these projects will focus on improvement in building of (local) capacity, technology implementation,

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network establishment, species delimitation, and establishment of reference collections. The 3PP leaders will provide feedback on the different aspects of the instruments implemented and validated during the projects via pre-defined criteria. The feedback will be used to produce a set of recommendations, best practices, and lessons learned by the TETTRIs project.

Embedding taxonomy into society. Validation of TETTRIs impact and sustainability (WP8) is further ensured in a bi-directional process. By dissemination and exploitation efforts, the project outcomes will be shared through multiple channels and using customized messages, which will be tailored according to the end users in different layers of society beyond researchers and academia. This would include, but not be limited to, decision makers, citizen scientists, professionals linked to the biodiversity realm, and the general public. In the other flow, TETTRIs aims to empower different stakeholders in contributing to embed taxonomy into society to the largest extent possible by raising awareness and recognition of taxonomy as a basic science and increasing support to it. This includes actively engaging actors such as governmental bodies and policymakers as they play crucial roles in decision making, establishing and funding novel programs, and driving and fostering action for biodiversity preservation. Therefore, a knowledge transfer mechanism will be developed to ensure a fluent dialogue between fundamental researchers and societal actors at large. TETTRIs will benefit from the CETAF community and its ample network to reach out widely, impactfully and sustainably.

Key performance Indicators

There is a need to introduce Key Performance Indicators for monitoring the success of the project. The KPI's below are focused on stakeholder engagement and project outcomes.

The monitoring of the activities is impact-focused with the aim to:

- Enlarge engaged users' communities
- Improve awareness and trust
- Drive towards innovative tools and data availability
- Enhance synergy monitoring;
- Sustain long-lasting cooperation

Tools to Monitor performance include:

1) Website traffic

Data collection using website analytics reports using tools such as Google Analytics

2) Social media engagement

Data collection using regular monitoring of social media platforms

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(Twitter, Facebook, LinkedIn)

3) **Conference attendance**

Data collection using tracking of TETTRIs participation in conferences and events

It is necessary to have specific outcome oriented KPI's. Below are KPIs to measure the achievability of project outcomes.

Outcome 1: A dynamic taxonomic knowledge marketplace for taxonomic expertise

A comprehensive and accessible overview of available expertise in the field of taxonomy is created, providing a high- level comprehensive understanding of the state-of-the-art on which future efforts can build. The overall taxonomic capacity will be enhanced and referred to a stable, structured, and sustainable system.

Expected deliverable results: A marketplace for taxonomic Services & Expertise, integrated with CETAF and DiSSCo services

KPI: Improvement in discovery and accessibility of taxonomic expertise and service measured as 15 institutes engaging with the platform

Outcome 2: A cross-cutting knowledge platform for linking taxonomic resources.

By streamlining the EU-Nomen process, mapping and subsequently linking local taxonomies into the Taxonomic Resolution Engine (TRE), a major increase in efficiency is created for referring to local taxonomies, which allows for enlarged and cumulative capacity in the field.

Expected deliverable results: 1) Workflows for aligning local taxon lists with central backbone services such as EU-Nomen and COL and

2) a wikibase instance (the Taxonomic Resolution Engine - TRE) which supports the linking of resources (software, experts, specimens, etc.) with a taxonomic backbone.

KPI: Improvement in connectivity between European taxonomies with local and national checklists as well as other taxonomic resources measured as 20 linked taxonomic resources.

Outcome 3: A platform for international access to reference collections

By designing and building a novel framework for open (access to) partly digitized reference collections, the overall taxonomic research capacity is expanded. Through validation of this large framework TETTRIs will provide universal (local and central) access to a large knowledge repository to increase research capacity.

Expected deliverable results: A web-based platform for international access to reference collections will be created.

KPI: Increase of institutional contribution to reference collections measured

as at least 10 European institutes will be linked to the novel platform providing access to reference collections.

