



D1.4

Second General Annual Report



The project "Implementation & Sustainability of Microbial Resource Research Infrastructure for 21st Century" (IS_MIRRI21) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n° 871129. This document reflects only the author's view and the European Commission is not responsible for any use that may be made of the information it contains.

Project number:	871129
Project acronym:	IS_MIRRI21
Project title:	Implementation & Sustainability of Microbial Resource Research Infrastructure for XXI Century
Start date of the project:	1 February 2020
Duration:	36 Months
Programme:	H2020/Research and Innovation Actions: INFRADEV-03-2019

Deliverable type:	Report
Deliverable reference number:	D1.4
Work package:	WP1
Due date:	31 January 2022 – M24
Actual submission date:	07 June 2022

Responsible organisation:	UMINHO		
Editor:	Bassem Kheireddine and Nelson Lima		
Version:	Revised by:	Date:	Notes:
V1.0	WPLs & Beneficiaries	15.03.2022	WP reports
V1.1	Bassem Kheireddine & Ana Ferreira	01.04.2022	1 st Draft
V1.2	Bassem Kheireddine	19.05.2022	Editing Version
V1.3	Adriana Chiarelli	23.05.2022	Internal reviewer 1
V1.4	Michel-Yves Mistou	25.05.2022	Internal reviewer 2
V1.5	PSC Members	07.06.2022	Feedback & Approval
V2.0	Nelson Lima	07.06.2022	Final Revision & Submission

Abstract:	Report summarizing all the data collected during the second year, with indication of possible delays. Comprehensive discussion of the main achievements and indication of what is foreseen for the remaining time of the project.
Keywords:	Activities, consumption, plans, Advisory board recommendations

Dissemination level:	Public	X
	Confidential (for the Consortium and EU Commission Services only)	

Abstract

This report is extracted from interim progress reports (IRPs) produced by the Work Package Leaders (WPL) and members to summarize the progress on the work done and data collected during the second year of the **IS_MIRRI21** project, with indication of possible delays and mitigating actions. It presents a comprehensive discussion of the main achievements and indication of what is foreseen for the last year of the Project and additional plans considering the possibility of the extension of the **IS_MIRRI21** project.

In addition, the Advisory board report during the second General Assembly of **IS_MIRRI21** Project was annexed to guide the plans of the project consortium.

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1. Introduction

1. Introduction

Work Package 1 (WP1) of the [IS_MIRRI21](#) project coordinates and supervises all processes to ensure the management environment and associated support for an effective and timely implementation of the project activities. This Deliverable D1.4 is a report that summarizes the progress on the work done and data collected during the second year of the project. This report also indicates possible deviations, delays, and mitigating actions from all the work packages (WP) and of the [IS_MIRRI21](#) project. D1.4 follows the approval of the First Reporting Period of [IS_MIRRI21](#) Project (RP1 Midterm Report M1-M18). Since then, more progress has been made through M19-M24.

Under the guidance of the Project Coordinator (PC) and Project & Financial Manager (PFM) (ref. Task 1.1, General Agreement, p. 10), WP Leaders (WPLs) and partners reported their estimated budgets, direct costs, and person-month (PM) consumed to accomplish the activities in each WP during the second year and the ones provisioned for the upcoming period of six months for each WP (M25-M30). Based on the work by WP leaders, members and beneficiaries, the PC and PFM combined and summarized the interim progress reports (IPR) collected from nine out of 10 operational WPs of [IS_MIRRI21](#) to edit this second-year report, follow-up on the progress and communicate the work to our stakeholders at different levels.



2. Summary of Activities – 2nd Year

2. Explanation of the work carried per WP (M12-M24) – 2nd Year

2.1. WP1 Activities “Project Management”

UMinho hosts the EU headquarters of MIRRI and runs the operations of [IS_MIRRI21](#) project centrally and through the Project Coordinator (Nelson Lima) and the Management Backoffice (MB), providing different kinds of support to the project work packages. The WP1 has a total of 52 PM allocated throughout the 36 months project, and as leaders of WP1 Project Management, UMinho-MUM contributes with 28 PM, while UVEG-CECT offers 6 PM for WP1. All the remaining partners have 1.5 PM each to attend the Project Steering Committee (PSC) meetings, contribute to reports and deliverables and other WP1-related tasks (Table 1). To facilitate communication between partners and participants in WPs, mailing lists for PSC and each WP were created. Following RP1’s and associated deliverables’ approval by EC and through M19-M24, the Project Coordinator has submitted two new deliverables under WP1 in addition to deliverables from other WPs (such as D6.2 and D8.3).

Table 1 – WP1 Deliverables & Milestones

Action type	Description	Due Date	Achieved	Date
D1.1	Quality Plan	M2	Yes	31/03/2020
D1.2	Data Management Plan	M2	Yes	09/10/2020
D1.3	First general annual report	M12	Yes	05/05/2021
D1.4	Second general annual report	M24	Yes	Current deliverable
D1.5	First report of the Ethical Board and Advisory Board	M12	Yes	21/04/2021
D1.6	Second report of the Ethical Board and Advisory Board	M24	Yes	27/02/2022
MS1	Project Management, Communication and Quality Plan ready	M3	Yes	23/04/2020

Tasks 1.1, 1.2, 1.3 and 1.4

UMinho-MUM coordinates [IS_MIRRI21](#). The work is managed at WP level by the WPLs. As set by the [IS_MIRRI21](#) Grant Agreement (GA), UMinho-MUM leads the following four tasks, in close collaboration with partners: Task 1.1 Project coordination; Task 1.2 Administrative management and support; Task 1.3 Quality & risk management; and Task 1.4 Data Management Plan for which Deliverable D1.2 was developed and submitted in October 2020. Accordingly, under the guidance of the PC, the dedicated Project and Financial Manager (PFM) supported partners in the reporting, management and financial control of the project in addition to organizing the Project Steering Committee meetings. He worked towards the fulfilment, writing and integration of the reports (including this deliverable D1.4, RP1, and the D1.3 1st Annual Report), deliverables, and milestones through the constant follow up with work package leaders and partners. He organized the Project's General Assembly in Braga (5-7 July 2021) along with the MB members including the Co-Coordinator, Director, and MIRRI Secretary.

UMinho-MUM organized 16 PSC meetings between Months M1-M24 of the project. PSC meetings are regularly attended by PSC members, including WPLs and partner representatives. PSC members engage in the governance and operations after the initial strategic decision-making by the General Assembly, and Project Coordinator, Project Co-coordinator, and Director. The participants usually approve previous meeting(s) minutes, monitor progress, discuss plans, and collaborate with partners and the MB, which is envisioned to be the embryo for the Central Coordinating Unit (CCU) of future MIRRI-ERIC. This team was structured in a manner to bridge as a liaison between the Executive and Operational Units of the project to effectively implement the decisions and plans of the [IS_MIRRI21](#) Grant Agreement.

Tasks 1.5

As leader of Task 1.5 of WP1, UVEG-CECT continues to support internal communication by managing the Synology server and mailing lists for the different groups within the project (WP, PSC, AB, EB among others) as well as for MIRRI stakeholders (like ApM, INCF). It is worth mentioning that UVEG-CECT has organized INCF meeting in Valencia in February 2022. The new IT Officer Antonio Vara, who was recently hired by UVEG-CECT, is considered part of the MB of [IS_MIRRI21](#). UVEG-CECT has compiled and communicated the gender statistics for the project and, together with BELSPO, has revised D1.1. among others and worked on the GDPR document for [IS_MIRRI21](#).

All the other partners contribute each with 1.5 PM for WP1 for the duration of the project. Nevertheless, most of them has so far done an extensive job in preparing, editing and revision of plans, reports and deliverables besides dissemination and representation of MIRRI in several media and events.

General Assembly 5-7 July 2021

The MB organized the General Assembly of **IS_MIRRI21** on the 5th, 6th and 7th July 2021 at Mercure Hotel in Braga, Portugal. The meeting (Figure 1) ran in a hybrid system. Thus, 24 participants attended on site and 36 others took part in the sessions online. The goal of the meeting was to demonstrate the work developed, not only reported on the deliverable D1.3 but also the subsequent 6 months up to 18 months, and the future activities of **IS_MIRRI21** as well as to prepare for the presentation and evaluation of this Mid-term report (RP1).

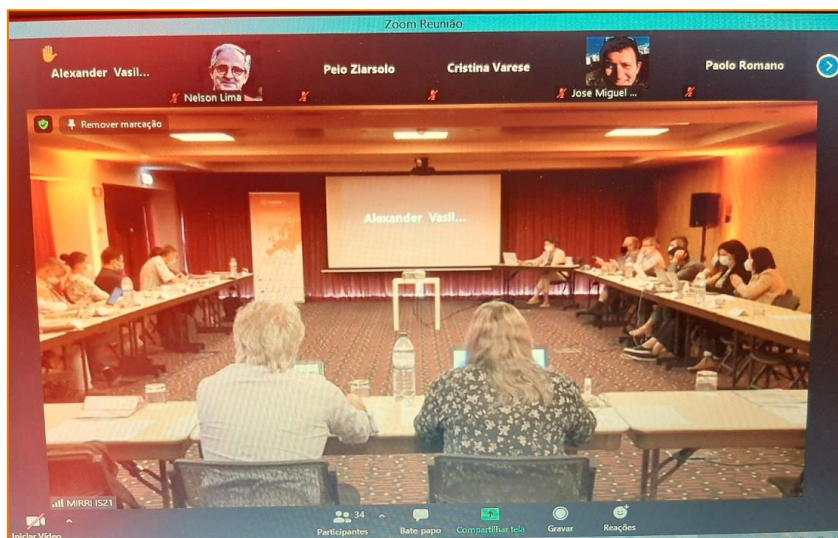


Figure 1 – General Assembly of **IS_MIRRI21**

The three-day meeting was divided into the different WPs' presentations done by the Work Package Leaders. The agenda included a session about the RP1 and a final session dedicated to WP transversal issues and the transition of **IS_MIRRI21** to MIRRI as a research infrastructure (RI). Moreover, the Ethical Board and Advisory Board presented their recommendations. Following the GA, the Advisory board wrote a report (Annex 1) and the Ethical Board member, Malcolm Dando, shared his views (Annex 2) to improve the operations and communication among the board.

2.1.1. WP1 Tasks: Delays/Problems and Corrective Actions (M19-M24)

The submission of a few deliverables is delayed as will be pinpointed on the correspondent WP reports. WPLs are making efforts to complete them until August 2022. The delay in the first general assembly led us to be attentive to organizing the second general assembly on time in Month 25, which will be reported in the Second Reporting Period.

2.2. WP2 Activities “Research Strategy”

The activities of WP2 were founded on previous work of MIRRI and were designed to bring all the expertise in Science & Technology of the partnership to an even higher level, considering the users’ needs linked to Research & Innovation. The specific objectives of WP2 are:

1. Setting up conditions to increase the provision of microbial resources and improve taxonomic diversity and geographic origin of microbial strains (corresponding to Sub-Task 2.1A).
2. Promoting high quality taxonomic and functional characterization of microbial resources by developing common MIRRI standard procedures and using state-of-the-art technologies (corresponding to Sub-Task 2.1B).
3. Setting up conditions of collaboration with other BMS-RIs (Biological and Medical Sciences Research Infrastructures, as formerly designated the RIs presently listed in the ESFRI Roadmap as Health & Food domain) related to genetic resources and high-end services (corresponding to Task 2.2).
4. Bringing together the expertise of different partners and BMS-RIs in order to develop integrated services and workflows to support research and innovation development (corresponding to Task 2.3).

To attain these specific objectives, activities were coordinated within and across different tasks thanks to 19 video-conference meetings that took place once a month since April 2020. IS_MIRRI21 partners involved in WP2 activities regularly participated in the meetings and contributed to the advancements of the different specific tasks. Monthly meetings served for task planning, discussion, exchange of information and decision making while individual activities carried out by each partner resulted in the development of specific written documents. General WP2 activities and monthly meetings were organized and facilitated by INRAE while specific activities related to each task were managed by the different task leaders: INRAE, UMinho-MUM and UVEG-CECT for task 2.1, 2.2 and 2.3, respectively.

