

D6.4 - ELViS: a System for Unified Access

[WIM VAN DONGEN](#), [WOUTER ADDINK](#), [SHARIF ISLAM](#)

DOI:

Grant Agreement Number | 823827

Acronym | SYNTHESYS PLUS

Call | H2020-INFRAIA-2018-2020

Start date | 01/02/2019

Duration | 48 months

Work Package | [WP6]

Work Package Lead | [Wouter Addink]

Delivery date | [31.01.2022] - extended to [31.01.2023]



SYNTHESYS+ was funded by the Horizon 2020 Framework of the European Union under the H2020 Open Innovation and Open Science Research Infrastructure call.

Contents

Summary of delivered system	3
1. Context	3
2. Work methodology	3
3. Description of Deliverable	4
Appendix I	6
Appendix II	26



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Summary of delivered system

1. Context

The main task of Picturae company as full partner in the SYNTHESYS+ project, was to create ELViS, the European Loans and Visits System, to replace the existing SYNTHESYS tool for running Transnational Access (TA) and Virtual Access (VA) Calls for the Natural Science Collections community. After studying the existing SYNTHESYS tool and discussions with the members of the [Joint Research Activity](#) (JRA) Work Package 6 team about the functional requirements for the new tool, Picturae started developing ELViS in two periods: 1. November 2019 - January 2021 and 2. January 2022 - May 2022, according to the project plan (see: Appendix I). [link to this plan].

During the two ELViS development periods, The system successfully supported the following TA and VA calls:

1. [Virtual Access Call 1](#), which ran from 01/02/2020 till 10/07/2020
2. [Transnational Access Call 3](#), which ran from 15/03/2021 till 07/05/2021
3. [Virtual Access Call 2](#), which ran from 22/03/2021 till 02/07/2021
4. [Transnational Access Call 4](#), which ran from 19/04/2022 till 15/06/2022

Note: for Transnational Access Call 4, ELViS was also used to 'score' the Requests, during the period 15/06/2022 till 15/09/2022.

2. Work methodology

For developing ELViS it was decided to do the coding in Kotlin, a cross platform and fully Java interoperable coding language (<https://kotlinlang.org/>), in combination with Keycloak (<https://www.keycloak.org/>) for managing user roles and permissions, for compatibility with the AAI pilot, and a PostgreSQL database (<https://www.postgresql.org/>).

For the front-end development the Picturae ELViS development team made use of the following frameworks, all compatible with JavaScript (<https://www.javascript.com/>):

- VueJS (<https://vuejs.org/>),
- Buefy (<https://buefy.org/>) - has been removed later by Naturalis as it does not support Vue3

The code was developed as open source, but initially kept in a private repository within the Picturae Gitlab environment during the first development period. From the start of the second development period an external developer, hired by work package leader Naturalis Biodiversity Center, Leiden was given access to the code and at the end of the second development period we handed over the code plus implementation instructions to the work package leader. The code is now available at:

<https://github.com/DiSSCo/elvis-frontend>

<https://github.com/DiSSCo/elvis-backend>



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During the two development periods the development work was performed in sprints of two weeks each, as described in the project plan (see: Appendix I), and the progress of these sprints and the plans for development of upcoming sprints was discussed with a representation of the beneficiaries involved in JRA1 WP6 (NHM, NHMW, RMCA, BGM, CETAF, NMP, MfN, SGN, CSIC, LUOMUS, MNHN, HCMR, GRNET, HUJI, Naturalis, Picturae, TDWG, NRM, RBGE) during weekly Zoom sessions organised by the work package leader (Naturalis).

At the end of the first development period and during the whole second development period after each development sprint, a test team formed from beneficiaries in WP6 performed user tests in different roles, the testing was led by the Swedish Museum of Natural History. The test guidelines can be found in appendix II. To support these test rounds a user manual for testers was created, which on the one hand gave the testers an idea of the functionality that was ready to be tested and on the other hand briefly mentioned and overview of functionality that was still to come in next development sprints, represented by meaningful titles of additional chapters and paragraphs. Via this method the user/tester manual was gradually completed and in the end served as a useful tool for both users and TA and VA coordinators of the participating institutions.

The ELViS testers reported the outcome of their tests in the public [DiSSCo Github](#) repository. The Picturae development team commented on those issues in Github and registered issues to be dealt with in their internal bugtracking software (Redmine) to take care of them in the next development sprints. Whenever issues were dealt with like this, the outcome was reported back to the ELViS testers via Github and those issues were labelled as '[to test](#)' again.

During the two development periods the bugs reported by ELViS testers in the DiSSCo Github repository were fixed. Ideas for further enhancement of ELViS remain over there, which can in due time be used for fuelling further development of ELViS.

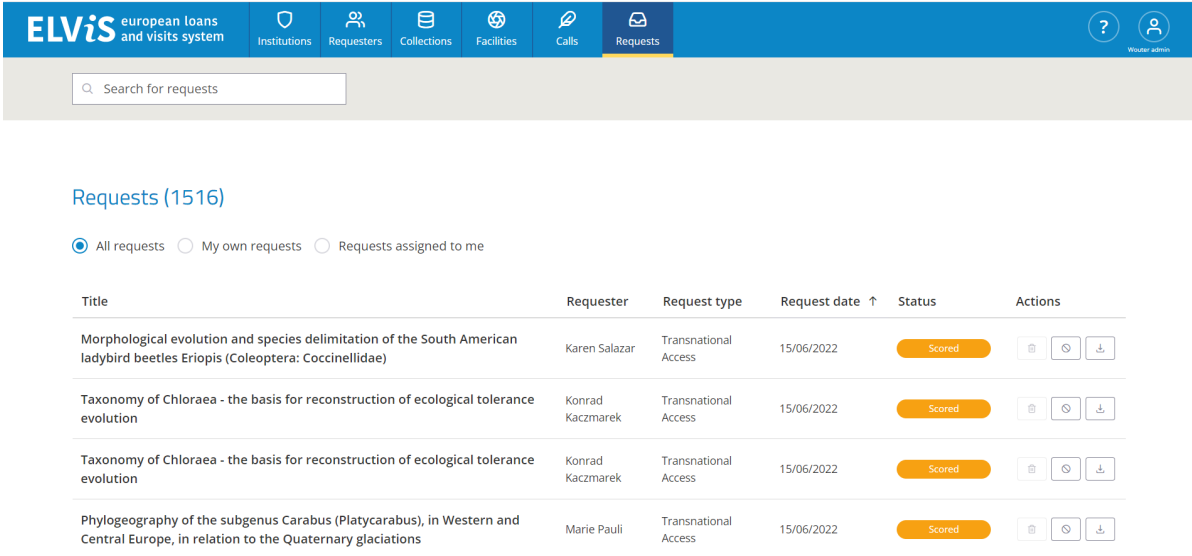
3. Description of Deliverable

The delivered system in production can be found at: <HTTPS://elvis.dissco.eu>.



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The screenshot shows the ELViS (European Loans and Visits System) interface. The top navigation bar includes 'Institutions', 'Requesters', 'Collections', 'Facilities', 'Calls', and 'Requests'. A search bar is located below the navigation. The main content area displays 'Requests (1516)' with filter options: 'All requests' (selected), 'My own requests', and 'Requests assigned to me'. Below the filters is a table of requests.