Outcome 4: A virtual reference collection of target pollinators

A virtual reference collection of pollinators will be created using data gathered during validation activities in WP7. This will produce novel knowledge with all parties involved, increasing local knowledge, creating an (inter)national reference collection and increasing research capacity.

Expected deliverable results: 1) definitions of both physical and virtual (biological) reference collections. 2) A roadmap (guidelines) to develop physical and virtual reference collections. 3) A virtual reference collection of a selected group of pollinators will be set up.

KPI: A virtual reference collection of selected pollinators is established and made openly available to relevant users. Measured as used at least by 30 entities.

Outcome 5: Training pathways that build taxonomic knowledge together with new generation taxonomists, citizen scientists, and other taxonomy-related professionals in biodiversity hotspots

During validation activities, new knowledge is created by performing taxonomic work. Simultaneously, through the training activities, new capacity in the field is created by increasing expertise in trainees. This will lead to creation and improvement of taxonomic research capacity near biodiversity hotspots and protected areas.

Expected deliverable results: 1) Repository of training resources and trainers 2) Development of the training framework for capacity building on taxonomy 3) Development of three pilot trainings on specific topics, one for each target group, tailored to reach the different levels of each target group's taxonomic knowledge. 4) Gap analysis, and mapping of relevant taxonomic facilities, their affiliation with universities and how they are currently involved in taxonomy education. 5) Design of an innovative curriculum for a structured international graduate program on integrative taxonomy and formation of a consortium of universities and museums for its implementation at the PhD level.

KPI: A validated, and replicable training pathway is developed to cost-effective increase. Measured as cost-effectiveness reached for courses addressing diverse target groups.

Outcome 6: Innovative taxonomic tools that are implemented and validated in biodiversity hotspots.

Through development and validation of innovative tools, adoption of new technologies is advanced, particularly with stakeholders in biodiverse regions, and innovation in taxonomy is boosted. This increases taxonomic research capacity in Europe and supports integration of different biodiversity data classes.

Expected deliverable results: 1) The infrastructure for creation of shared image & sound recognition algorithms online is available. 2) Free, user-friendly web-platform for integrative species delimitation analyses, inc. video tutorials

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KPI: Exploitation and scaling of the developed tools. Measured as four fully developed tools ready for exploitation.

Outcome 7: Taxonomy is embedded in the multi-stakeholder ecosystem that fosters career development

The creation of training and academic education and graduation opportunities will foster employability and maximize societal impact of taxonomy. Furthermore, the European Agency of Taxonomy will serve as a forum for interlinking taxonomic facilities with policy makers and funding agencies and inform decision makers about the role of taxonomy in society and its necessity in Europe's efforts to overcome the biodiversity crisis. Combined, these activities allow for widespread recognition and further adoption of taxonomy as a basic science, offer career options to taxonomists and thereby create sustainability of the project results.

KPI: Increase in the attractiveness of taxonomic work. Measured as five institutions that offer a program in taxonomy and five occupational profiles for taxonomists are defined.

Outcome 8: Increased level of information and awareness of citizen scientists in biodiversity hotspots

By collaborating with citizen scientists in the 3PP, citizen awareness and knowledge will increase. Additionally, through participation in the community implementation board these actors are empowered to significantly contribute to dissemination and exploitation of project results, to drive knowledge and research capacity.

Expected deliverable results: Increased level of information and awareness of citizen scientists in biodiversity hotspots as well as policy briefs

KPI: Increase in audience reached by the communication, dissemination, and exploitation strategy. Measured as 500 stakeholders reached, and 1500 citizen scientists engaged.