WP2 participants were involved in the development of a new task in addition to the three tasks originally planned in the IS_MIRRI21 project proposal. The aim of this additional task was to analyse the global research and innovation landscape, to anticipate gaps and opportunities, aiming at better addressing the effective needs of MIRRI user communities and helping them deliver the maximum value and impacts from their projects, technologies, and microbial resources. This new task extends the actions carried out in tasks 2.1, 2.2 and 2.3 by providing a strategic framework. The output of this activity is the MIRRI Strategic Research & Innovation Agenda 2021-2030 (SRIA, Figure 2) (https://www.mirri.org/wp-content/uploads/2021/03/MIRRI_SRIA2021-30_Web-version_20210319.pdf).



Figure 2 – MIRRI’s Strategic Research & Innovation Agenda 2021-2030 (cover and overview)

The MIRRI SRIA was designed to highlight the interconnection between MIRRI resources, capabilities, and expertise and European and global strategic referentials, such as Horizon Europe and the UN Sustainable Development Goals. The writing of the SRIA was suggested by the newly arrived [IS_MIRRI21](#) Director Luís Soares, and WP2 participants agreed to carry out this new task and were actively involved in the preparation of the first draft of the SRIA document. WP2 participants contributed mainly to the writing of the 7 sections focusing on MIRRI strategic areas and to the preparation of two comprehensive tables in chapter 3 listing MIRRI microbial resources with their fields of application and MIRRI integrated services.

A detailed description of the work planned in [IS_MIRRI21](#) project proposal and carried out within tasks 2.1, 2.2 and 2.3 during the second year of the project can be found below:

Task 2.1 Improvement of the [IS_MIRRI21](#) resource provision and characterization to fulfil user’s needs through cutting edge approaches

(Led by INRAE; participation of NKUA, UVEG-CECT, CCG, KNAW, UL-MSCL, IP, UNITO, BELSPO)

Task 2.1 is further subdivided into two different sub-tasks:

Sub-task 2.1A includes the activities required to attain objective 1 and is aimed to facilitate the future development of collaborative transnational field collection projects among MIRRI partners. Such projects have the potential to improve the provision of resources taking advantage of the integrated expertise of different MIRRI partners in isolation and characterization of microbial resources that belong to different taxonomic groups. One milestone and one deliverable can be found in Table 2.

Table 2 – Milestones and deliverables planned for Sub-Task2.1A

Action type	Description	Due Date	Achieved	Date
MS2	List of requirements for transnational field collections	M6	Yes	31/09/2020
D2.1	MIRRI agreement on transnational field collections	M12	Yes	26/02/2021

The list of requirements for transnational field collection (M2.1) was established by WP2 participants through exchanges that occurred during WP2 meetings (monthly meetings). Consequently, the INRAE team developed the deliverable D2.1 document that is aimed at providing the guidelines and jointly established procedures for the development of transnational project activities within MIRRI. WP2 ABS specialists designed a grid for Access and Benefit Sharing (ABS) compliance per country, which was completed for all countries involved in MIRRI by WP2 partners. Also, a grid highlighting differences in the Biosafety status of microorganisms among different countries partner to MIRRI was setup and completed. These comparative analyses were conducted to highlight possible differences among countries that need to be considered during preparatory phases of transnational field sampling activities. The produced documents were added in annex of the deliverable D2.1.

On the other hand, Sub-task 2.1B aims at improving MIRRI strain characterization, identifying common procedures and standards and promoting exchange of expertise to fulfil future user's needs through cutting edge approaches.

Sub-task 2.1B is ongoing and will result in the elaboration of a set of common protocols/standards for MIRRI partners and users, relying on the protocols used by the different culture collections participating to the [IS_MIRRI21](#) project. Additional parallel activities are currently being developed with the objective of strengthening MIRRI's expertise in commonly applied techniques and open the way to the application of new technologies.

For this sub-task, one milestone and one deliverable were scheduled in the project proposal, and their description can be found in Table 3.

Table 3 – Milestones and deliverables planned for Sub-Task2.1B

Action type	Description	Due Date	Achieved	Date
MS3	List of procedures and standards used for strain characterization	M12	Yes	14/06/2021
D2.2	MIRRI common procedures and standards for strain characterization	M36		

In the previous months, WP2 participants collected and shared protocols for strain isolation and preservation, a template for MIRRI protocols has been proposed and a common MIRRI protocol for yeast and fungi isolation was produced.

It was decided to run a survey to collect the required information for milestone M2.2 and obtain additional information on approaches used by the [IS_MIRRI21](#) consortium for strain's taxonomic characterization. The survey was designed to: (1) collect information about the procedures and methods currently applied for identification of microbial resources and taxonomic characterization; (2) identify new trends and developments in the field; and (3) highlight willingness of taxonomy experts to share protocols and methods. The survey document was submitted to the members of the taxonomy expert cluster (identified in WP3) and to additional taxonomy experts that are third parties of the [IS_MIRRI21](#) consortium. Thirty-five replies were collected from 26 different institutions located in 9 different countries. The collected information covered multiple microbial groups, specifically bacteria, yeasts, filamentous fungi, archaea, cyanobacteria, and microalgae. Besides the list of procedures and standards for taxonomic strain characterization (milestone M2.2), the survey provided: 1) information regarding polyphasic approaches and their frequency of application for different microbial groups, 2) an estimation of the expertise within MIRRI in new species description; 3) an estimation of the expertise within [IS_MIRRI21](#) consortium in whole genome-based population biology and taxonomies for strains belonging to the same species; 4) identification of new approaches and cutting edge technologies that [IS_MIRRI21](#) project partners wish to apply for the characterization of microbial resources.

The work on Deliverable D2.2 "MIRRI common procedures and standards for strain characterization" is ongoing. An organization of the task was decided during the monthly meetings (constitution of working groups, protocol collection and synthesis) and the participants continue to contact experts and collect protocols to carry on with the work achieved during the first year of the project.

A two-day webinar was organized to promote scientific discussion on new approaches and cutting-edge technologies for strain characterization and took place on the 18th and 19th of November 2021. This webinar, entitled Microbial Resources for a Green, Healthy and Sustainable Future, reached a wide audience as 314 people from 42 countries registered (88% being from public infrastructures and 7% from private companies and organizations). During the first day of the webinar, MIRRI strategic areas were presented together with research success stories from MIRRI collaborators and partners highlighting the capacity of [IS_MIRRI21](#) consortium to contribute to the research and development of specific strategic areas of MIRRI strategic agenda (16 presentations). Furthermore, different financing opportunities and possibilities for future MIRRI applications to European, national, and regional calls were presented (3 presentations). The number of registered people for the first day of the webinar was 275, with 64% average attendance rate. The main aim of the second webinar day, entitled Cutting-edge technologies for 2030 microbial Culture Collections, was to promote scientific discussion on new approaches and cutting-edge technologies for strain characterization, prepare and promote their use in MIRRI in the years to come. Specifically, the 11 presentations focused on: i) Microbiome conservation and characterization; ii) Genome sequencing, phylogenomics and associated data analysis and sharing; iii) MALDI-TOF; iv) Culturomics. The registered people for the second day of the webinar were 281 with 60% attendance rate. The associated discussions and exchanges paved the way for possible collaborations among MIRRI partners and beyond.

Task 2.2 Interactions with other BMS-RIs

(Led by UMinho-MUM; participation of INRAE, IP, KNAW, UNITO)

With its broad spectrum of microbial resources, expertise, and research-oriented services, MIRRI has the potential to gain an established position in the RI landscape. Several interactions with other RIs can be envisaged in the future. Task 2.2 aims at improving such interactions in order to position MIRRI in the large network of the RI Health & Food domain, as well as in the interface with other domains - e.g., Environment.

During the writing of the SRIA, MIRRI's alignment with other ESFRI RIs (in the Health & Food and the Environment domains) and with Horizon Europe program was assessed for key strategic areas in research and development. The results of this analysis were displayed in specific tables corresponding to each identified MIRRI strategic area. The identified alignments will be used to plan future interactions with other BMS RIs and for common projects. Since its construction phase, MIRRI has already interacted, through some of its partners, with several BMS RIs identified in the SRIA. [IS_MIRRI21](#) has been represented in the H2020 projects CORBEL, EMBRIC and RItrain. MIRRI is also a partner with 12 other Health & Food/Life Sciences RIs of the H2020 projects RI-VIS (kick-off February 2019) and EOSC-Life (kick-off March 2019). This last project has a central role

in fostering interactions with the different BMS RIs through the sharing of data and workflows, under the use of FAIR data schemes, for the development of CWE in WP6. Through WP2 activities, MIRRI is participating in the RI-VIS project whose aim is to increase the visibility of research infrastructures to new communities in Europe and beyond. IS_MIRRI21 partners actively participated to the RI-VIS organized events. In the framework of the RI-VIS Latin America - Europe Symposium on Research Infrastructures, IS_MIRRI21/MIRRI held, also under the WP7 activities, a virtual booth and organized two side-events:

1. On 15 June 2021, the webinar entitled 'MIRRI Membership: Boosting research and innovation in Health, Agro-food, Environment and Energy' was held. The aim of this event was to present information about MIRRI's membership and funding opportunities for collaboration.
2. On 17 June 2021, the workshop entitled 'International collaboration with MIRRI through new opportunities from the Horizon Europe programme' was held. The aim of this event was to present MIRRI's Strategic R&I agenda for 2021-2030 and funding opportunities in the Horizon Europe programme in line with the domains of MIRRI.

Through the IS_MIRRI21 project, MIRRI has so far interacted with ESFRI and the Health & Food Strategy Working Group, giving its contributions for the landscape analysis on future health challenges and food challenges, which resulted in MIRRI successfully becoming a landmark in the new ESFRI Roadmap 2021 on the 7 December 2021.

MIRRI has been actively involved in the Life Science RI Strategy Board, by participating in regular meetings and collaborating in the preparation of position papers and other documents related to, e.g., the integration and interconnection of RIs, and strategic planning and support to policy making for the European RI ecosystem. Also, conversations were established to potentially set up an alliance between RIs related to biobanking of biological resources.

Since the launch of the new framework program Horizon Europe, MIRRI has actively participated through some of its partners in the preparation of joint applications, together with other RIs, to the HORIZON-INFRA-2021-EMERGENCY-01 and HORIZON-INFRA-2021-EMERGENCY-02 calls. Both applications have been short-listed for funding the projects BY-COVID and ISIDORE, coordinated by ELIXIR and ERINHA, respectively. Through its partners, MIRRI is also participating in the preparation of two other joint applications to new Horizon Europe calls - namely, HORIZON-INFRA-2021-SERV-01-01 and HORIZON-INFRA-2021-SERV-01-02. The former one, was already submitted and, among 19 partners, MIRRI was involved and represented by UMinho. BBMRI-ERIC, EURO-BIOIMAGING ERIC, EMBL, EU-OPENSREEN ERIC, INSTRUCT-ERIC, INFRAFRONTIER GmbH, EMBRC and EATRIS ERIC among others are also involved. We

work together to prepare the proposal to provide cutting edge cancer research services across Europe. Remarkably, AgroServ and canSERV were approved in January 2022. Recently, in collaboration with other RIs, a proposal was prepared for the call HORIZON-INFRA-2022-TECH-01, “Next generation of scientific instrumentation, tools and methods”. This project is promising and envisions to contribute to enhance the scientific competitiveness of European research infrastructures, the development of innovative companies and advanced technologies for RIs, and the integration of research infrastructures into local, regional, and global innovation systems and new markets.

Task 2.3 Development of workflows

(Led by UVEG-CECT; participation of CCG, NKUA, IP, UL-MSCL, KNAW, INRAE, BELSPO)
 Task 2.3 includes the activities required to attain objective 4 and is aimed at developing workflows and pipelines of services to support research and innovation developments. MIRRI partners offer a broad portfolio of services and a high level of knowledge and expertise in different microbial groups, with a great diversity of applications. The interconnection of these services in pipelines has the potential to propel knowledge to the highest level, offering researchers a synergistic value that enables to mature the research experience.

For task 2.3 one milestone and one deliverable were scheduled in the project proposal and their description can be found in Table 4.

Table 4 – Milestones and deliverables planned for Task 2.3

Action type	Description	Due Date	Achieved	Date
MS4	First draft of the MIRRI service workflows required for WP4	M12	Yes	21/09/2021 22/09/2021
D2.3	MIRRI workflows	M36	Ongoing	2023

As a first step in the integration of the different services proposed by members of MIRRI, WP2 activities were carried out in connection with those of WP4. The first activity planned for task 2.3 was to elaborate workflows for Transnational Access (TNA) program of WP4. These workflows represent a proof of concept of the MIRRI services and pipelines organization and management.