Title	Requester	Request type	Request date ↑	Status	Actions
Morphological evolution and species delimitation of the South American ladybird beetles Eriopis (Coleoptera: Coccinellidae)	Karen Salazar	Transnational Access	15/06/2022	Scored	[Icons]
Taxonomy of Chloraea - the basis for reconstruction of ecological tolerance evolution	Konrad Kaczmarek	Transnational Access	15/06/2022	Scored	[Icons]
Taxonomy of Chloraea - the basis for reconstruction of ecological tolerance evolution	Konrad Kaczmarek	Transnational Access	15/06/2022	Scored	[Icons]
Phylogeography of the subgenus Carabus (Platycarabus), in Western and Central Europe, in relation to the Quaternary glaciations	Marie Pauli	Transnational Access	15/06/2022	Scored	[Icons]

Figure 1: Screenshot of the delivered ELViS system in use.

During the two development periods, the Picturae ELViS development team deployed consecutive versions of ELViS on a test server within Picturae's infrastructure. The Picturae ELViS project manager had access to this infrastructure and thus took care of the first round of tests. After this first initial test round and - in case necessary - some fine-tuning, the next ELViS version was then transferred to a dedicated ELViS Acceptance server. This was also within Picturae's infrastructure, to which the ELViS testers from WP6 had access.

In the Acceptance server, new tests were performed and after the end of these test rounds and the subsequent bug fixes, the result, a new ELViS version, was deployed to the [ELViS Production server](#). This production server was hosted in Amazon Web Services (AWS) by Naturalis. and used for supporting the four Transnational and Virtual Access Calls as mentioned above and is still available for the SYNTHESYS+ community. ELViS provided unified access to all the Calls and a novel mechanism to submit requests against these Calls, which was used by over 1,300 users. The mechanism fully supported both TA and VA request procedures including full support for communications which could involve multiple institutions and multiple participants in a request. The interface was used by users from multiple institutions to collaborate and work on the request during the Call period. Besides the Call information, the ELViS also provided access to a curated list of 227 labs and digitisation facilities, with available instruments and services that are available for users at any of the SYNTHESYS+ partner institutions. The system includes support for the peer review and weighted scoring process of submitted requests. To facilitate FAIR data linkages, each institution initially included [GRID](#) identifiers – to uniquely identify the institutions – and the staff working there were also linked via ORCID. These identifiers and the links are crucial for the current and future access to ELViS services and interoperability with other DiSSCo services under [preparation](#). The GRID identifiers will be replaced with [RoR](#) identifiers in the future but the merge of RoR with GRID registry was not yet completed at the time of ELViS development.



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Appendix I

ELViS Project plan SYNTHESYS+ JRA 1

Authors: Carien van Leeuwen, Wouter Addink, Wim van Dongen

Revisal by:

Author	Version	Status	Remarks	Date
Carien	v0.1	draft	Initial draft of the document	30/04/2019
Wouter	v0.2	draft	Additions and changes passim	06/05/2019
Wim	v0.3	draft	Additions and changes up to part 2	27/05/2019
Wouter	v0.4	draft	Updated sprint Alpha plan	11/06/2019
Wim	v0.5	draft	Additions and changes part 2-4	23/07/2019
Wim	v1.0	def	Updated sprint 0 en 1 info	20/11/2019
Wouter	v1.1	def	Added test team info	12/12/2019
Wim	v1.2	def	Added info on sprint 2	12/12/2019
Wim	v1.3	def	Added info on sprint 3 and 4	06/01/2020
Wim	v1.4	def	Added info on sprints 5 to 7	24/01/2020
Wim	v1.5	def	Changed sprint info chapter 2.5	14/05/2020
Wim	v1.6	def	Changed sprint info chapter 2.5	05/01/2021

Summary

This document contains a description of the organisation for task JRA1 (WP6) in terms of scoping, requirements, deliverables, planning and budget.

For who?

This document is meant for the SYNTHESYS+ team involved in this work package.

Scope of this document

The purpose of this document is to create an overview of and agreements on what software system will have to be developed within JRA1 (WP6), what it will contain and how it will be developed. What is needed in order to deliver this software system, what are the risks and how will they be mitigated in order to guarantee successful delivery.

References



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This project plan is based on several documents and presentations:

1. Grant Agreement-823827-SYNTHESYS PLUS.pdf
2. SYNTHESYS+ at a glance v3.0.pdf
3. SYNTHESYS+ CA v1.pdf
4. WP6 JRA1 work package description DRAFT.docx
5. 06 SYNTH+ JRA.pptx
6. Design document:
<https://docs.google.com/document/d/1sUWbcev46OqzgOLLip6tjBPJTNTy0P2ogDQ87vffuW8>
7. Collection of user stories:
<https://github.com/DiSSCo/user-stories/issues>
8. Results of a SurveyMonkey investigation
(incorporated in the collection of user stories as mentioned above)
9. Results of the workshop on the design of ELViS held on 04/07/2019 in Brussels
<https://dissco.teamwork.com/index.cfm#files/7045450>



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Status of this document

This document should get approval by the stream coordinator and work package lead. If changes are needed, the changes should always get approval of these persons.

Ideally changes would be added as separate adds to this document. That makes this document a 'living document'; it can change, but involved people should know about it and agree upon.

The deliverables, schedules, milestones, agreements and any additional contractual provisions laid down in this document are forming the basis of the project.

We will work with what is known at the time of creation of this document. We cannot describe everything in advance because some things only will become clear during the project. This is a reflection of the elements we are able to determine in advance, and rules about the changes we will meet while working on the project.



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SYNTHESYS+
Synthesis of Systematic Resources a DiSSCo project

1. Introduction	5
1.1 Purpose of this document	5
1.2 Background	5
1.3 Mandate and Project Brief	6
1.4 Overview and Deliverables & Milestones	7
2. Organisation of the Project	9
2.1 Introduction	9
2.2 Project Management Structure	10
2.3 The work method: Agile/Scrum software development	10
2.4 The Development Team	12
2.5 Planning of the work	13
3. Reporting	15
3.1 Resources & Timescales	15
3.3 Project Controls	15
4. Risks	17



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SYNTHESYS+
Synthesis of Systematic Resources a DiSSCo project

1. Introduction

In this document all elements with regard to organising the development of the requested software an 'European Loans and Visits System' (ELViS) will be described.

1.1 Purpose of this document

This document serves as a basis for all ideas and further development regarding the proposed European Loans and Visits System (ELViS) solution.

It will be shared with an internal group of staff members involved in the project, mainly from institutions working in the other workgroups in this SYNTHESYS+ project.

1.2 Background

Biodiversity institutions in Europe together have more than a billion species. Digitization of most of these species must be done in the coming years. These institutions borrow each other's collections. However, a lot of knowledge is needed to be able to borrow a specific collection. It is a time-consuming process to borrow a certain collection from a fellow institute. This project is part of a large scale of other projects and will provide a system which makes it possible to loan a specific collection (or specific parts of a collection) from a European biodiversity institution via an online system, called 'European Loans and Visits System', in short: ELViS.

The development of ELViS, a unified European Loans and Visit System as a DiSSCo e-Service, will unify access requests to all specimens in collections in Europe (490 million of 21 SYNTHESYS+ institutions to start with), integrate a live data dashboard reporting on collection data and access, and it will deliver improved management on loans and for digitization on demand workflows. It is a future service in the European Open Science Cloud (EOSC).

This means:

- Single sign-on (ORCID integration & AAI pilot)
- Researchers' profiles to ensure credibility
- Faceted discovery of collections material across participating facilities
- Online applications of Transnational and Virtual Access plus helpdesk
- Online applications for loans and monitoring of loans
- Digitisation on Demand workflows support
- Reporting on specimens demand by loans over time with a live data dashboard
- Testbed for DS Architecture with CORDRA & DOIPv2

At the moment there are two existing systems to learn from: the Colhelper system, developed in France (<http://colhelper.mnhn.fr>) and the SYNTHESYS system, developed by NHMT in London (<https://application.synthesys.info/synthesys4/application.jsp>).