Outcome 9: Amplified diffusion of new taxonomic data, tools, methods, and knowledge in biodiversity hotspots

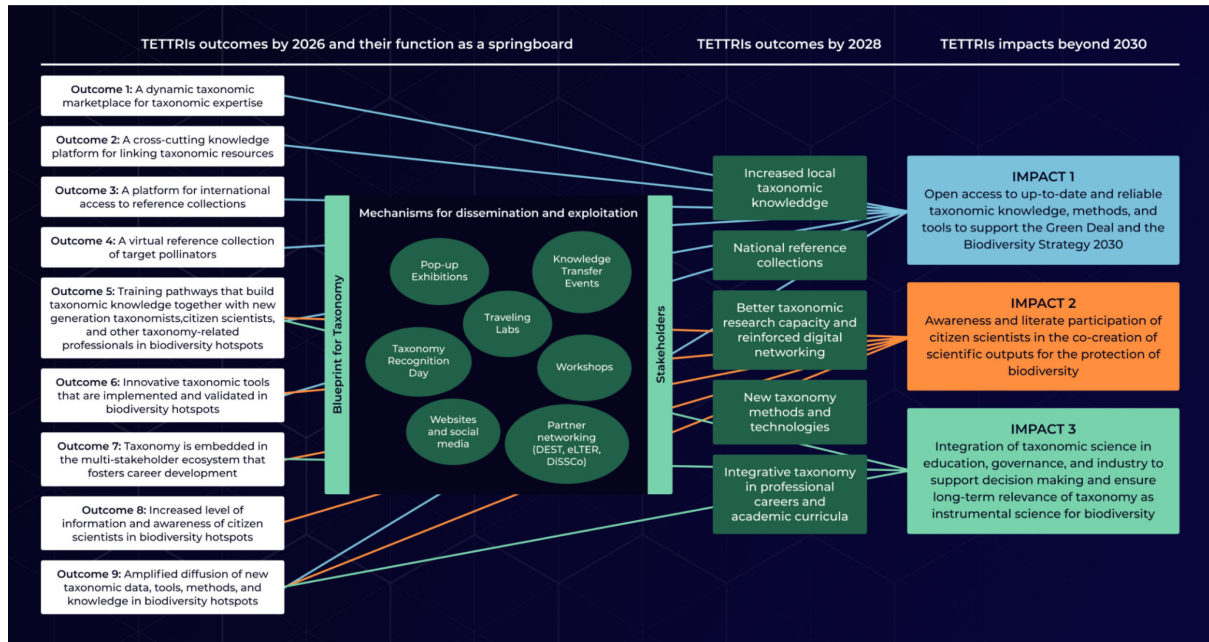
All relevant stakeholders to TETTRIs will become aware of the project's activities regarding taxonomic data, tools, methods and knowledge, and their impact on the field via dissemination, exploitation, and communication actions. This knowledge sharing pipeline will result in more widespread acknowledgement and adoption of the project results. By creating the Community Implementation Board (CIB) with representatives from major stakeholders, a wide reach and amplifying repercussions via each connected representative is enabled. Additionally, the CETAF consortium provides strong networks of leading taxonomic institutions that enable further dissemination of results.

Expected deliverable results: All relevant stakeholders to TETTRIs will become aware of the project's activities regarding taxonomic data, tools, methods and knowledge, and their impact on the field via dissemination, exploitation, and communication actions.

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KPI: Increased awareness of taxonomy as a basic science in different layers of society measured as 500 users of data, tools, methods and knowledge.

The image below shows mechanisms for dissemination and exploitation as related to project outcomes, measurable results and impact.



V. Conclusion and Future Recommendations

Legacy and sustainability

- TETTRIs is a starting point to launch the above components and provides a plan for their sustainability beyond the project duration. In addition to the multidimensional model, TETTRIs will include a process for testing, assessment and validation that will involve on-field actors close to hotspots and protected areas. To do that, TETTRIs will collaborate with third-party projects (3PP) and allocate 30% of the project funding for these activities. The community-based perspective is fundamental to the entire ethos of the project from the inception stage to the piloting, evaluation and through to the final endorsement.
- Dissemination of activities and the implementation of results, such as stakeholder and citizen engagement, are enabled via the knowledge transfer mechanism, experts' collaborative fora, publications in peer-reviewed journals, and active social media presence to create awareness and interest in the field and expand recognition of taxonomic work (Objective 4).