For the TNA call scheduled at the end of the first year of the project, 5 different workflows were elaborated by the UVEG-CECT team in summer 2020 interconnecting services of the current TNAs, to offer a research experience that would enhance the knowledge in a specific area (food, health, biodiversity, bioindustry) or microbial group (archaea, bacteria, cyanobacteria, microalgae, fungi). The proposed workflows were presented by UVEG-CECT team at the workshop "Transnational Access Programme:

guidelines and procedures" held on September 21-22, 2020, and organized by IP, co-coordinator of the TNA. Three of the developed workflows were offered in the first TNA call.

In the framework of the SRIA, UVEG-CECT, IP and INRAE teams collaborated with MIRRI CCU on the definition of the list of MIRRI application-specific and integrated services. This list is available at page 38 and 39 of the SRIA.

Another complementary activity carried out by UVEG-CECT with the help of IP and INRAE is the development of a service catalogue that includes single services and integrated ones. The catalogue is formed by two different sections: a public section that displays information that might be of interest for the users (e.g., methods and technologies adopted by MIRRI partners to provide the specific service), and a non-public part of the catalogue aimed at collecting information required for the logistic and management of services. This section is particularly important for the provision of integrated services that will be managed internally, enabling the users to benefit of a one-stop shop approach.

Workflow and pipeline development, in cooperation with WP4, is ongoing. This activity started with the beginning of the [IS_MIRRI21](#) project and is in continuous development to deliver the best solutions for already designed integrated services. In parallel, it organizes the work to be able to deliver integrated services tailored on the user's requests.

In the last semester, WP2 team focused on the design of workflows and configuration of MIRRI services, particularly on the list of individual services provided by MIRRI partners that has been deeply revised and updated (see in the sections below for more details). From these activities it has been concluded that workflows should be flexible and adapted to users' requests.

As task leader, UVEG-CECT is compiling details about each specific service provided by each partner (price, conditions, etc.). This information will be kept in two different sections: a public section that displays information that might be of interest for the users (e.g., methods and technologies adopted by MIRRI partners to provide the specific service), and a non-public part of the catalogue aimed at collecting information required for the logistic and management of services. This section is particularly important for the provision of integrated services that will be managed internally, enabling the users to benefit of a one-stop shop approach. The service catalogue will be implemented as a searchable database by WP6 including the compiled information.

WP2 Partners' contribution to the tasks

Beyond the contributions to the approved RP1 (M1-M18) report, partners continued to contribute to WP2 tasks and activities in the fourth semester (M19-M24) as detailed below:

INRAE

Task 2.1: INRAE organized and animated the WP2 monthly meetings facilitating knowledge exchange and promoting the involvement of WP2 participants. INRAE coordinated the organization of a two-day webinar *Microbial resources for a Green, Healthy and Sustainable future & Cutting-edge technology for 2030 microbial Culture Collections*. INRAE is organizing the collection and analyse of protocols for strain characterization for the implementation of Deliverable 2.2 MIRRI common procedures and standards for strain characterization.

Task 2.2: INRAE with BCCM/MUCL will co-represent MIRRI in the AgroServ project (Call: HORIZON-INFRA-2021-SERV-01) which gathers 11 European Infrastructures for the development of integrated inter-RI services for the agroecological transition in Europe.

UMinho-MUM:

UMinho contributed to Task 2.1B participating in the event through setting up the agenda, promotion, dissemination, and communication of the webinar "Cutting-edge technologies for 2030 microbial Culture Collections", about the future ahead, including possible collaborations under topics such as microbiota conservation and characterization, MALDI-TOF, and genomics.

Under **Task 2.2**, UMinho has been involved in various collaborative projects with other RIs, namely: EOOSC-Life, RI-VIS, BY-COVID, ISIDORE, AgroServ, canSERV (the two latter ones have been approved in January 2022). Supporting the partner organisations that are representing MIRRI in the several consortia, helping with different tasks, at different stages, depending on the projects.

UMinho helped to prepare a proposal, in collaboration with other RIs, to the call HORIZON-INFRA-2022-TECH-01, *"Next generation of scientific instrumentation, tools and methods"*. This project is promising and envisions to contribute to enhanced scientific competitiveness of European research infrastructures, the development of innovative companies and advanced technologies for RIs, and the integration of research infrastructures into local, regional, and global innovation systems and new markets.

UMinho also took part of several LifeScience RI Strategy Board regular meetings and collaborated in the preparation of position papers and other documents related to e.g., the integration and interconnection of RIs, and strategic planning and support to policy making for the European RI ecosystem. Finally, UMinho has established conversations to potentially set up an alliance between RIs related to biobanking of biological resources.

UVEG-CECT:

CECT team attends and participates in WP2 meetings and tasks.

Task 2.1. In the last 6 months, and within the activities of this task, Rosa Aznar, CECT director, participated as a speaker in the webinar during the first day session entitled: *Microbial Resources for a Green, Healthy and Sustainable Future*, exposing the Strategic Area 3: *Research & Development of new, safe, healthy, and sustainable food and feed products*

Task 2.3. CECT team, as leader of this task, has participated actively from the early stages of the project in the design of workflows and configuration of MIRRI services (mainly, with the collaboration of INRAE and IP). During the last 6 months, CECT team has focused on the list of individual services provided by MIRRI partners, that has been deeply revised and updated. This task was led by UVEG-CECT but was developed with the contributions of all MIRRI partners. The final list was approved by INCF and released to CCG for the implementation as a searchable database and publication in the MIRRI CWE. Currently, information about the internal management of individual services (i.e., contact person, price, equipment, etc.) has been requested to partners. This information will be kept confidential only for the use of the Access Officer. In parallel, the list of application-specific and dedicated services and workflows is being also reviewed. The list of workflows is a major concern as it is considered one of the most attractive values for MIRRI users. First proposals have been worked out based on the TNA offer. However, derived from the requests of TNA applicants, a more flexible scheme than a “list of workflows” should be considered for the Deliverable 2.3.

IP:

IP participated to all the WP2 monthly meetings of the fourth semester.

Task 2.1: IP gave two presentations during the first day of the webinar “*Microbial Resources for a Green, Healthy and Sustainable Future*”: Sylvain Brisse presented the Strategic Area 1 of MIRRI strategic agenda “Research on pathogenic microorganisms and human / human-animal infectious diseases”; and Raquel Hurtado-Ortiz presented the European project ISIDORE, where IP is one of the partners representing MIRRI. During the second day of the webinar, Sylvain Brisse and Federica Palma gave two presentations on MALDI-TOF and genomic libraries for analysis of strain biodiversity, respectively.

Task 2.2: Raquel Hurtado-Ortiz (IP) represented MIRRI in several activities of RI-VIS and ISIDORE projects:

- Participation in the Australia - Europe Symposium on Research Infrastructures, from 5 to 7 October 2021, organized by the RI-VIS project.
- Participation in the working group on the RI-VIS Sustainability Plan, November 2021.
- Presentation of the ISIDORE project during the Webinar “Microbial resources for a green, healthy and sustainable future”, organised by [IS_MIRRI21](#), 18 November 2021.

- Participation in the RI-VIS final meeting, 17 January 2022.

Task 2.3: IP contributed actively to the MIRRI services and workflows development, not only in the frame of WP2 but also for the 2nd call of the TNA pilot (WP4). IP also worked internally for a better definition of the CRBIP-IP services and pricing for the contribution to the MIRRI catalogue.

NKUA

During the 4th semester NKUA participated in all the WP2 monthly meetings. Paris Laskaris made a 15-minute presentation entitled "*Resources and methods for biological management of soils and crops*" during the webinar entitled "*Microbial Resources for a Green, Healthy and Sustainable Future*". In addition, protocols for the isolation of DNA from bacteria and the amplification of 16S sequences were prepared and shared with MIRRI.

KNAW-WI

KNAW-WI participated in various meetings and tasks.

Task 2.1: KNAW-WI contributed to webinar "*MIRRI contribution to a green, healthy and sustainable future*" (18 November 2021), where Gerard Verkley gave an introduction to SRIA area 7 (Rescuing and preserving microbial biodiversity), and Ronald de Vries to area 6 "Bioconversion of lignin derived aromatics compounds into platform chemicals". Vincent Robert contributed to the webinar "*Cutting-edge technologies for 2030 microbial culture collections*" (19 November 2021), where he gave a presentation on MALDI-TOF.

Task 2.3: KNAW-WI provided information on general services, and detailed services for the MIRRI services catalogue.

CCG:

Task 2.1: CCG has participated and accompanied the meetings and discussions, in particular the monthly meetings. As a technological partner, CCG's participation for the meetings aimed at acquiring as much information as possible on the actions performed under this task, and, wherever applicable, contribute for the discussions with technical opinions on what regards the implementation in the CWE MIRRI platform. Examples of contributions on this task are [the sections included in MIRRI CWE portal](#) for workshops promotion, their respective information and links.

Task 2.3: CCG has accompanied and participated in discussion meetings with the partners on the catalogue of services, aiming at being more informed and refining the requirements for catalogue of services inclusion/publication in MIRRI CWE. From the technical point of view, CCG has investigated and tested several solutions for Catalogue of Services exposure in CWE, which have been presented and discussed with the partners. CCG is now in the process of implementing the technical solution in the context of WP6.

UNITO, including Third-Parties USMI/IRCCS, UMCC/ UNIMORE, ITEM/CNR and DBVPG:

UNITO and its Third Parties actively participated to the periodic meetings. UNITO presented at the 2-days webinar “*Microbial resources for a Green, Healthy and Sustainable future & Cutting-edge technology for 2030 microbial Culture Collections*”. Besides, protocols for the isolation of filamentous fungi, yeasts and bacteria from different substrates (soil, foods, air, etc.) were drawn and shared among the partners.

UL-MSCL: During the reporting period UL-MSCL participated in the WP2 meetings and UL-MSCL representatives (n = 2) participated as listeners in the webinar “*Microbial resources for a Green, Healthy and Sustainable future*”. Educational seminar on the possible use of Bioreactors in the production of microbiological plant fertilizers with the participation of Ltd “Bioefekts” representatives was organized by UL-MSCL together with the scientists from Institute Microbiology and biotechnology UL (25 January 2022). Plant tissue culture’s sterility testing protocol for internal (University of Latvia) use was elaborated.

BELSPO, including Third Parties BCCM/IHEM, BCCM/MUCL and BCCM/ULC

BCCM/ULC team attended and participated in WP2 meetings and tasks. ULC was the intermediate between CECT and the 7 collections of the BCCM consortium (BELSPO) for the definition of services (Task 2.3) as well as for the common MIRRI procedures and standards to strain characterization (D2.2). In this context, it also proposed to be a working group facilitator for Cyanobacteria. BCCM/ULC helped with the contact of Prof. Sarah Lebeer at the University of Antwerp who was invited to give a talk “Implementation of genomics for the characterization of *Lactobacillus* diversity and taxonomy” at the webinar “*Microbial resources for a Green, Healthy and Sustainable future*”. BCCM/ULC also contacted Anneleen Wieme (BCCM/LMG) to give a talk titled “MALDI-TOF MS, an identification tool used in QC and culturomics projects” during this webinar. BCCM/ULC shared the information about the webinar to a large panel of Belgian microbiologists.

Concerning task 2.2 “Interactions with other BMS-RIs”, BELSPO has represented MIRRI in RI-VIS. The RI-VIS project ended on 31 January 2022. BELSPO has invited representatives of the MIRRI CCU to the final project meeting, so that results of RI-VIS can be further used to the benefit of MIRRI.

BELSPO has contributed to the conversations, established by UMinho, to potentially set up an alliance between RIs related to biobanking of biological resources.

BCCM/MUCL has contributed to the development of the AgroServ project and will represent MIRRI in this project.

2.2.1 WP2 Tasks: Delays/Problems and Corrective Actions (M19-M24)

INRAE had to face some delays related to the departure of the MIRRI project officer (Giulia Cheloni) in August 2021 and the time needed for the recruitment of a new one (Marta Avramova) in November 2021. This resulted in a delay in the work on Deliverable 2.2, but it is expected that the delay will be compensated during the year 2022 as this deliverable is due on M36.