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a DiSSCo project

Based on experiences with these systems, Picturae will give advice about re-use and/or integration of these systems with ELViS. Picturae is developing its own system: Memorix. Advice about integration of Memorix with ELViS is part of the technical design document. In the initial phase of the development the Picturae team will have to investigate what will be a good basis for ELViS.

The first initial technical development choices have already been discussed: DiSSCo GITHUB for code (<https://github.com/DiSSCo>), GITLAB for DevOps, Kotlin as programming language (cross platform and fully JAVA interoperable: <https://kotlinlang.org/>), CORDRA (<https://cordra.org/>) as a foundation for the Digital Object architecture (Giridhar Manepalli from CNRI might be able to assist the Picturae development team with the latter).

For the front-end development the Picturae team will make use of the following frameworks:

- VueJS (<https://vuejs.org/>),
- Buefy (<https://buefy.org/>),

all compatible with JavaScript (<https://www.javascript.com/>).

1.3 Mandate and Project Brief

Being part of the consortium for SYNTHESYS+, Picturae will deliver JRA1 of WP6, which means developing an 'European Loans and Visits System' (ELViS). The overall objectives of WP6 are:

- To unify access requests to all European specimens held in SYNTHESYS+ collections
- To integrate a live data dashboard reporting of institutional compliance with data standards, accessed collections and reports of datasets
- Deliver improved risk management with a common repository of loan returns, and improved management of new Collection on Demand workflow

The primary objective of WP6 is to develop ELViS, a system to support access applications and to track outputs, rebuilding and expanding the current SYNTHESYS access request system. This new system will comprise an infrastructure to enable requests to be made, assessed, prioritised and monitored for VA (Virtual Access) and TA (Transnational Access) as well as deliver a ticketing system for user support and general service management.

The activities for the actual development of ELViS are concentrated within Task 6.2. of WP6 for which Picturae is in the lead: Development of the ELViS components (with capacity for future translation). Next to Picturae, Naturalis, NHM and GRNET will be involved in this task.

Picturae will participate in the other two WP6 tasks: Task 6.1, Structure and design of the ELViS system (design system architecture to align with future DiSSCo requirements) for which Naturalis is in the lead, and Task 6.3, Testing and integration of workflows (testing the ELViS system components, piloting workflow integration including DoD), for which NRM is in the lead.

Task 6.1 will be conducted in two phases: phase one will take one year (month 12 to 24, i.e. January 2020 till January 2021), during which the first version of ELViS will be delivered, with functionality in place for TA and VA access, and a helpdesk; phase two will take six months



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(month 30-36, i.e. July 2021 till January 2022), during which an integrated interactive monitoring and reporting component, and a data dashboard will be added.

In addition to this Picturae is responsible for delivering a temporary system for VA and TA registration in an early stage of the project (month 12, i.e. January 2020), which is Milestone 50 of the project.

1.4 Overview of planning and Deliverables & Milestones

The overview of the Deliverables and Milestones for which Picturae is responsible during the two development phases of the ELViS system is as follows:

Development phase 1: month 12-24, January 2020 - January 2021:

- Month 12: Milestone 50 - Temporary system in place for VA registration - System
- Month 18: Milestone 49 - Plan for Helpdesk implementation (1, 2 & 3rd line support) - Report
- Month 24: Deliverable D6.3 - ELViS Helpdesk - Demonstrator
- Month 24: Milestone 51 - first version of ELViS in production for Transnational and Virtual access - System

Development phase 2: month 30-36, July 2021 - January 2022:

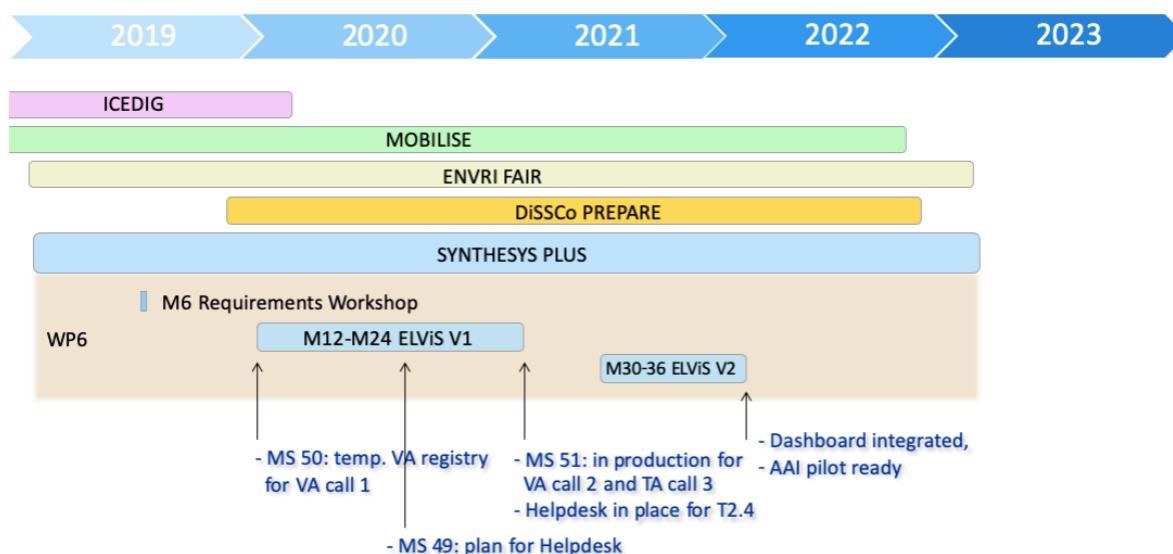
- Month 42: Deliverable D6.4 - ELViS system fully functional and available, i.e. the system as delivered as Milestone 51, including an integrated interactive monitoring and reporting component - System

In an early stage of the project Picturae will cooperate with WP6 lead Naturalis in Task 6.1, Structure & design of the system, for collecting and defining user stories and coming up with mockups showing a possible design of the system based on those user stories, to be evaluated during a workshop on the 4th of July 2019 at RBINS, Brussels (host: CETAF). Furthermore Picturae will cooperate with WP4, Digital Standards & Processes, and WP7, Collections on Demand, in particular for Task 7.1, Digitisation as a service model. This leads to the following timeline within the whole SYNTHESYS endeavour:



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And the following list of deliverables and milestones in which Picturae either has the lead or cooperates with others in chronological order:

Date	Title	Task	Partner responsible
31 July 2019 (M6)	M47 ELViS workshop	6.1	Naturalis
31 January 2020 (M12)	M50 Temporary system in place for VA registration	6.2	Picturae
31 July 2020 (M18)	D6.1 Inventory and Analysis of Dataflows (public report)	6.1	Naturalis
31 Jan 2021 (M24)	D6.3 ELViS Helpdesk (public demonstrator)	6.2	Picturae
29 April 2022 (M39)	D6.2 Piloting Access through an AAI infrastructure (public report)	6.1	GRNET
2 May 2022 (M39)	D6.5 Specification and requirements for integration with ELViS (public report)	6.3	NRM
31 January 2022 (M42)	D6.4 ELViS System for Unified Access (public demonstrator)	6.2	Picturae



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1 August 2022 (M42)	Results of pilot workflow integrations with ELViS (public report)	6.3	Naturalis

Comparison of versions of old and new systems:

Current SYNTHESYS access system	VA registry*	ELViS v1	ELViS v2
TA only, Simple user registration by form	VA only, simple user registration by form	TA+VA+Helpdesk, simple user registration based on ORCID	ELViS v1 + dashboard and AAI using augmented ORCID

*before the real VA call in 2020, there will be a call for expressions of interest in October 2019 which needs to be more a kind of survey form (surveyMonkey could be used for this).