Barriers and Challenges to the application of results

The partner survey asked what possible barriers stand in the way of achieving project outcomes.

Table 2. Barriers to project outcomes

Project Outcomes	Barriers
Outcome 1: A dynamic taxonomic knowledge marketplace for taxonomic expertise	Adoption by the community, resources for maintenance, and willingness for experts to be findable.
Outcome 2: A cross-cutting knowledge platform for linking taxonomic resources.	The need to find pilot projects and users who are willing to test and apply the workflows developed in WP2. The hope is to be able to use the program for funding external projects for this.
Outcome 3: A platform for international access to reference collections	Feasibility of the digital platform as well as institutional resources to reference contributions.
Outcome 4: A virtual reference collection of target pollinators	Possible slow adoption by the community. Limited content in the portal before more contributions by collection holding institutions are made. Resources to digitize, index and develop reference collections.
Outcome 5: Training pathways that build taxonomic knowledge together with new generation taxonomists, citizen scientists, and other taxonomy-related professionals in biodiversity hotspots. Outcome 6: Innovative taxonomic tools that are implemented and validated in biodiversity hotspots.	Reach limitations, interdependency of results, adoption by the community, a lack of resources, and time.
Outcome 6: Innovative taxonomic tools that are implemented and validated in biodiversity hotspots.	The amount of time set aside to work on these tools is small compared to the potential scope. A focused approach is necessary to find relevant approaches that are achievable.

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	Synergy with other projects and initiatives is needed to provide best value.
Outcome 7: Taxonomy is embedded in the multi-stakeholder ecosystem that fosters career development.	Dissemination plans are important for the stakeholder engagement strategy, this causes a dependency of results on that of WP 8. Feasibility of digital products such as LinkedIn and the success of the DEST platform. The implementation of a European graduate program is a complex project due to the high number of stakeholders being involved, the different national situations (e.g., laws, study regulations and the demands of the participating universities. A business model for the graduate program must be collaboratively developed.
Outcome 8: Increased level of information and awareness of citizen scientists in biodiversity hotspots	Creating sustainable knowledge transfer mechanisms within the citizen science framework. Unknown reach public engagement and interest
Outcome 9: Amplified diffusion of new taxonomic data, tools, methods, and knowledge in biodiversity hotspots	Dependence on quality of deliverables as well as dissemination activities.

Further barriers to the general success of the project are listed below along with how the consortium can avoid such barriers.:

Fragmentation of effort

Different institutions may implement their own research and innovation agendas that can lead to fragmentation of effort across the community, and which in turn, reduces the efficiency and effectiveness of any joint investment. To mitigate this risk, both CETAF and DiSSCo, as the instrumental Research Infrastructure of the community, collaborate and take ownership of the most crucial outputs of the project, ensuring their sustainable future by continuing to connect and coordinate the community efforts in alignment with the outputs of the project, beyond its duration. The impact of this risk is medium. Large institutions are committed, and small and medium sized entities will follow at national level, even though it may take place in different time scales. The likelihood is also medium. The CETAF community integrates strategic visions and together with the DiSSCo

Research Infrastructure will jointly allocate resources to ensure the scaling up of the implementation efforts over time.

Feasibility of digitization

Currently, most European collections are not digitized due to several factors such as access to required technology, lack of funding, and shortage of available expertise. The taxonomic community has initiated and is engaged in the DiSSCo infrastructure, which aims to drive digitization efforts at national level. The current project aims to improve the establishment of reference collections by providing funding to third parties and creating access to expertise. The impact of this risk is medium. The European countries are increasingly enlarging commitments to digitize collections using national funding programs that need to focus on selected groups/targeted collections to realize the major joint endeavor of collections digitization. The likelihood is low.