2.3. WP3 Activities “Central governance & Operations”

Led by UMinho-MUM, the WP3 is expected to establish the central governance and operational procedures of MIRRI to be functioning as an ERIC legal entity characterized as distributed, but centrally coordinated, pan-European Research Infrastructure. MIRRI will be governed by the provisions stated in the MIRRI-ERIC Statutes, which sets out the principles for the governance and management of MIRRI-ERIC and its services, activities, and operations, and the Technical and Scientific Description (TSD), which describes the principal tasks and the economic activities that will be carried out by the RI. WP3 is organized in three tasks, and the main achievements are presented in this report. WP3 have worked on several activities and have been organizing three crucial workshops for 2022. The main ongoing tasks are the following:

Task 3.1 - Management & Operational Procedures

Under Task 3.1, the Management Backoffice (MB) was established as described in the Grant Agreement and later amended with an Access officer. At this stage of the project, all predicted members have been hired again after several calls due to the departure of the previous Access officer (IP) and IT Officer (UVEG-CECT). Meanwhile, urgent requests/tasks that would normally be answered/performed by the IT Officer or the Access Officer have been temporarily assumed by other colleagues before the full staffing by UMINHO, IP and UVEG-CECT. After a few setbacks due also to the pandemic situation, the MB is fully operational.

Under [IS_MIRRI21](#), this organization responds reasonably well to the needs of the project, since the MB can be supported by special services and staff from the different partner mBRC (legal advisory services, data protection services, support in public procurement, ...). However, under MIRRI ERIC, the RI – and its Central Coordinating Unit (CCU) – must move to a status of total autonomy and independence, incorporating all the skills and expertise necessary for the management of the RI. As stated in the Statutes, the Assembly of Members shall be the decision-making body of MIRRI-ERIC. It shall decide the long-term strategy, governance, and development of MIRRI-ERIC. Those decisions shall be implemented by the Executive Director, assisted by the staff of the CCU (article 17). The discussion started within the project coordination and the [IS_MIRRI21](#) Director and will now open to all beneficiaries.

The partner BELSPO (including Third Parties BCCM/IHEM, BCCM/MUCL and BCCM/ULC) has contributed to the activity “prepare tools, including measurement of a series of indicators for different assessments” by coordinating the input of MIRRI partners that was needed for the ESFRI 2020 monitoring exercise. The indicators are listed in the “Technical and Scientific Description of MIRRI-ERIC”, already submitted to the EC on the step-2 to become ERIC.

Concerning the establishment of MIRRI’s Rules of Operation, all procedures and rules consider the MIRRI governance and bodies at decision-making, executive and operative levels, as defined in the MIRRI-ERIC Technical and Scientific Description. These include internal operation procedures translated into actions within the RI, while the external ones will govern the interactions with other stakeholders (e.g., countries, organisations, culture collections, lay citizens, etc.). Under the different [IS_MIRRI21](#) Work Packages, some documents have been prepared, such as Access Policy and Dissemination Policy, but others are still under development (e.g., Procurement Policy and Material Transfer Agreement). However, these documents need the approval of the Assembly of Prospective Members (ApM) before being regarded as final.

A draft document for the Rules of Operation (RoO) is under preparation (following the provisions in the statutes), which will detail the rules and criteria to follow in the implementation, management, and governance of the infrastructure by the future CCU. For the time being, the procedures to be implemented under WP3 are being discussed not only between all beneficiaries, but also with the ApM. From the statutes, and as discussed in a recent ApM meeting, the Rules of Operation should be written and approved by the ApM. Nevertheless, it was agreed that [IS_MIRRI21](#) consortium will draft a version of this RoO, to be submitted to the ApM.

As for the definition of the Key Performance Indicators (KPIs), the ones that were foreseen under ESFRI 2020 were considered, and a tentative list was updated. The KPIs were organized in general objective, divided in topics, and the units of measurement, frequency of measurement and monitoring procedure were defined. The MIRRI dashboard is being prepared to collect, treat, analyse, categorise, monitor, and evaluate these KPIs and other metrics.

Under WP3, the MB has been preparing a draft of the MIRRI work programme for 2022-23 and an outlook for the 2023-26. The MB always participate in other WPs’ meetings and in ApM meetings in order to absorb the different perspectives on future plans. It is also important to acknowledge the interaction with WP9 for the preparation of the business model, financial and business plans.

Regarding the engagement and integration of new members, the MB and particularly the Project Coordinator is acting as a contact point to engage new Members/Observers

and Partner Organizations, supporting WP8 activities. Besides, the MB has assisted on the organization of several events with WP7 and WP8 for the same purpose.

The participation of MIRRI, namely the Executive Director in Life Science Research Infrastructures (LSRI) Strategy Board has made possible the identification of several opportunities for collaboration under the calls to EU grants. The MB participated, identified the interests and the possible partners, and eventually liaise with the coordinators of those calls. The same approach is followed whenever there is a direct contact with the MB from a consortium or an organization preparing a proposal, who in turn acts as a facilitator linking the consortia to the partners.

The MB, particularly the PC and Director, participate in different events and therefore work as contact points with multi-stakeholders. Besides, the Access Officer is the contact point for different users wishing to access MIRRI resources and services. Moreover, the MB has a role to manage other contacts via the email accounts: info (info@mirri.org), access (access@mirri.org), and TNA (tna@mirri.org) and the website contact forms.

In a parallel effort, Rosa Aznar (UVEG-CECT), as chair of the Interim National Coordinators Forum (INCF), organized a meeting with the MIRRI National Nodes representatives to prepare points of discussion for the formal meeting with all MIRRI mBRC directors to be held on the 4th of February. The topics discussed included:

- MIRRI-ERIC terms of service (including sharing of benefits between MIRRI-ERIC and the partner providers)
- MIRRI-ERIC pricing and charging policies
- The Partner Charter and the service level agreement: definition of the minimal provision of services
- Partners overlaps/competition in the provision of services and participation in projects
- MIRRI-ERIC catalogue of strains (how the results are displayed, criteria to be included in the search engine, mandatory/non-mandatory fields, etc.)

The decisions taken during these meetings will be considered to keep developing the Rules of Operation and/or other MIRRI-ERIC operational documents.

Marleen Bosschaerts (BELSPO), as chair of the Assembly of prospective Members (ApM) organised five meetings with the ApM during this reporting period (26/02/2021, 22/03/2021, 21/04/2021, 27/05/2021, and 7/10/2021). During this meeting, some activities related to the creation of MIRRI-ERIC were discussed and prepared (see also under WP8).

Finally, the Access Officer, as MB member, should manage the diverse calls needed, including the TNA calls established on the WP4. A new Access Officer was appointed in October 2021 and a first MB meeting was arranged on 21 October 2021 to introduce Adriana Chiarelli (appointed by IP) to the other members. The new Access Officer coordinated and managed the activities for the launch of the 2nd TNA call. In addition, together with the Director, she coordinated the launch of the Biotech' Business

Mentorship Support (BBMS) programme. The BBMS is intended as a pilot for implementing a tailored mentorship scheme to be provided in the MIRRI Training & Education gate of the Collaborative Working Environment (CWE). Five researchers, who applied to the 1st TNA call, were invited to participate to this programme, with the objective of defining the potential market value of their research projects. The Access Officer, with the contribution of WP4 co-leader UVEG-CECT and approval of MB members, updated the guidelines (for applicants, reviewers, and Liaison officers) and other documents (“Confirmation of access”, “TNA activity report template”) concerning the TNA access, which will support the implementation of solid operational procedures for the upcoming MIRRI infrastructure.

Task 3.2 - Common standards and legal framework (including Biosecurity)

KNAW-WI is the leader of Task 3.2. For Sub-task 3.2.1, two workshops were foreseen under the grant agreement, but due to the current pandemic crisis it was decided to postpone these events to organize them in person. The discussion of common standards among mBRCs, including a new ISO standard, demands a discussion on a face-to-face approach.

The workshop to present and explain the new ISO 20387/2018 standard for biobanks will be preceded by a webinar to introduce the topic and inquire about the most relevant topics of the standard for the target public (i.e., managers of BRCs from within and outside the MIRRI partnership).

The MIRRI partner charter (most recent version of June 2020) refers to several policies and standards. Regarding the quality of the MIRRI offer, it stated the following: *“Commit to implement a quality management system and/or quality assurance procedures following appropriate international standards suitable for the respective offer”*. The work in the [IS_MIRRI21](#) is to examine the feasibility of implementing the ISO 20387 biobank standard by mBRC/culture collections. To this end, a checklist will be produced, and internal audits will be organised at 6 BRCs/culture collections with different quality management systems in place. The selected partners are: BCCM/IHEM (ISO 17025), CECT/BEA (ISO 9001), CRB/IP (NF S96-900), KNAW-WI (ISO 9001), MUM (ISO 9001) and VKM (IBPM- no certified quality management system). A small pool of internal auditors, including potential external experts that have been worked on the ISO Technical Committee 276, has been created. It is important that internal auditors have knowledge on ISO 20387, are familiar with culture collections’ activities and are independent from the audited collection.

BELSPO is working on an internal audit checklist based on the ISO 20387 standard. The selected partners will be invited to complete this checklist prior to the audit itself. In addition, the use of a standardised list will ensure that all auditors perform the audits in the same way to have comparable results.

For Task 3.2.2 (Legal framework), partners involved in this task prepared lists of questions that were compiled for the stakeholders’ interviews on ABS: one for individual professionals from academia or private bodies who are users and/or depositors of strains in public collections, and another one for stakeholder organisations. Interviews were conducted by partners KNAW-WI, UNITO-MUT, IP and CECT in the period November 2020 to January 2021. To assure confidentiality, each partner interviewed its own relations who were anonymized in the completed interview forms. All interviews were conducted by video calls. In total, 33 interviews were done: 13 public bodies, 4 semi-public, 9 private (companies) and 7 (inter)national organisations. Analysis of the results was nearly finished by the end of this reporting period and will serve as input for the planned Workshops (Table 5). For workshop 3 (Task 3.2.2 – Legal framework), the analysis of the abovementioned Stakeholder interviews on ABS was completed WI-KNAW, CECT and UNITO-MUT, and will be used as input for the discussion on stakeholders needs with reference to ABS compliance, that will be part of the programme of the Workshop on progress of implementing ABS in mBRCs. Further preparations for this workshop were made.

As the sanitary conditions have improved, but not yet normalized, for Task 3.2 it was decided to hold three of the workshops back-to back, half day each (Table 5). These workshops will take place in Louvain-la-Neuve, Belgium, on 22 and 23 June, and registration will open in March. A fourth workshop (task 3.1.1) will take place later this year.

Table 5 – List of workshops, and corresponding dates, subtasks, and deliverables

Workshop	Designation	Date	subtask	
1	Present & explain the new ISO 20387:2018 standard for biobanks	23.June.2022	3.2.1	
2	A general workshop on quality management (QM) and the challenge of implementing QM under given available capacity and budgets of the individual partner mBRCs, while reaching appropriate levels of harmonization.	Possible in late 2022 (Dec. 2022)	3.2.1	D3.4
3	IS_MIRRI21 partner mBRCs now have several years of experience with ABS and a workshop is planned to share these experiences and address the issues for mBRCs under current ABS regimes not only within the EU but also in regions elsewhere	22.June.2022	3.2.2	D3.5

4	A workshop with the IS_MIRRI21 mBRCs and international experts will be organised to discuss approaches for determining biosecurity risk levels (profiles) for risk assessment with relevance to the risk prevention in the different mBRCs	23.June.2022	3.2.3	D3.6
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The aims of the workshop on the progress of implementing ABS in mBRCs is: (i) to discuss issues that are common to the various MIRRI stakeholders as concluded from the stakeholder interviews conducted under T3.2; (ii) to share experiences with implementation of ABS in the mBRCs with the MIRRI best practice for ABS and other available guidelines and tools; and (iii) to discuss possible common solutions to deal appropriately with demanding national ABS legislation in provider countries. The results of the WS will provide the necessary input for D3.5 (Report on the effect of implementing the MIRRI Policy and Best Practice on ABS on trust and use of mBRCs services by stakeholders), that will be answering the question on feasibility for MIRRI partners to adhere to the MIRRI partner charter specific principles (1) on the Convention on Biological Diversity (CBD), the Nagoya Protocol and subsequent regional and national laws, and adopting the related MIRRI Policy.