2. Organisation of the Project

2.1 Introduction

This chapter will describe the project and its organisation.

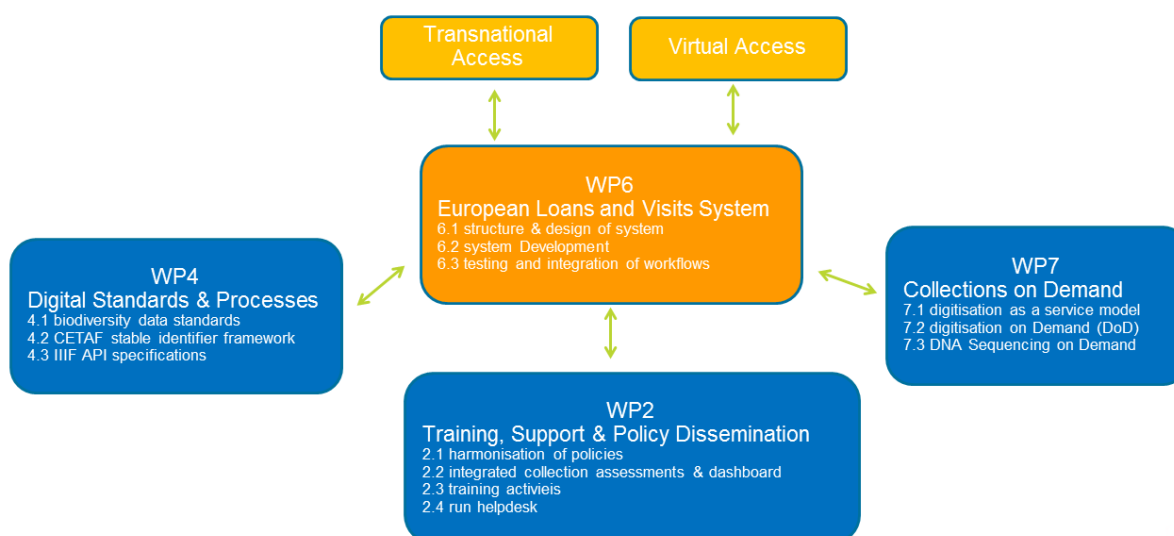
Steps to ensure success:

1. approval and adoption of this document by project, reference and SYNTHESYS groups;
2. gather enterprise business requirements from key representatives from involved organizations. Also meet with regulatory representatives and understand their perspective on content across the enterprise;
3. inform and involve key members of the work pages with regards to content, structure and technique (thorough plans for launch and promotion);
4. perform analysis on requirements and surveys: these should be grouped into projects and ranked based on several criteria such as cost of implementation, magnitude of improvement, implementation risk, risk of not implementing etc.;
5. create a planning with project timelines and high levels details;
6. involvement of Picturae developers in the design of the architecture;
7. develop functional design;
8. define what to develop, progressive insight should be labelled as new or replacement;
9. project execution, takes into account the existing development; try to use existing software as much as possible, as already developed by France and London, or at least build on their concepts, but also take into account software developed by Picturae.



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Relations with other SYNTHESESYS+ Work Packages

2.2 Project Management Structure

Participants can be divided into three groups or entities working together to ensure the success of the project. These three groups are:

1. **SYNTHESESYS+ core team** which consists of: Elspeth Haston (stream coördinator), Wouter Adding (work package lead),
2. **Development team** which consists of: Wouter Addink (work package lead), Sharif Islam (architect), Wim van Dongen (project manager) and the dedicated development team of Picturae, which will be formed at the start of the development phase..
3. **The reference group** which consists of: the other WP6 partners (NRM, NHM, MNHN, GRNET, MfN, NHMW, RMCA, BGM, CETAF, NMP, SGN, CSIC, LUOMUS, HCMR, HUJI, TDWG, RBGE), TA and VA Facilities, DiSSCo partners, scientists, industry, RDA, TDWG, GBIF, CoL and CETAF.

The development team initiates the plans, prepares all relevant documents and executes all decisions taken. They use the reference group for ideas and tests. The SYNTHESESYS+ team will make decisions based on advice provided by the development group.

The SYNTHESESYS+ team members act as decision makers. They will meet every month; this meeting is prepared by the project manager of Picturae. The reference group is for providing feedback, ideas and for testing. The development team prepares and executes all the project progress reports and plans and is led by the project manager.

The teams have a possibility to communicate in an easily accessible way:



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a DiSSCo project

- for real-time interaction, discussion etc. the teleconference tool Zoom can be used: <https://zoom.us/j/909290722>
- Sharing documents and will be done via the collaborative platform TeamWork: <https://dissco.teamwork.com/#/projects/391462/overview/summary>

2.3 The work method: Agile/Scrum software development

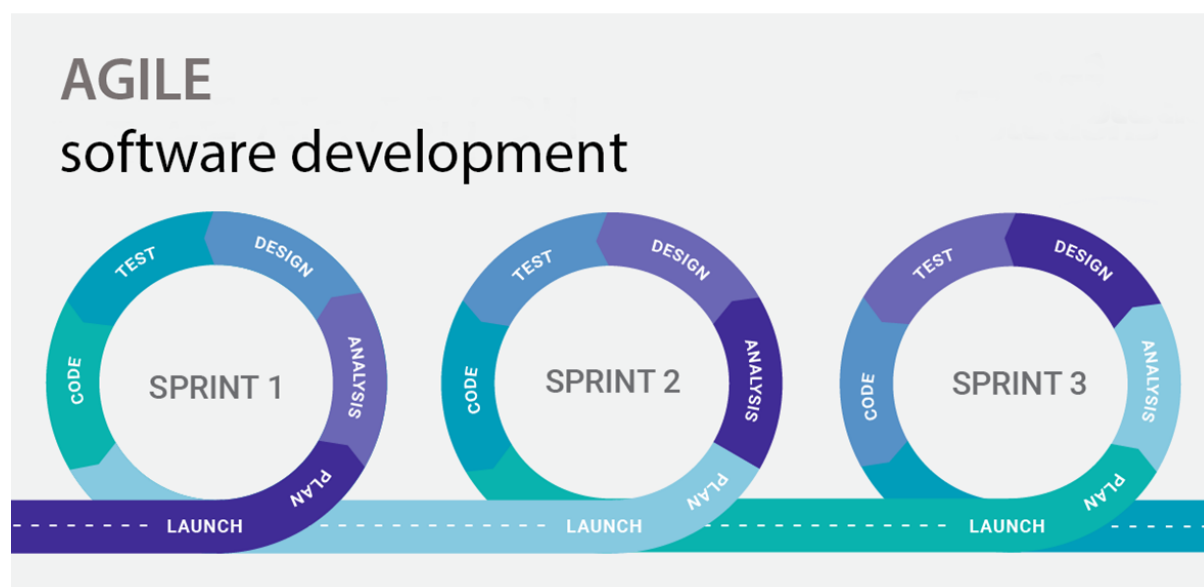
Picturae uses the Agile / Scrum method for creating software.

Agile is an iterative approach to project management and software development that helps teams deliver value to their customers faster and with fewer headaches. Instead of working towards a "big bang" launch, an agile team delivers work in small increments (sprints). Thus requirements, plans and results are evaluated and tested continuously, preferably in cooperation with customers, so teams can adapt to any changes quickly.

Scrum is a concept that helps teams work together within the small increments (sprints) of the Agile project management and encourages teams to learn through experiences. Scrum describes a set of meetings, tools, and roles that helps teams to structure and manage their work.