Adoption by the taxonomic community and external stakeholders

To create interlinked, constantly updated taxonomic resources in expert networks is a relatively undertaking development. However, the need for collaborative resources is increasingly recognized. TETTRIs' approach builds on established systems such as EU Nomen or the CETAF Registry developed collaboratively by CETAF member institutions' staff. The same bottom-up approach and joint endeavors is at the core of TETTRIs which facilitates widespread endorsement of results upon completion. Further adoption by stakeholders outside CETAF is ensured via targeted communication, dissemination, and exploitation efforts. A large part of this effort lies in the establishment and activity of the Community Implementation Board (CIB), which hosts representatives from important stakeholders such as technology innovators, academic educators, policy makers, representatives from industry, and funding agents. The impact of this risk is high. Should the TETTRIs outcomes not be endorsed by the community, the project will fail in its major objectives. However, the likelihood is low. Reference collections is an expected deliverable of TETTRIs and will act as a testbed for creating reference collections for other taxa and functional groups, also at national level.

Sustainability and durability of project outcomes

CETAF has experience with building and maintaining long-term impacts via creation of knowledge and systems through contributions of individual members (e.g., the DiSSCo project). In WP8, the sustainability for current outcomes and impacts will be ensured. A dedicated Plan for Dissemination and Exploitation of Results (PDER) will be deployed with key fundamental pillars, which include building the business case for the European Agency for Taxonomy and establishing career paths for taxonomers to recruit (and retain) new top talent to the sector. The impact of this risk is high. The TETTRIs results have been defined to meet community needs that relate to knowledge and expertise linked to natural sciences collections. By default, building innovative processes and mechanisms to transfer this expertise to society is a long-term endeavor and implies a strategic vision for the future of the taxonomic expertise. However, the likelihood is low. TETTRIs will implement mechanisms and practical tools and will provide means to taxonomic actors to ensure sustainability over time by, among others, raising awareness, fostering training and expanding acknowledgement of taxonomic

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appliances. Furthermore, the envisaged European Agency of Taxonomy (EAT) will act as instrumental to continue advocating for endorsement and implementation of all those new tools and channels by the community and related actors, beyond the lifetime of the project.

With well planned timelines of activities and monitoring of results we can minimize the risk any of these barriers present for this PDER.

Concluding remarks

In conclusion, the dissemination and exploitation of results are critical components of the TETTRIs project. Through the plan outlined above, we aim to reach a targeted group of stakeholders with the key messages and applicable results of the project. By leveraging a variety of communication channels, such as publications, events, and digital platforms, we aim to maximize the impact of our research and training activities and contribute to the transformation of taxonomy in Europe.

It is recognized that effective dissemination and exploitation require ongoing evaluation and adaptation. reactions of content communicated and disseminated will be monitored over the next 37 months and the official PDER will be adapted accordingly in month 40.

Through effective collaboration with expert partners, TETTRIs objectives are achievable and are in good standing to deliver lasting benefits to the field of taxonomy.

APPENDIX 1

ID	Reference or Related Document	Source or Link/Location
1	<i>External Communications Strategy</i>	WP8_D8.2 External Communication Strategy (1).docx

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2	<i>Project Visual Identity D8.1</i>	03.TETTRIs D8.1.InternalCOMStrategy.docx
3	<i>Data Management Plan</i>	<i>To be in the next revision</i>
4	<i>Partner survey</i>	Information necessary to complete T.8.2 - Plan for Dissemination and Exploitation of Results (Responses)
5	<i>Abbreviations/Acronyms</i>	<i>To be in the next revision</i>
6	<i>Partner List & social media profiles</i>	<i>To be in the next revision</i>
7	<i>Project folder</i>	<i>Shared Google drive LINK</i>
8	<i>Internal Comm Plan or Strategy</i>	<i>To be in the next revision</i>