The goals of the workshop on biorisk management are (i) to discuss approaches for determining biosecurity risk levels (profiles) for risk assessment with relevance to Biosecurity risk prevention in the different mBRCs, and (ii) to discuss key-elements and challenges for implementing Biorisk management, awareness-raising and continuous improvement thereof. In this way, the Key elements of the MIRRI Policy on biorisk assessment and biosecurity measures in mBRCs and their feasibility will be appropriately addressed, including element III, viz. “Work in collaboration with MIRRI- and external partners towards developing and implementing protocols for adequate biosecurity risk assessment of holdings and normative compliance in MIRRI-mBRCs”.

For Task 3.2.3 (Biosecurity), experts in different aspects of Biosecurity from diverse fields were contacted to inquire if they were willing to act as Biosecurity experts in the MIRRI Biosecurity expert cluster. From the contacted people an initial Biosecurity expert cluster, comprising of eight experts, was established. This group includes MIRRI partners (five experts, Table 6) as well as external experts (three experts, Table 7). Their main task will be to advise staff of MIRRI mBRCs and MIRRI users (through the Expert Cluster - Gate to Collaboration) on issues such as Biorisk management and Bioethics developments associated with Biosecurity, and to give input in the guidance document on Biosecurity for the MIRRI mBRCs. They will discuss approaches for determining biosecurity risk levels (profiles) for risk assessment with relevance to Biosecurity risk

prevention in the different mBRCs and key-elements and challenges for implementing Biorisk management, awareness-raising and continuous improvement by also sharing experiences thereof.

Table 6 – List of experts in the Internal Biosecurity Expert Cluster

Internal experts	Country	Collection/Institute
Aurora Zuzuarregui	Spain	UVEG-CECT
Perrine Portier	France	INRAE
Maribeth Groenewald	Netherlands	WI-KNAW
Giovanna Cristina Varese	Italy	UNITO (MUT)
Leen Rigouts	Belgium	BCCM/ITM collection

Table 7 – List of experts in the External Biosecurity Expert Cluster

External experts	Country	Collection/Institute
Maurice Bardsley	UK	EVAg
Tatyana Novossiolova	Bulgaria	Centre for the Study of Democracy (CSD)
Matteo Lendner	Italy	Organic products inspection department (ANSM)

Task 3.3 - Implement a MIRRI Cluster on Legal Framework

The objective of this task is to start running the MIRRI Clusters of expertise as a way of connecting leading scientists and professionals in different aspects related with the use of microbial resources. Most efforts have been made to implement the Cluster on Legal Framework, including different subclusters (Budapest Treaty, MTA & MDA, Nagoya Protocol & ABS, Biosafety & Biosecurity), but we are making progress on other areas. As an example, Luis Soares invited MIRRI partners to send an expression of interest to participate in the evaluation panel for the first Call of the European Biodiversity Partnership on Supporting the protection of biodiversity and ecosystems across land and sea. Several partners responded to the call.

During this term, we collected commitment from different partners to moderate the cluster on Legal issues on a rotatory basis until the end of the [IS_MIRRI21](#) project.

The Clusters have two main objectives, to share and generate knowledge by means of a public forum (open to registered users) and to provide consultancy by means of bilateral discussions (fee dependent service).

The software supporting the public forum has been developed by CCG and the fields to register a new account agreed. For the registration, users will be requested to accept the “Terms of use” of the MIRRI CWE. These terms have been drafted and they will be approved during the next term, which will allow to start operating the forum for the public at least for the Legal Cluster, for which we already have commitments to moderate.

During the reporting period, CCG continued to participate to the WP3 regular meetings, further to the parallel collaborative interactions with the partners, especially in the context of the Task 3.3. The main aim was to follow and participate to the tasks of MIRRI cluster implementation as it is directly linked to its implementation in the Expert cluster module in MIRRI Collaborative Working Environment (CWE). The module of software in CWE responsible for managing and providing access to the Expert Clusters already supports the implementation of the Legal Framework Cluster, as well as all the other clusters to be or already established in MIRRI.

Furthermore, besides the active contribution for the CWE implementation, CCG aimed at getting more informed about the steps and plans towards the central governance and operations of MIRRI. In the context of Task 3.2 the matters related to biorisk and biosecurity may be relevant for CWE’s functionalities implementation, requiring for CCG a deeper understanding and knowledge. Also, the inclusion of information in CWE and support to the realization of the workshop may have some active contribution from CCG, implying a constant accompaniment and participation for the [IS_MIRRI21](#) partners discussions and decisions in the context of WP3.

2.3.1. WP3 Tasks: Delays/Problems and Corrective Actions (M19-M24)

BELSPO

BELSPO has been confronted by several staff departures, which have caused internal reorganisations and shifts in responsibilities and tasks. Vincent Van de Perre, the quality manager of the BCCM-consortium at BELSPO and expert on ISO 20387, must ensure the coordination of all activities of the coordination cell in addition to his normal tasks. On the other hand, the quality responsible of the BCCM-collections is absent due to illness for a long period, adding to the number of tasks for Vincent. This has caused delay in the use of PM for WP3.

As corrective action, it was explored whether other ISO 20387 experts could be involved in this WP (as outsourcing). In addition, other internal solutions were sought to reinforce

the BCCM team. However, Vincent’s expertise on ISO 20387 is indispensable for the organisation of the workshops and internal audits.

Due to the rescheduling of all the workshops foreseen under WP3 (Table 8), the corresponding deliverables D3.4, D3.5, and D3.6 were also postponed and will be presented after the workshops.

Table 8 – WP3 Workshops

Action type	Description	Due Date	New date
D3.2	Report on progress of the deployment of CCU organisational structure and its interaction with infrastructure	M24	M30
D3.4	Report on the feasibility of the implementation of ISO 20387 in MIRRI partner mBRCs	M24	TBD
D3.5	Report on the effect of implementing the MIRRI Policy and Best Practice on ABS on trust and use of mBRC services by stakeholders	M20	M30
D3.6	Guidance document on implementing Biorisk management in MIRRI mBRCs	M12	M30

2.4. WP4 Activities “Transnational access to IS_MIRRI21”

IP and UVEG-CECT co-lead the WP4 “Transnational access (TNA) to IS_MIRRI21”. Its main mission is to develop and coordinate a TNA pilot that promotes transnational cooperation among different members, external users, and the mobility of researchers. In addition to the deliverables and milestones (Table 9), WP4 has three main tasks related to the development and implementation of the TNA programme for the IS_MIRRI21 project. The outcomes of this WP activities will allow to test the interest of users to apply for funded access to products, services and facilities proposed in the TNA catalogue, the relevance of integrating services into pipelines (called TNA workflows), the access platform and finally, the access procedure from the reception of request until the delivery of access.

Table 9 – WP4 Deliverables & Milestones

Action type	Description	Due Date	Status	Date
D4.1	Launch of the 1 st TNA call	M12	achieved	06/03/2021
D4.2	Launch of the 2 nd TNA call	M24	achieved	01/02/2022
D4.3	Report on the technical and scientific achievements of the TNA, including a summary of the applications, and the activities that were chosen for access	M36	Pending	Due January 2023
MS11	Appointment of Access Officer	M3	Achieved	01/06/2020
MS12	Appointment of USP	M10	Achieved, in the context of the D4.1. Recruitment of new USP members is needed for the D4.2.	30/11/2020
MS13	TNA platform on MIRRI CWE available to launch the Call	M12	Achieved on IS_MIRRI21 website Achieved on MIRRI website	01/04/2021 14/01/2022
MS14	Evaluation of feedback from 1 st TNA call	M12	Achieved	31/05/2021
MS15	Evaluation of feedback from 2 nd TNA call	M30	Pending	Due August 2023

Task 4.1. Management of the TNA programme

(Led by UVEG-CECT and IP; participation of UMinho-MUM, INRAE, ULPGC-BEA, KNAW, BELSPO, IAFB, UL-MSCL, NKUA, UNITO, SPI, IBPM RAS); duration: M01-M36.

The TNA programme is coordinated by the Access Officer. The targeted users for the IS_MIRRI21 TNA programme are worldwide scientists from research organisations and companies (in the fields of Health & Food, Agro-Food, and Environment & Energy).

The Access Officer is the main contact person for users and Liaison officers to discuss details about the TNA application, access to the facilities, reporting and reimbursement processes.

Task 4.2. Delivery of access

(Led by IP and UVEG-CECT; participation of UMinho-MUM, INRAE, ULPGC, KNAW, BELSPO, IAFB, UL-MSCL, UOA, UNITO, IBPM RAS); duration: M01-M36.

This task is developed closely with the Liaison officers, who are the contact persons for each partner participating in the TNA programme, in the context of the two TNA calls. The Liaison officers estimate the technical feasibility of the projects submitted during the two TNA calls before the scientific evaluation made by the USP. The USP panel evaluates the scientific quality of the proposals and select projects to be awarded. The access provided is free of charge for the end-user and includes the shipment costs.

Transnational access to the first four awardees of the 1st TNA call was expected to be delivered between September and November 2021.

Task 4.3. Assessment and review of transnational access

(Led by BELSPO; participation of UMinho-MUM, SPI, UVEG-CECT, INRAE, IP, ULPGC, KNAW, IAFB, UL_MSCL, NKUA, UNITO); duration: M01-M36.

The aim of this task is to gather TNA users to present outcomes and share experiences of their access to Liaison officers, members of the USP and the general coordination of MIRRI and the [IS_MIRRI21](#) project. The TNA experience feedback will be gathered from users, access providers and reviewers through questionnaires - TNA feedback survey and European Commission (EC) questionnaire, at the end of each TNA access. This information will be valuable for implementation of improvements of MIRRI's TNA programme. In addition, two symposia will be organized by BELSPO, after the completion of the 1st and 2nd TNA calls, respectively. BELSPO will gather EC questionnaires of users and include them in the discussions of these symposia.

Description of the work on each one of the tasks proposed for the WP4

Task 4.1. Management of the TNA programme. The following activities have been performed during the fourth semester of the [IS_MIRRI21](#) project:

- **Appointment of the new Access officer (October 2021).** Aurora Zuzuarregui (AZ) from UVEG-CECT acted as Access officer from August to October 2021, while IP was recruiting the new person in charge of this position. During this time, she managed several requests from users during this 4th semester.

The new Access officer for the [IS_MIRRI21](#) TNA programme was appointed in October 2021. Adriana Chiarelli, PhD in microbiology, was recruited to work as Access officer of the [IS_MIRRI21](#) TNA programme until the end of the [IS_MIRRI21](#) programme at the Centre de Ressources Biologiques de l'Institut Pasteur - CRBIP in Paris. Mariana Ferrari (MF) from IP has been supporting the new Access officer in the first phase after the recruitment. A meeting with the former Access officer Liliana Avila Ospina was also organized to inform Adriana Chiarelli about the ongoing activities and tasks of WP4, as well as defining the priorities for the next months. AZ also trained Adriana Chiarelli about the access operational procedures at her arrival. Currently, AZ serves as a replacement of the Access Officer position when Adriana Chiarelli is not available.

- **Coordination of WP4 activities and decision making by organization of two WP4 meetings (4 November and 14 December 2021).** WP4 collective work was fostered through two virtual meetings. These meetings served for discussion around the output of D4.1 – 1st TNA call (e.g., number of applications, country of applicants and their previous knowledge of RIs, scientific domains of the project proposals), planning and decision making regarding D4.2 - 2nd TNA call. A new timeline including

the activities for the preparation and implementation of the 2nd TNA call was defined (Figure 3).