The tasks to be performed during the Agile sprints or small increments of the total software tool that has to be delivered, are based on the user stories and their prioritisation. Balanced combinations of sets of user stories form the building blocks for the total software tool and are defined in a roadmap which aims at gradually reach the end goal of the project. These building blocks are worked on during the sprints, in such a way that each next sprint can be based on the results of the previous sprint.

This iterative approach is visualised perfectly in the figure below.



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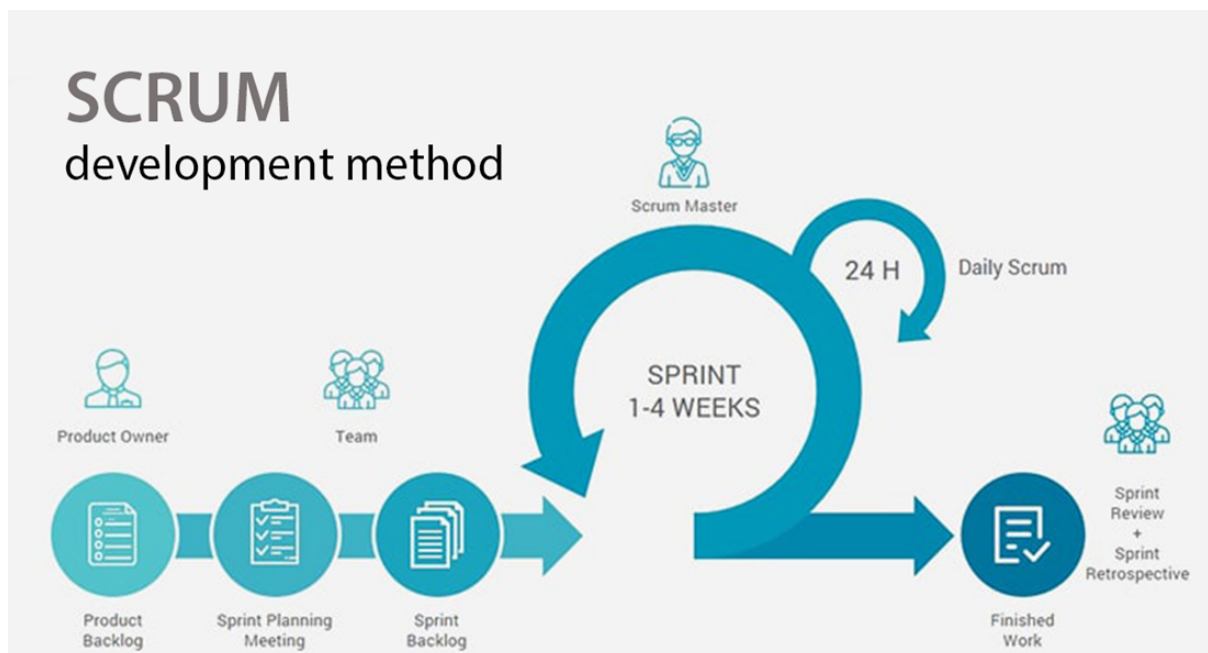
Within a sprint, which can last from 1 to 4 weeks, a product owner and a scrum master, two senior team members with specific roles, take care of assigning the right tasks from the product backlog (usually the list of user stories for the entire project) to be performed during the sprint, ie to be put on the sprint planning. These designated tasks or user stories then form the sprint backlog, from which the developers of the team can take their pick to work on during the sprint.

The scrum master oversees the work of all team members and the whole team, including the project manager, participates every day in a so called 'stand up' or 'daily scrum meeting' to discuss what tasks will be taken on that day, which tasks have been worked on the previous day and - if applicable - what difficulties were encountered and how these can be dealt with.

At the end of each sprint the results are reviewed and demonstrated and the process of creating them is evaluated, ie the team discusses in retrospective what went well during the sprint and what needs to be improved during the next sprints. It might be possible that the results of a sprint were not met for some reason, which means that the tasks still to be finished have to be transferred to the next sprint, with higher priority of course.

This Scrum concept of working is visualised perfectly in the figure below.

Note: Picturae is used to work in sprints of two weeks and names them by the week numbers. When the ELViS development starts, on Monday the 6th of January, the first sprint (from Monday the 6th of January till Friday the 17th of January) will be called: sprint 02/03



So - to conclude - the most important concepts of the Agile / Scrum method are:



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- **user stories:** in consultation with the customer or product owner, the team divides up the work to be done into functional increments called “user stories.” Each user story is expected to significantly contribute to the value of the overall product.
- **dedicated team:** a “team” in the Agile sense is a small group of people, assigned to the same project or effort, nearly all of them on a full-time basis. Some team members may be part-time contributors, for example in case special skills are required.
- **incremental development:** Agile teams have an incremental development strategy; this means that each successive version of the product is usable, and each builds upon the previous version by adding user-visible functionality.
- **regular meetings:** during a sprint – a fixed amount of time to deliver a part of the product – each day at the same time, the team meets to update each other about the progress, obstacles encountered, remedies to overcome those and to plan next steps.

2.4 The Development Team

For the ELViS development, Picturae will create a dedicated team. These specialists are chosen according to the demands of the project for their experience and skill sets. Having a dedicated team can have advantages and disadvantages:

Advantages of a dedicated team are:

- predictable and defined budget
- because the scope is not strictly defined, requests can be changed any time
- full control over the management of the team
- dedicated team members have a deep understanding of the client’s project and business goals
- continuous communication with the team through everyday communication with the use of web tools like Slack, Redmine and Teamwork pays off
- the team is stable and is fully dedicated to the project

Disadvantages of a Dedicated Team model:

- It’s inefficient for short-term projects
- establishing a dedicated team can take time
- team management also takes time (unless you decide to go with a service provider’s project manager)
- the dedicated team model may be more expensive than a so called ‘time & material’ model for projects that do not require a constant software development

In the case of development by Picturae, the first three items of the ‘disadvantages’ are not applicable, so having a dedicated team on the dynamic ELViS project is the best choice.

The team will exist of:



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SYNTHESYS+
Synthesis of Systematic Resources
a DiSSCo project

- Project manager
- Lead developer / Scrum master
- Backend developer
- Frontend developer / designer
- Backend Developer

The names of the team members will become available once the team has been formed shortly before the start of the first development phase in January 2020.

2.5 Planning of the work

As mentioned before, Picturae is used to work in sprints of two weeks. However, for the first task, preparing mockups for the design of ELViS to be discussed during the WP6 workshop on the 4th of July in Brussels, a sprint of three weeks was used. Since this was not part of the first development phase, which starts in November 2019 to start preparator working for the first deliverable, the temporary registration system to facilitate a VA call in Spring 2020, this sprint was called sprint Alpha.

Below is a description of this sprint Alpha. Once the first development phase starts, in November 2019, the next sprints (sprint 0, 1, 2 and so on) will be described accordingly, either in this document or elsewhere (Picturae uses internally Redmine (<http://www.redmine.org/>) as a sprint planning tool, so the information provided over there will have to be transferred to the tool the SYNTHESYS+ project is going to use).

2.5.1 Sprint Alpha

Goal: development of Mockups to provide a basis for discussion and user stories collection in the ELViS system design workshop 4 July 2019.

Products: The following items are candidates for sprint Alpha:

- setup of backlog with user stories (Sharif)
- creation of mockups for different components of ELViS (Michiel)
- creation of design styles (with alternatives): style of page elements, fonts, colors, logo (Michiel)
- setup of an environment for technical documentation (Sharif)

Team for sprint Alpha:

- Sharif Islam (Data architect)
- Michiel de Boer (Mockups developer)

Action plan:



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a DiSSCo project

- small kick-off
 - Whole team to define sprint Alpha
 - Assign tasks
- tasks in DiSSCo GitHub
- team discussion every Tuesday

Duration: 3 Weeks

Start sprint Alpha: week 11 June 2019

End sprint Alpha: week 2 July 2019

2.5.2 Sprint 0

Goal: preparation for the development phase 1, setting up the environment and the back-end for the temporary system to facilitate VA Calls, so the Minimum Viable Product (MVP) ELViS.

Products:

- kick-off of development phase 1 with the dedicated development team: updating the developers on the project's goals
- set up of environment and back-end for the MVP ELViS
- preparation of getting a development and testing server (to be connected to these url's made available bij Naturalis: elvis-dev.dissco.eu and elvis-test.dissco.eu)

Team for sprint 0:

- Anton Lakotka (back-end developer)
- Denis Cebotari (back-end developer)
- Erwin Meesters (front-end developer)
- Maksim Masiukeivch (back-end developer)

Action plan:

- kick-off
- tasks in Redmine for sprint 0
- organising the work:
 - team works every Wednesday and Thursday
 - team standups every Wednesday and Thursday at 09:30 CET
 - team sprint planning every first Wednesday, after standup

Duration: 1 Week (due to other commitments of team members in 1st week of November)

Start sprint 0: week 46: 11 November 2019

End sprint 0: week 46: 15 November 2019



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2.5.2 Sprint 1 - 30 (all sprints for the 1st development phase)

Team for sprints 1 - 30:

- Anton Lakotka (back-end developer)
- Denis Cebotari (back-end developer)
- Erwin Meesters (front-end developer)
- Maksim Masiukeivch (back-end developer)

Sprint overview of sprintplanning for sprints 1 - 32:

Sprint no:	Year:	Week start:	Start date:	Week end:	End date:	Planning:	Sprint target(s):	Roadmap:	Testing:
Sprint-00	2019	46	15-11-2019	46	15-11-2019	15-11-2019	kick-off; organising the work; setting up server environments	MVP	
Sprint-01	2019	47	18-11-2019	48	29-11-2019	20-11-2019	finishing setting up environments, backend setup finished start frontend setup		
Sprint-02	2019	49	4-12-2019	50	13-12-2019	4-12-2019	frontend setup finished; user registration/login; start on new role (VA Coordinator)		
Sprint-03	2019	51	18-12-2019	52	25-12-2019	18-12-2019	prepare for testing; deployment of 1st MVP ELVIS version (user registration/login)		
Sprint-04	2020	1	1-1-2020	2	10-1-2020	8-1-2020	implementation VA Coordinator role		
Sprint-05	2020	3	13-1-2020	4	24-1-2020	15-1-2020	implementation of VA Call workflow in backend		
Sprint-06	2020	5	27-1-2020	6	7-2-2020	29-1-2020	implementation of VA Call workflow in frontend (webform for requests)		
Sprint-07	2020	7	10-2-2020	8	21-2-2020	12-2-2020	meet the deadline for the VA Call 1: user registration/request registration	MVP Hotfix 1	
Sprint-08	2020	9	24-2-2020	10	6-3-2020	26-2-2020	bugfixing and implementation of approval of requests by VA Coordinators		
Sprint-09	2020	11	9-3-2020	12	20-3-2020	11-3-2020	bugfixing and implementation of comments section for VA Coordinators		
Sprint-10	2020	13	23-3-2020	14	3-4-2020	25-3-2020	implementation of editing VA Call webform by requesters after submittance		
Sprint-11	2020	15	6-4-2020	16	17-4-2020	8-4-2020	basic helpdesk page + first admin functionality (overview of all requests)	MVP Hotfix 2	
Sprint-12	2020	17	20-4-2020	18	1-5-2020	22-5-2020	basic helpdesk page + first admin functionality (overview of all requests)		
Sprint-13	2020	19	4-5-2020	20	15-4-2020	6-5-2020	more admin functionality and facilitate VA Access Prioritisation Panel		
Sprint-14	2020	21	18-5-2020	22	29-5-2020	20-5-2020	more admin functionality and facilitate VA Access Prioritisation Panel		
Sprint-15	2020	23	1-6-2020	24	12-6-2020	3-6-2020	start backend work on institutions (+ facilities and collections info)	Full ELVIS v1	
Sprint-16	2020	25	15-6-2020	26	26-6-2020	17-6-2020	deploy admin functionality and closing of VA Call on Acceptance and Production		18-6-2020
Sprint-17	2020	27	1-7-2020	27	3-7-2020	1-7-2020	room for bugfixing Production and preparation for implementing new roles system		
							summer break		
Sprint-18	2020	32	5-8-2020	32	7-8-2020	5-8-2020	implementing new roles system (keycloak)		
Sprint-19	2020	33	12-8-2020	34	21-8-2020	12-8-2020	implementing new roles system (keycloak)		
Sprint-20	2020	35	26-8-2020	36	4-9-2020	26-8-2020	deploying new roles system (keycloak)		
Sprint-21	2020	37	9-9-2020	38	18-9-2020	9-9-2020	deploying new roles system (keycloak)		
Sprint-22	2020	39	23-9-2020	40	2-10-2020	23-9-2020	finishing keycloak implementation + start on institutions/facilities		
Sprint-23	2020	41	7-10-2020	42	16-10-2020	7-10-2020	editing institutions/creating+editing facilities		
Sprint-24	2020	43	21-10-2020	44	30-10-2020	21-10-2020	editing institutions/creating+editing facilities		
Sprint-25	2020	45	4-11-2020	46	13-11-2020	4-11-2020	editing institutions/creating+editing facilities		
Sprint-26	2020	47	18-11-2020	48	27-11-2020	18-11-2020	editing institutions/creating+editing facilities + new Admin functionality		1-12-2020
Sprint-27	2020	49	2-12-2020	50	11-12-2020	2-12-2020	bugfixing + start on TA Call form		
Sprint-28	2020	51	16-12-2020	52	25-12-2020	16-12-2020	bugfixing + start on TA Call form		18-12-2020
							holiday break		
Sprint-29	2021	1	6-1-2021	2	15-1-2021	6-1-2020	bugfixing + TA Call form incl. handling		15-1-2021
Sprint-30	2021	3	20-1-2021	4	29-1-2021	20-1-2020	bugfixing + TA Call form incl. handling + production deployment		29-1-2021
Sprint-31	2021	5	3-2-2021	6	12-2-2021	3-2-2021	bugfixing + Reporting		12-2-2021
Sprint-32	2021	7	17-2-2021	8	26-2-2021	17-2-2021	bugfixing + Reporting + production deployment		27-2-2021

For more details on the sprints and sprintplanning see the Github account:

- <https://github.com/DiSSCo/ELViS/wiki/ELViS-Sprint-planning>
- <https://github.com/DiSSCo/ELViS/issues>

2.6 Test team

Test team for test after sprint 2: start 16 December 2019

- Wouter Addink - Naturalis
- Sharif Islam - Naturalis
- Elspeth Haston (VA coord) + colleagues - RBGE
- Heimo Rainer - NHMW
- Karin Wiltschke - NHMW



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SYNTHESYS+
Synthesis of Systematic Resources
a DiSSCo project

- Falko Glöckler + colleagues - MfN
- Julien Husson - MNHN
- Anne Koivunen (VA coord) + Ville-Matti Riihikoski with Anniina Kuusijärvi- LUOMUS
- Helen Hardy + Scott Wilson (Admin) - NHM
- Maarten Trekels - APM Meise
- Begoña Sanchez - MNCN/CSIC



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3. Reporting

Once the first development phase starts, in January 2020, Picturae will enable members of the core SYNTHESYS+ WP6 core team to participate as much as possible in testing and evaluating the development work to be performed according to the Agile/Scrum principles as described above. In practice this means that Picturae's project manager will report about the progress of the sprints during the weekly WP6 teleconference meetings and - if necessary/applicable - give WP6 core team members access to Picturae's testing facilities.