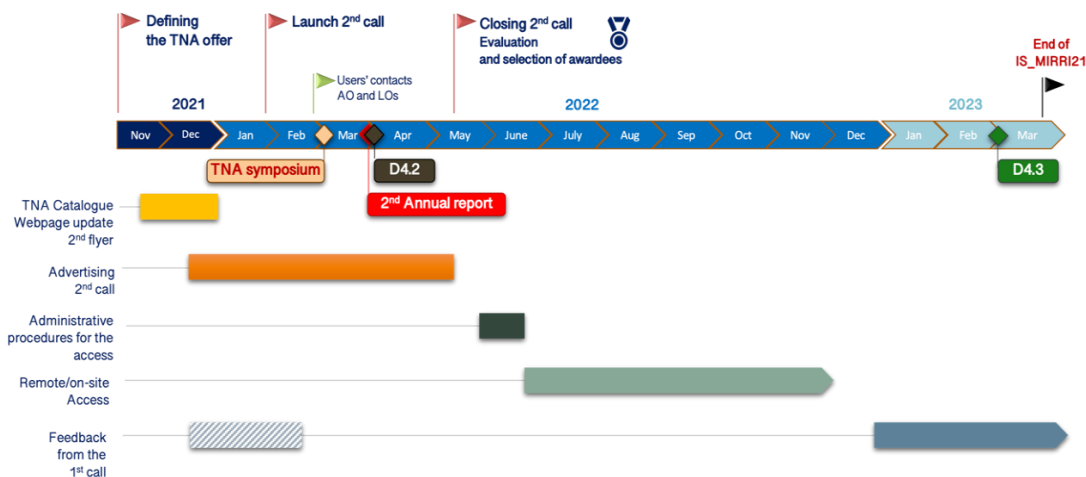


Figure 3 – Updated TNA timeline. Activities for the preparation and implementation of the 2nd TNA call.

- **Adaptation of the TNA offer for the 2nd TNA call to users’ needs.** Due to the limited number of applications (10) submitted during the 1st TNA call, it was decided to adapt the offer to better fit the needs of the potential users. Based on the feedback from users that applied to the 1st call, which notably describes their expectations, five providers modified their TNA offers and the description (including the provision of new pictures) was thus adapted for the new TNA catalogue (Table 10).

Table 10 – TNA offer for the 2nd TNA call 2022

Type	Access Provider	Infrastructure	TNA Offer	Country
FACILITY	Netherlands Academy of Arts and Sciences-Centraalbureau voor Schimmelcultures - KNAW	Westerdijk fungal biodiversity institute - CBS	Heterologous expression of silent fungal gene clusters	Netherlands
	BELSPO_BCCM	Agro-food & Environmental Fungal Collection - MUCL	<i>In vitro</i> culture of arbuscular mycorrhizal fungi	Belgium
		Fungi Collection: Human & Animal Health - IHEM	Pathogenic fungi: preservation, MALDI-TOF MS & medical importance of dermatophytes	Belgium
		Cyanobacteria Collection - ULC	A pathway from the isolation of cyanobacteria, over their cultivation and preservation, to their characterization	Belgium
	Universitat de València – UVEG	Spanish Type Culture Collection - CECT	Microbial preservation methods and quality control procedures	Spain
	Università degli Studi di Torino - UT	Mycotheca Universitatis Taurinensis - MUT	Identification of fungi in pure culture	Italy
PRODUCT	BELSPO_BCCM	Agro-food & Environmental Fungal Collection - MUCL	Arbuscular mycorrhizal fungi strains produced in vitro	Belgium
	Universitat de València – UVEG	Spanish Type Culture Collection - CECT	Archaea, bacteria, yeast, and filamentous fungi from the UVEG-CECT public catalogue	Spain
	Institute of Biochemistry and Physiology of Microorganisms,	All Russian Collection of Microorganisms - VKM	Microbial strains from extreme Russian environments	Russia

	Russian Academy of Sciences – IBPM - RAS			
SERVICE	Universitat de València – UVEG	Spanish Type Culture Collection - CECT	Phylogenomics and phenotype prediction of prokaryotes	Spain
	University of Latvia - UL	Microbial Strain Collection of Latvia - MSCL	<i>In vitro</i> screening and testing of Minimal Inhibitory Concentration (MIC)	Latvia
	Università degli Studi di Torino - UT	Mycotheca Universitatis Taurinensis - MUT	Multi-Locus Microsatellite Typing (MLMT)	Italy
	University of Minho - UMinho	Micoteca da Universidade do Minho - MUM	Food Mycology	Portugal

- **Production of the TNA catalogue for the 2nd TNA call (December 2021):** A new version of the TNA catalogue describing the offers of the nine Access providers participating to the 2nd TNA call was delivered in December 2021. This document provides details on the 13 TNA offered, including four services, six facilities and wide variety of microbial resources from three different culture collections. The TNA catalogue was assembled and entirely illustrated by the Access officer, then reviewed and approved by all Liaison officers and the CCU. AZ and MF also contributed to the revision of such content. Design refinement of the document was done in collaboration with SPI. The TNA catalogue was published online in January 2022 on the [MIRRI TNA webpage](#).
- **Confirmation of User Selection Panel (USP) members:** Seven out of twelve scientists appointed in November 2020 already confirmed their availability (Table 11, in green) for the evaluation process of the 2nd TNA call, whereas two declined (Table 11, in red). This panel of experts will review and select the proposals that will be awarded with funded access to the nine partners’ facilities participating to the 2nd call. In bold green, those who confirmed their availability for proposal evaluation resulting of 2nd TNA call 2022; in bold red, those who declined; highlighted in orange, those whose confirmation is pending.

Table 11 – IS_MIRRI21 USP members

NAME	DOMAIN OF EXPERTISE	ASSOCIATION	POSITION
Vitor Vasconcelos	cyanobacterial taxonomy	University of Porto UP · Centro Interdisciplinar de Investigação Marinha e Ambiental (CIIMAR)	Managing Director
José Paulo Sampaio	yeast taxonomy	Universidade NOVA de Lisboa	PI Yeast genome Lab
Marc Stadler	fungal taxonomy	Helmholtz centre for infection research (HZI)	Head of Department Microbial Drugs (MWIS)
Manfred Ruthsatz	microbiomes and regulatory affairs	Nutrition Health Care - IS_MIRRI21 AB	Executive Director at Nutrition+HealthCARE
Angela Sessitsch	microbiomes	AIT Austrian Institute of Technology ait · Center for Health & Bioresources	Head of Unit Bioresources
Susana Rodriguez-Couto	environmental microbiology	Ikerbasque - Basque Foundation for Science	Professor and consultant

Paola Battilani	Food mycology	Università Cattolica del Sacro Cuore, Italy, Piacenza - Institute of Entomology and Plant Pathology	Professor
David Smith	mBRC quality management and legal framework	CABI, Bakeham Lane, Egham, Surrey, TW209TY, United Kingdom	Director, Biological Resources
Giovanna Felis	Lactobacilli and fermentation processes	Università de Verona - Agriculture microbiology	Associate Professor
Edoardo Puglisi	food and environmental microbiologists	Catholic University of the Sacred Heart UNICATT	Associated professor
Paola Bonfante	mycorrhizal fungi and plant microbiome	Università degli Studi di Torino UNITO - Dipartimento di Scienze della Vita e Biologia dei Sistemi	Emerit professor and research leader
Alfred Beran	microalgae	National Institute of Oceanography and Applied Geophysics - OGS - Section of Physical, Chemical and Biological Oceanography	Researcher

- The BBMS programme:** MIRRI and the British Embassy Lisbon, with the technical support and expertise from the UK-based consultancy firm Intercil, co-launched the Biotech’ Business Mentorship Support (BBMS) Programme. This pilot programme aims at providing funded tailored support for researchers selected by MIRRI among the applicants to the 1st TNA call, in the form of a mentorship scheme to cover crucial research-to-market topics. By the end of the programme, participants will have defined their value proposition, further validated their idea, and developed a better understanding of their innovation’s route to market. The Access Officer will be representing MIRRI and will be the common contact for the researchers participating to the programme and Intercil. Five researchers that applied to the 1st TNA call were preliminary selected.

The kick-off meeting of the BBMS programme took place on 2 February 2022. The Access officer, the Director of IS_MIRRI21, Andreia Cavaco and Frederico Lyra from British Embassy Lisbon, and James Barsby representing Intercil hosted this first meeting with the four researchers (one could not attend the meeting). The goal was to provide researchers with an overview on the structure of this programme, and to define the next steps.
- Update of the TNA portal content and its implementation on MIRRI CWE (MS13).** The Transnational Access (TNA) platform was implemented as new module in the [Collaborative Work Environment \(CWE\)](#) on 17 January 2022 (Figure 4), which was a technical task performed by the partner CCG with contributions from SPI, and in constant interaction with the Access Officer regarding the content update.

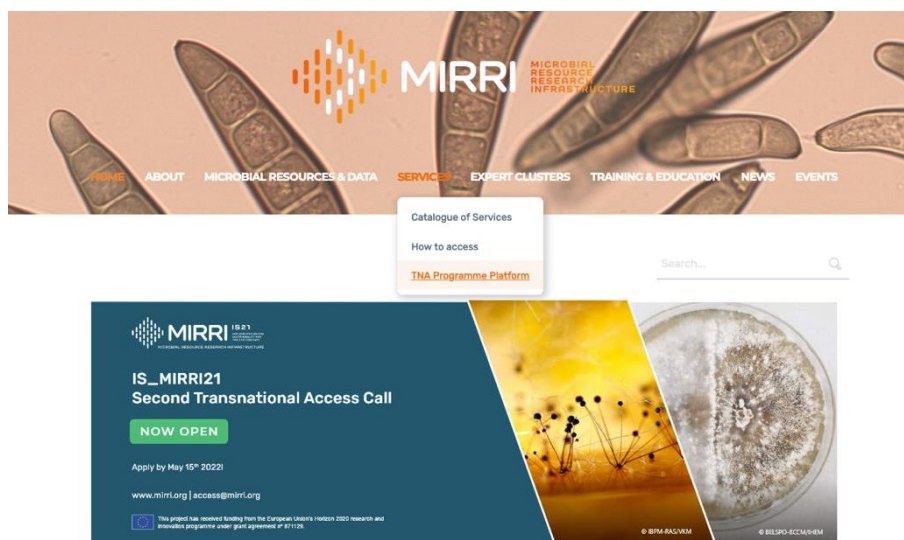


Figure 4 – Implementation of TNA platform in the MIRRI CWE

The TNA portal is a space with all information about the programme and description of each step of the 2nd TNA call. The Access officer updated and modified the content of the portal, with the support of UVEG-CECT and revision by the Project Director Luís Soares. MF also contributed to the revision of such content.

The structure was modified as following:

- The TNA programme
- Eligibility
- Access providers (Map and list of partners participating to the 2nd call)
- TNA catalogue: List of Products/services/facilities
- TNA process - Application procedure
- Evaluation process: score and evaluation, ranking methodology
- Publication of awarded proposals
- Access: Support provided before, during and after the access, User access contract negotiation.
- Reporting: Confirmation of access, TNA activity report, User questionnaire and TNA feedback survey.
- Reimbursement
- Dissemination of results: EU policies about dissemination of results and acknowledgement.
- TNA documents: links to download the guidelines for applicants, the TNA catalogue, and the TNA flyer.
- Researchers awarded during the first call: Name, institution, pictures, and quotes from the four TNA users awarded in the 1st TNA call 2021.
- The BBMS programme

This updated structure and respective content was then passed to the partner CCG for final implementation of TNA platform in CWE, in close link to the activities of WP6.

- **Update and revision of TNA guidelines and additional documents related with the TNA.** The Access officer updated the [TNA guidelines for applicants](#), which were developed during the D4.1. Additionally, other documents related to the TNA such as the “User Access Contract”, “TNA activity report template”, “Confirmation of Access” were updated. These documents were revised by UVEG-CECT and the Director Luis Soares. MF also contributed to the revision of such content.
- **Launch of the 2nd TNA call 2022.** The 2nd TNA call was launched on 1 February 2022 and will be open for 4 months (deadline 15 May 2022). Applicants can find detailed information about the call, including an illustrated [TNA catalogue](#) with the 13 offers proposed by nine access providers.
- **Communication activities for the 2nd TNA call.** The Access Officer provided new content and illustrations for the promotional material (TNA 2nd call flyer, [IS_MIRRI21](#) fourth newsletter, press release), and the continuous advertisement of the TNA call in social media (Twitter and LinkedIn) and through internal scientific networks of [IS_MIRRI21](#) partners and external collaborators. The detailed description of the communication activities, content, strategy, and diffusion are in deliverable D4.2.
- **Set-up of the TNA application platform in ARIA.** The Access officer interacted closely with the IT team of Instruct-ERIC for updating services on the TNA application platform, revising the content of the webpage environment (Figure 5) and testing of the functionalities of the portal.