A fundamental part of the reporting will be that Picturae's project manager will take care of building a manual for ELViS which will follow its progression. This will preferably be done in the form of a Wiki. This manual will describe the technical implementation of ELViS and all of its components and dependencies as well as the functionality it offers to its users.

3.1 Resources & Timescales

Two important aspects of the project are budget and planning. Picturae's project manager will take care of monitoring both and reporting about both to the SYNTHESYS+ WP6 lead.

3.1.1 Budget:

The SYNTHESYS+ budget which is assigned to Picturae is € 458.627,50 in total (including personnel costs, travel and subsistence and other eligible costs). Picturae's project manager will provide the SYNTHESYS+ WP6 lead sufficient insight in the spending of this budget, according to the rules of the EC and the SYNTHESYS+ project as laid down in the Grant Agreement and in the format provided and as requested by the WP6 lead.

3.1.2 Time scales

The planning of the development of ELViS is aligned with other SYNTHESYS+ WP's, in particular with WP2, with which Picturae has to cooperate for integrating helpdesk functionality and a dashboard view on collection data in ELViS, and with WP4, which objective it is to provide, maintain and improve interoperability standards throughout the natural science community. The results of WP4 have to be taken into account already in the first ELViS development phase, so throughout the year 2020, and the results of WP2 partly in the first ELViS development phase (the connection with the helpdesk functionality) and partly in the second ELViS development phase, the second half of the year 2021 (the integration of a dashboard view on collection data of participating institutions).

3.3 Project Controls

Picturae will make use of the existing project environment, Teamwork (<https://disco.teamwork.com>), to which all SYNTHESYS+ participants, contributors and developers have access. Within this project environment all reports/documents regarding the project, such as minutes of meetings, deliverable and milestone planning, to-do lists etc. will be available. Picturae's project manager will actively work on reporting on the progress of the ELViS development work, in collaboration with the SYNTHESYS WP6 lead. As such (contributions to) these reports can be expected:



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Synthesis of Systematic Resources
a DiSSCo project

3.3.1 Meeting reports

All weekly teleconference meetings will have minutes, which will include reports on the progress of the sprints once the development has started, which means that every two weeks (the duration of a sprint) a report on the results of the previous sprint as well as a forecast for the upcoming sprint will be provided.

3.3.2 Highlight reports

If needed after each month a highlight report can be delivered, which will give a short overview of the accomplishments of the development during that month. This highlight report will be an abstract of the two weekly sprint reports, focusing on the achievements and aimed at addressing the management of the project.

3.3.3 Project Closure

Once agreement is reached on the achievement of all defined goals a project closure document will be made by the Picturae project manager and the SYNTHESYS+ WP6 lead, which will include a full implementation and functionality manual of the ELViS system and its dependencies.

3.3.4 Roadmap and Change/Issue Management

At the beginning of each of the two development phases, a roadmap for the development of the ELViS system will be provided by the Picturae project manager. This roadmap will be drafted based on the discussions between the Picturae team and the SYNTHESYS+ WP6 core team about the prioritisation of the user stories and the components of the ELViS system to be generated as a result of this.

Once this roadmap is defined and approved, any necessary major changes will have to be brought to the attention of the SYNTHESYS+ WP6 core team via a Change Request report for evaluation. The roadmap can thus only be changed after approval by the SYNTHESYS+ WP6 core team of a Change Request report.



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SYNTHESYS+
Synthesis of Systematic Resources a DiSSCo project

4. Risks

The following risks are defined:

No	Risk	Preventative measures	K1	K2	K3
1	Temporary VA registration system is too late for VA programme	Take care of planning	1	1	2
2	Integration with third parties like GBIF, ORCID, etc. fail	Ensure that the right technical parties are involved for interoperability with the various platforms	1	2	2
3	Integration with WP2 dashboard fails	Ensure that the right technical parties are involved for integration of the WP2 dashboard	1	2	2
4	Integration with WP2 helpdesk functionality not in time	Take care of planning and maintain close contact with WP2 about planning	1	2	2
5	Availability of WP4 standards and/or data sets according to these standards not in time	Take care of planning and maintain close contact with WP4 about planning	1	2	2
6	Not compatible with DiSSCo Core Architecture	Align with ICEDIG & DiSSCo prepare WP5,6 Ensure that the right technical parties are involved for integration of the various platforms	3	4	12
7	No uptake in DiSSCo after SYNTHESYS+	Added value, Usability, DiSSCo governance Ensure that the right technical parties are involved for integration of the various platforms	3	3	9
8	Insufficient quality	Align with other WP's, MOBILISE, stakeholders	3	2	6
9	Not sustainable	Align with other WP's, MOBILISE, stakeholders	3	1	3
10	Existing platforms are delaying the project progression	Decision in early stage if these platforms are going to be used or not and allocate enough resources for the connections	1	1	2
11	The process is new, responsibilities of the back office are not assigned/known yet.	Get back office populated in an early stage of the project and involved in the testing of the tool	1	1	2

[1] Possibility of occurrence: 1 = low - 5 = high

[2] Impact: 1 = low - 5 = high

[3] Threat = Possibility of occurrence x Impact



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SYNTHESYS+
Synthesis of Systematic Resources
a DiSSCo project

Appendix II

Guidelines for testing



ELViS
Virtual Access
applications portal

Towards smoother, faster and better access to natural history collections across Europe.

This portal supports making application requests in Call 1 of Virtual Access (VA). Call 1 of Virtual Access will open for Proposals on 20 February. Proposers must contact relevant VA Coordinators as soon as possible, at the latest by 30 April. The Call has no deadline until further notice, which will be communicated at least two weeks in advance.

[Register now](#)

Introduction

This is a short guideline for people that participate in the testing of ELViS components. During different stages of development, the team of testers can vary. The first deployment will be a minimal system to support the first VA call in February 2020. The test team for that system and for the subsequent round is given in appendix 1. This system will be used as a basis for further development towards a full ELViS system.

Things that testers should take into consideration: In the first stage of development functionality will be minimal. Also at first, not much will work or will not work as users think it should. So be patient and contribute as much as possible to help the developers improving the system. Your input is essential and participation in testing will give you the chance to get a system that will work optimally for you in the future. In the first stage of development, there will also not be a lot of automated testing, therefore there is a high risk that changes may break things that worked before. Therefore things need to be tested repeatedly in the first stage.

Where to find the application to test

ELViS Acceptance Server: <http://elvis-accept.pictura-hosting.nl>

How to login:

1. For a regular requester account please register using the ELViS Acceptance Server. During deployment, old data might be deleted so you might have to re-register.



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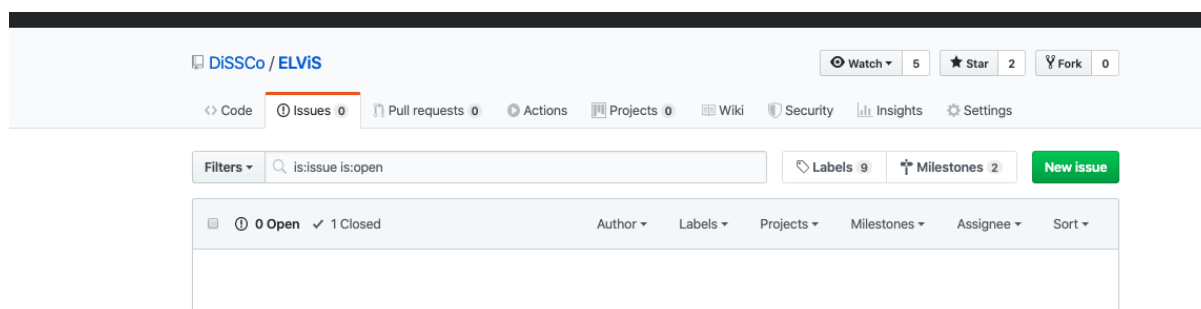
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Synthesis of Systematic Resources
a DiSSCo project

- For the moment we do not have role-based authentication and authorization. For Admin and VA Coordinator accounts contact Task Leader (Wim).

What and when to test

See [project doc](#) (Section 2.6) and [current sprint schedule](#) in the GitHub wiki. After each sprint, Task leader (Wim) will inform the team what is ready to test (usually during the regular JRA1 meeting or via email). After that, the test coordinators will communicate via email and Github to facilitate the test. The coordinators might request a short email report in addition to updating the GitHub issue.

How to submit issues



- Create a GitHub account (if you haven't already)
- Send your GitHub username to DiSSCo repo admin (Sharif) so he can add you to the ELViS test team
- Login with your GitHub credentials
- Navigate to the ELViS repo page: <https://github.com/DiSSCo/ELViS>
- Go to Issues or you may navigate directly here: <https://github.com/DiSSCo/ELViS/issues>
- Click "New issue"


This creates an empty issue with some standard header lines for bug reports. If your issue is not a bug report or you would like to submit it in a different way you can just delete these lines. For bug reporting the template is the ideal



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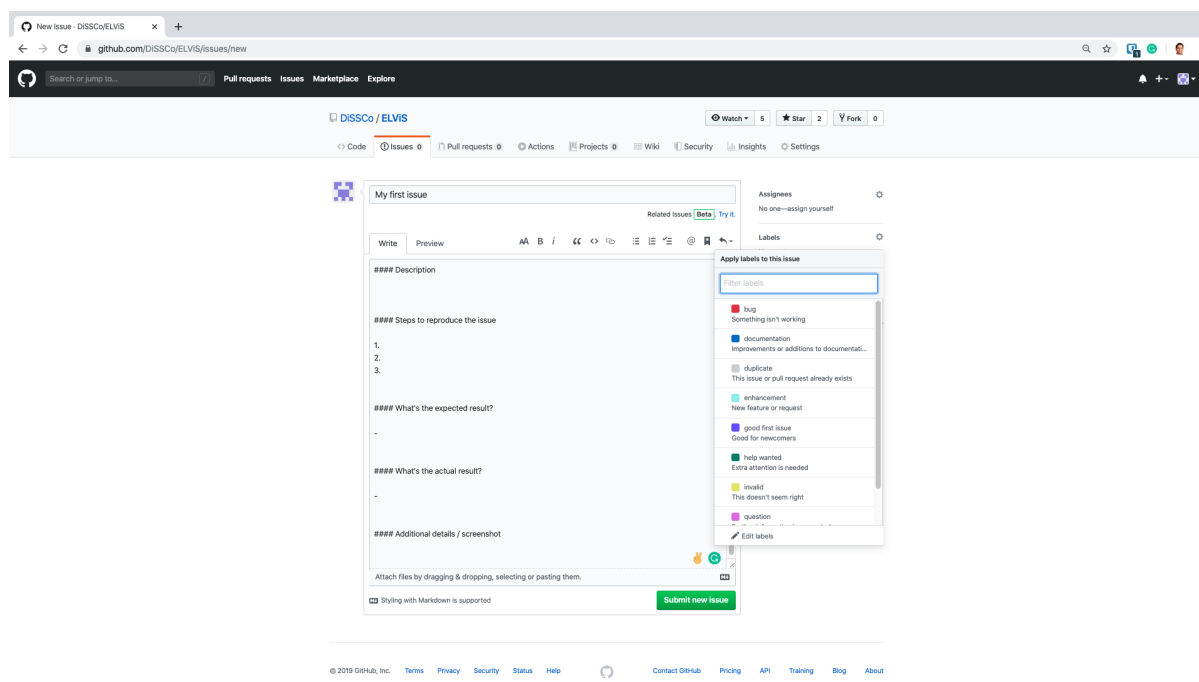
format to collect the most relevant information.

- Type a title and description for your issue.
 - Report one (1) test result/bug etc at a time. Each new bug, question, request should be a new issue.
 - For description, please provide a concise, clear description of the issue. Describe what you expected, what should have happened and what you see instead. If it is an error, describe how the error occurs and what steps we need to perform in order to reproduce the error. You can optionally use [Markdown](#) to format the text if needed.
 - Always add a URL (of the error/relevant screen). Include operating system or browser information if you think it is relevant for the issue.
 - Describe the expected result and the actual result.
 - Provide a screenshot if needed (you can drag and drop in the GitHub form)
 - Optionally attach labels to your issue. Click on the “cogwheel” icon and select a label to attach to your issue. 
 - These are the current labels: Bug (something unexpected, error messages, functionality in the sprint plan not implemented), Enhancement (new feature, design changes) Question, To Test, Resolved.
- When you're finished, click “Submit New issue”.



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 Synthesis of Systematic Resources
 a DiSSCo project



- Notifications and updates. When you open, comment on, or close an issue you will receive email notifications. If you want to disable this or enable notifications for other issues, click subscribe/unsubscribe under “Notifications”. Defaults can be controlled by the dropdown for Watching in the top of the screen.
- Commenting on issues. You can comment on issues submitted by others. All issues are publicly visible.

Admin functionality

At the moment, Admin accounts (accounts with higher privileges and special functionality) are assigned to a few specific testers. If you want to volunteer for Admin functionality tests please contact the Task leader.

When will issues be solved

Issues will be assigned by the 6.2 task leader (Wim) and ScrumMaster at Picturae. When the status changes, you will receive an email notification if you are 'watching' the issue. When an issue will be solved depends on priority, planned milestones and how many issues fit in a sprint. the DiSSCo data management principles (see the [DiSSCo DMP](#)) may affect how issues are implemented. The priority of issues will be discussed in the weekly JRA1 Zoom meetings.



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Synthesis of Systematic Resources
a DiSSCo project

Test team

relevant user stories: <https://github.com/DiSSCo/user-stories/projects/4>

screens: <https://projects.invisionapp.com/share/CHSEE06BYP5#/screens>

Name	institute	github user	Test focus
Wouter Addink	Naturalis	wouteraddink	System design/Admin
Sharif Islam	Naturalis	sharifX	System design/Admin
Elspeth Haston	RBGE	emhaston	VA coord role
Lesley Scott	RBGE	LesleyScott	User & provider role
Erzsebet Gyongy	RBGE	erzsebetgyongy	User & provider role
Heimo Rainer	NHMW	heimor	User & provider role
Karin Wiltschke	NHMW	Karin-Wiltschke	User & provider role
Maria Marschler	NHMW		VA coord role
Falko Glöckler	MfN	falkogloeckler	User & provider role
Mareike Petersen	MfN	mhirschfeld	User & provider role
Philippe Loret	MNHN	philippeloret	User & provider role
Anne Koivunen	LUOMUS	akoivune	VA coord role
Ville-Matti Riihikoski	LUOMUS	vixriihi	User & provider role
Anniina Kuusijärvi	LUOMUS	AnniinaK	User & provider role
Helen Hardy	NHM	HMHardy	Va coord role
Scott Wilson	NHM	scottwilson-nhm	Admin role
Maarten Trekels	APM Meise	mtrekels	System design
Begoña Sanchez	CSIC	B-San-Chi	User & provider role