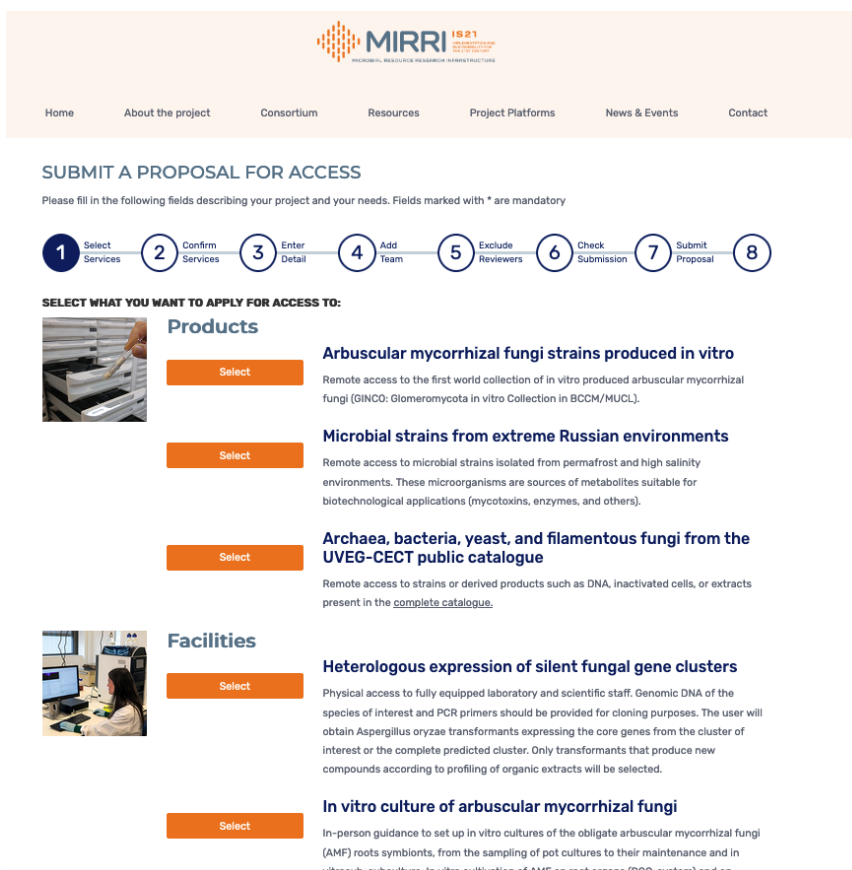


Figure 5 – Updated TNA application portal for the submission of the users’ research proposals

The access to this platform can be done through MIRRI website <https://www.mirri.org/services/transnational-access-tna/>

- **Users’ contacts to Access and Liaison officers.** Researchers interested to apply to the TNA contacted the Access officer already one week before the launch of the 2nd TNA call. Eligibility check and assessment of the technical feasibility of their proposals is ongoing.

Task 4.2. Delivery of access. The following activities have been performed during the 4th semester of the IS_MIRRI21 project:

- **TNA access of four researchers awarded in the 1st TNA call**
 1. **Institut Pasteur (IP) & National and Kapodistrian University of Athens (NKUA)**
 On 07-27 November 2021 the TNA “IDEACT: IDentifying and prioritizing novel marine ACTinobacteria for drug discovery” was performed. IP hosted a post-doctoral scientist (Dr Fortunato Palma Esposito) from Stazione Zoologica Anton Dohrn (IT). This TNA resulted from a research workflow set-up by the NKUA, and the IP entitled “Identification of taxonomically related *Streptomyces* strains from extreme Greek environments using mass

spectrometry profiles”. IP also hosted the Liaison officer of NKUA Paris Laskaris from the 24 to the 27 November to discuss the progress of the project and the methodologies used in this research workflow.

2. University of Las Palmas de Gran Canaria (ULPGC-BEA)

The TNA “Experimental plant for microalgae and cyanobacteria production” was completed on 24 January 2022. Assunta Saide received funding to develop the TNA project “MAREX – Microalgae: a source to be explored” through remote access to the BEA facilities. Six strains of microalgae, selected from the BEA catalogue, were scaled up in biological quadruplicates PET photobioreactors (10 liters) and cultivated for 12 weeks, until obtaining the biomass requested for the user to develop the chemical extraction and bioactivity screenings.

3. Institute of Agricultural and Food Biotechnology (IAFB)

On 18-23 October 2021 the TNA “Identification of *Alicyclobacillus* sp. by molecular biology techniques” was performed. IAFB hosted scientist from the Hellenic Agricultural Organization – DIMITRA, Institute of Agricultural Products, Athens, Greece, Dr Agapi Doulgeraki. After completing the TNA, the user sent the report to the Access Officer, and all formal procedures were completed.

4. Institut national de la recherche pour l’agriculture, l’alimentation et l’environnement (INRAE)

Roksana Majewska was awarded during the first TNA call with her project proposal “Unveiling the Secrets of Epizoic Diatoms: charismatic microflora as potential bioactive compound producers” to get access to INRAE’s offer “*In vitro* screening of anti-infectious activities: antibacterial, antiviral and antiparasitic”. The INRAE access has been delayed because of the late arrival of the samples (mid-November) to be analysed. In addition, the small quantity of the aliquots necessitated a change in the testing strategy to preserve the samples.

Task 4.3. Assessment and review of Transnational Access. The following activities have been performed during the fourth semester of the [IS_MIRRI21](#) project:

- **Follow-up on the expected TNA access of the four awardees from the 1st TNA call and reception of users’ feedback.** Two out of four access were completed by November 2021 (IP&NKUA and IAFB). On the other hand, due to late arrival of samples at the provider’s facility, experimental issues, and the current COVID-19 pandemic situation, the other two accesses encountered some delay (ULPGC-BEA and INRAE). One access of these two (ULPGC-BEA) was completed at the end of January 2022, whereas the access at INRAE is still ongoing. The Access officer received three out of four user group questionnaires (last date of reception: 7

February 2022), which were forwarded to Marleen Bosschaerts (BELSPO) to start planning the workshop.

2.4.1. WP4 Tasks: Delays/Problems and Corrective Actions (M19-M24)

Each partner involved in this WP reports any problem, delay or deviation from the planned work schedule in the [IS_MIRRI21](#) Grant Agreement, possible consequences on deliverables and milestones and the corrective actions taken, as follows:

- **Delayed access**

A delayed access was observed for two out of four awardees from the 1st TNA call:

1. **University of Las Palmas de Gran Canaria (ULPGC-BEA)**

The TNA access was delayed due to the time required to scale up, cultivate and collect the biomass of the 6 strains of microalgae requested for the user. However, the TNA access was finally completed at the end of January.

2. **Institut national de la recherche pour l'agriculture, l'alimentation et l'environnement (INRAE)**

The INRAE' access has been delayed because of the late arrival of the samples (mid-November) to be analysed. In addition, the small quantity of the aliquots necessitated a change in the testing strategy to preserve the samples. The INRAE team is working on the samples to get optimal results by mid-March.

- **Delayed feedback from users.** We expected to conceive and implement changes to improve the 2nd call TNA based on the feedback of the 1st call. Although we could not get formal feedback under the form of EC questionnaires for two out of four awardees, the Access officer was constantly in contact with the users, to follow-up on their access and the issues encountered. Despite the delay, the users were still able to share their impressions on their TNA experience with us. This, in combination with the observations on the outcomes of the 1st TNA call (number of applications, strategic area of the project proposal, country and status of applicants, their previous knowledge of research infrastructures, TNA offers selected by the users), allowed us to make the necessary modifications for the second TNA call and will certainly contribute to an efficient TNA programme at the end of the [IS_MIRRI21](#) project.

- **Improvement of the TNA offer for the 2nd TNA call.** The limited number of applications (n=10) to the first call might have resulted from the ongoing sanitary crisis due to pandemic dissemination of covid-19 and/or the lack of attractiveness of the Access provider's offers. Moreover, the whole TNA procedure might seem complex for people who have no previous TNA experiences. This is shown by the fact that most of the selected applicants had previous experience with such processes. After discussion with partners and clarifications from the EC Policy

Officer, some modifications, but not impacting on the TNA budget of each provider, were introduced by partners participating to the call. However, due to the very specific offers proposed by the available access providers for the second call, no workflows could be established.

2.5. WP5 Activities “Capacity Building, Training and Education”

The overall objective of WP5 is to develop and offer a training programme corresponding to the needs of different user categories (e.g., scientists, industrials, international organizations) and contributes to the capacity building within the scientific community as well as industrial users. This objective was built on the results of the preparatory phase of MIRRI and on the outcome of the EU project EMBARC.

To fulfil this overall objective, WP5 is structured in 3 Tasks and has 4 Deliverables and 5 Milestones. BELSPO (represented by BCCM/MUCL) is the Lead beneficiary and is responsible for Task 5.2 and 5.3 with 13 PM, while NKUA is responsible for Task 5.1 with 10 MM. Another important contributor is UMINHO with 10 PM. The efforts of the other partners (UVEG, INRAE, IP, ULPGC, KNAW, IBPRS, LU and UNITO) range from 2 to 8 PM. Following the RP1 midterm report approval covering M1-M18, a detailed description of the work carried out in Task 5.1 to 5.3 during the second year of the project M19-M24 (**period August 2021 – Jan 2022**) is presented below.

Task 5.1: Advanced training courses for users

(Led by: NKUA, partners UMINHO-MUM, UVEG-CECT, INRAE, IP, ULPGC, KNAW, BELSPO (BCCM/MUCL), IAFB, UL-MSCL, UNITO) with duration M01 to M36.

The objective of this task is to inventory, streamline and promote the training courses that are currently offered by partner mBRCs. Within this Task, one deliverable was scheduled in the second year of the project with deadline M18 and one Milestone with deadline M18.

MS16: Inventory of current training offer of the partners available on the CWE – gate to Training and Education (T&E)

- This inventory has been done and presented in the mid-term report.
- As depicted in Figure 6, the actual list of T&E offered in IS_MIRRI21 is available on mirri.org.

This list comprises 25 T&E activities covering all types of microorganisms (bacteria, fungi...) and dealing with activities in collection management, preservation, and identification techniques as well as some very specific topics (according to the collection’s expertise). T&E varies from on-site to webinars. Most have a webpage to detail the objectives of the T&E activities and are most often run on an annual basis of a few hours or days to more rarely months. The language is most often English or the local language.

D5.2: Open access IS MIRRI21 CWE with advanced T&E courses offered. The deliverable is achieved and is in the process of writing.

In brief, with the collaboration of the WP6 team, the courses offered by different MIRRI partners are now presented at <https://www.mirri.org/training-education/> (Figure 7). Although the information is now present to the public, certain improvements are deemed useful, for example the improved search options. The MIRRI webpage on training and education is understood as a dynamic environment that would need to be adapted according to changes in the course offer. For the duration of the project this may be assured by the WP5 and WP6 teams, while the required activities of collecting updated information and making it available online would eventually be needed to be taken up by the MIRRI-ERIC CCU.

Moulds in the indoor environment and outdoor air

Management of culture collections

Preservation of micro-organisms

Fungal Biodiversity

International training on in vitro culture of arbuscular mycorrhizal fungi

Microalgae Methods for Biobanking: from bioprospection to biodiversity conservation and biotechnological evaluation

MOOC Biobanking

Biobanks and the profession of curator

Biological Resource Center and conservation

Next generation sequencing for public health microbiology

Roles of Microbiological Resource Centers (mBRCs) in the 21st Century

Food and Indoor Mycology course

Identification of Alicyclobacillus sp. by molecular biology techniques
Microbiology 2 (Virology)
Most Cyanobacteria are rich producers of Natural products
Polyphasic identification of food borne fungi
Quality Management Systems and its applicability in culture collections
Phylogenomics of Bacterial Pathogens, and diagnostic implications
Bacterial Pathogen Population biology and public health applications
Cultivation and polyphasic cyanobacterial characterisation
Isolation, cultivation and preservation of cyanobacterial strains
Morphological and molecular identification of air-, water- and food-borne fungi
Preservation and Control of Microbial Strains
Microbiology 1
Cyanobacteria, microalgae and biofuels: from naturally produced to industrial process, by a loop in the lab

Figure 6 – List of Training and Education Courses offered by IS_MIRRI21

MIRRI - CWE Collaborative Work Environment

TRAINING AND EDUCATION (T&E)
Higher training and education courses for capacity building
MIRRI's T&E courses

HOME ABOUT MICROBIAL RESOURCES & DATA SERVICES EXPERT CLUSTERS TRAINING & EDUCATION NEWS EVENTS

Training & Education

HOME / TRAINING & EDUCATION

MIRRI brings **Training and Education (T&E)** to the core of its activities, aiming at facilitating the access to T&E towards different users – e.g., scientists, collaborators of mBRCs and culture collections, entrepreneurs/industrials, high-school teachers, journalists and science communication professionals, policy makers, etc. –, thus contributing to the capacity building within the bioscience and the bioindustry communities, as well as the society. MIRRI will endeavour to fill identified, demand-driven T&E gaps, as well as developing and designing new, effective tools to deliver T&E.

This year, a call will be launched for the **"European Advance Studies Course on Microbial Resources Centre (EuroMiRC)"**. This one-semester (30 ECTS) course will start in September and the student's fees will be supported by the Horizon 2020 IS_MIRRI21 project.

The vast expertise of MIRRI's partner organisations in various services, research areas and types of holdings are already on the basis of high-quality T&E courses they deliver.

[Actual Training Offer](#)

Figure 7 – Composed view of selected elements from the MIRRI pages

<https://ismirri21.mirri.org/project-platforms/cwe/>, <https://www.mirri.org/training-education/>,
AVAILABLE TRAININGS: <https://www.mirri.org/training-education/actual-training-offer/> THAT PROVIDE THE COLLECTED INFORMATION ON ADVANCED TRAINING AND EDUCATION OFFER BY MIRRI PARTNERS.

Task 5.2: Implementation of the “European Specialization course on Microbial Resource Centres: EuMiRC”

(Led by: BELSPO (BCCM/MUCL), partners UMINHO-MUM, UVEG-CECT, NKUA, UL-MSCL, UNITO) with duration M01 to M36.

The objective of this task is to develop a European Specialization Course on Microbial Resource Centres (EuMiRC) to increase employment opportunities at MiRC and in other sectors of the bioeconomy as depicted in Figure 8.

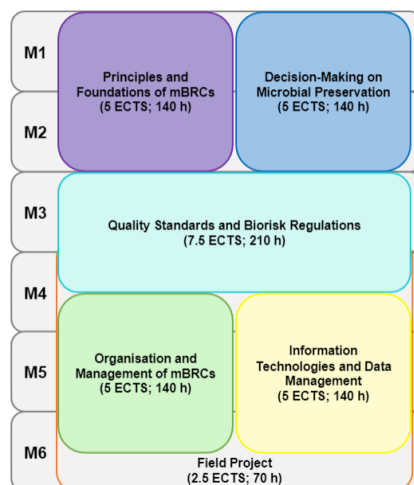


Figure 8 – EuMiRC Modules and Plan

Task 5.3: Development of IS_MIRRI21 video materials

(Led by: BELSPO (BCCM/MUCL), partners UMINHO-MUM, UVEG-CECT, INRAE, IP, ULPGC, KNAW, IAFB, UL-MSCL, NKUA, UNITO) with duration M01 to M36.

The objective of this task is to produce short videos that can be presented to different audiences, such as students, to stimulate debate on current topics related to microbes and their beneficial/detrimental roles in nature.

Within this Task, one deliverable was scheduled in the second year of the project with deadline M24.

D5.4. Five to 10 video capsules related to microbes and their roles in society. This deliverable incurred a delay. However, the first video has been made and is available since October 2021. It is entitled “*The infinitively small at the service of humanity*” (Figure 9). The other videos are scheduled during the first six months of 2022.



Figure 9 – Screenshot of the video showing reference to IS_MIRRI21

The first images were taken on 16 September 2021. The assembly followed and the first version was proposed on 29 September 2021. The final version was released on 9 October 2021. It was then broadcasted within the MIRRI partnership as well as on different platforms, (the MIRRI webinar on 18/19 November 2021). The video is in French and subtitled in 9 different languages (English, Bulgarian, Greek, Italian, Latvian, Polish, Portuguese, Spanish and Russian) allowing its broad dissemination. It is to be noted that the video will be presented in the EU project SOLACE stakeholder workshop on the 3 March 2022 (<https://conference.solace-eu.net/pre-conferences/the-roots-of-agriculture-a-series-on-below-ground-research-from-the-solace-project/to-interact-or-not-to-interact-the-root-microbiome.html>).

The total budget will probably only be able to finance 5 videos. To increase this number, reducing costs will be considered by, e.g., restricting travel costs (two days of shooting) or considering other forms of shooting. The themes will be discussed by mid-February 2022. Some examples are presented here below:

- Bio-cleaning of monuments: the Church of Santos Juanes in Valencia (Spain) was restored with the type strain of *Pseudomonas stutzeri* (<https://doi.org/10.1016/j.ibiod.2012.09.009>)
- Probiotics. Showing some examples of specific strains with applications to human health or veterinary use <https://www.youtube.com/watch?v=1sISguPDIhY>
- Biodegradation: Showing some examples of specific strains with applications in bioremediation (e.g., *Rhodobacteraceae*, other marine bacteria) https://youtu.be/a_HWIFzgQiM

2.5.1. WP5 Tasks: Delays/Problems and Corrective Actions (M19-M24)

For the course to be operational, it is necessary to have a Course Unit ID Card (it's a requirement from UMinho), which includes a list of the parts constituting the teaching body of the course. This requirement needs to be completed.

Delays in deliverables D5.2, D5.3, D5.4

Regarding the videos, the costs associated to the making of the videos will determine how many will be produced. It is necessary to establish the contents, structure and how many will be produced.

Currently, it will be possible to make only four videos out of ten that were originally planned. Some efforts already been made about the themes for the coming videos, for example, to create a video about Pigments from microalgae and cyanobacteria and their industrial applications. A meeting was recently held to discuss the thematics.

2.6. WP6 activities “Collaborative Working Environment (CWE)”

WP6 aims to develop the platform supporting the “Virtual Research Environment” of MIRRI, a distributed but centrally coordinated pan-European Research Infrastructure (RI). The platform has been named “Collaborative Working Environment (CWE)” and will provide access to the “full MIRRI Offer”. Through the CWE, users can communicate with the staff and experts of the RI and access to information and services in a timely and efficient manner.

To accomplish this objective, WP6 is structured in 5 Tasks with 4 Deliverables and 3 Milestones (Table 12). UVEG-CECT is the lead beneficiary and responsible for Task 6.5 with 24 PM out of 126.5 total PM, while CCG is the leader of Tasks 6.1, 6.2, 6.3 and Task 6.4 (with KNAW), and holds 60 PM. Besides, KNAW contributes with 15 PM, and the

remaining (UMINHO, SPI, INRAE, IP, ULPGC, BELSPO, IBPRS, LU, NKUA, UNITO, IBPM RAS) partners' efforts range between 0.5 and 8 PM.

Table 12 – WP6 Deliverables & Milestones

Action type	Description	Due Date	Achieved	Date
D6.1	Report with the design and technical requirements, characterization, and knowledge acquisition of MIRRI-CWE	M6	Yes	25/09/2020
D6.2	MIRRI-CWE Platform – Preliminary version	M18	Yes	26/10/2021
D6.3	MIRRI-CWE Platform – Final version	M34	Ongoing	
D6.4	Report with the usability tests' results and user feedback	M36	Ongoing	
MS21	Alpha version of the MIRRI CWE platform	M12	Yes	31/03/2021
MS22	Beta version of the MIRRI CWE platform	M18	Yes	31/07/2021
MS23	Final version of the MIRRI CWE platform	M36	Ongoing	

Regular on-line meetings (TC) are held by WP6 team members, at least once a month in addition to Task Force meetings for specific issues, i.e., MIRRI-IS JSON schema, data FAIRification, Plasmids and virus catalogue, and weekly coordination meetings between CCG and UVEG-CECT (mainly by the IS_MIRRI21 IT Officer).

Tasks 6.1 & 6.2

Task 6.1 (Requirements' refinement, characterization of the problem and knowledge acquisition for the MIRRI-CWE architecture and platform) and Task 6.2 (MIRRI-CWE architecture design and conception) (lead by CCG; participation of UVEG-CECT, KNAW, UNITO, IBPM RAS) were accomplished during the first year of the project. Briefly, the General requirements for the CWE were compiled and gathered in the first deliverable of the WP: "D6.1 Report on the design and technical requirements, characterization and knowledge acquisition of MIRRI-CWE". Besides a project deliverable itself, it is a live document to serve as a guide for the implementation of CWE modules and the work to be performed in other tasks, particularly 6.2, 6.3 and 6.4.

The CWE concept is organized in four Gates (Figure 10):

- Gate to Research Infrastructure information

- Gate to Microbial Resources, Data and Services
- Gate to Collaboration and Experts
- Gate to Training and Education (T&E)

For security and profile control, one user registration and authentication module were implemented to access the CWE. It is planned for future to integrate, as an authentication alternative, the Life Sciences Authentication and Authorization Infrastructure (LS AAI) that is being developed by BMS RIs within the EOSC-Life project.



Figure 10 – MIRRI Collaborative Working Environment Schematic representation of the virtual platform to give centralized access to the full MIRRI Offer

Following the envisaged structure of Gates and Modules within Gates, each module is independent and, whenever possible, based on existing open-source software, reusing solutions, preferably those resulting from previous EU projects and initiatives, e.g., WordPress was selected for website implementation and ARIA for TransNational Access (TNA) and BioloMICS (BioAware) for MIRRI-IS.

Task 6.3: Implementation of the MIRRI-CWE architecture

(Led by CCG; participation of UVEG-CECT, KNAW, INRAE, UNITO, IBPM RAS)

This task aims to implement the integration and interoperability mechanisms in the platform, both at the infrastructure level and at the application level. It was initiated by implementing the MIRRI Information System (MIRRI-IS), which is the Microbial Resources and Data module integrating in a unique system all information on bacteria, archaea, yeasts, fungi, microalgae, viruses, and plasmids available from partners' Culture Collections (CCs) and supporting interoperability with other life sciences information systems and databases, as well as to the Services Catalogue and to the TNA modules.

The ICT Task Force refined the definition and requirements of the data fields for microorganisms (bacteria, archaea, yeasts, fungi, and microalgae) catalogues at the

beginning of the project. During the second year, specifications for virus and plasmids datasets have been prepared, in collaboration by the ICT Task Force and partners from CCs hosting this type of resources. To produce these new specifications, a careful analysis of specifications for microorganisms was carried out first, so that the data fields already defined there could be checked and a decision for their inclusion in the new specifications could be taken. For plasmids, the relevant CABRI data sets (<http://cabri.org/guidelines/catalogue/CPdataplastm.html>) were also considered. Later, a deep analysis of missing data fields, relevant to the given resource types, was carried out. The new data sets were then completed, and specifications were structured according to the format adopted for previous specifications. The new documents have been made available in the intranet as draft guidelines for the submission of CCs catalogues to be included in the MIRRI-IS (PLASMID:2021-11.1; virusGuidelines_draft_agreed). After a short time, allowed for gathering comments from CCs, they will be revised and officially released.

Statistics on data provided by CCs have been calculated and suggestions for improvements (missing or incorrect data, etc...), specific to each collection were provided. Collections are already working on it.

Moreover, a data exchange format (JSON based) and a set of software tools are under development to allow data exchange with the MIRRI-IS APIs provided by the BioloMICS instance (<https://webservices.bio-aware.com/mirri/index.html>). These tools will facilitate MIRRI-IS data to be used by other programs, e.g., workflow management systems integrating different data sources, like Galaxy and other, and with any further purposely developed software.

In line with the EOSC (European Open Science Cloud) initiative, the “FAIRification” process that is necessary to make the MIRRI-IS data FAIR, is being carried out based on the Dataverse platform (<https://dataverse.org/>) in the frame of the EOSC-Life project. FAIR principles describe how data should be organized to be findable, accessible, interoperable, and reusable. These principles are very much focused on the ability of machines to manage data automatically, with minimal human intervention.

The MIRRI-IS data are curated, and web services are available. However, the data identifiers do not fit with international standards, unlike persistent identifiers like DOI (Digital Object Identifier). Moreover, data should be stored in a data warehouse to facilitate searching, citing, and archiving. The FAIRification process includes DOIs generation, Proof of Concept platform development, data schema creation, metadata definition, annotation of strain definitions with metadata, submission of metadata to registries (e.g., FAIRsharing.org, re3data.org).

To comply with the FAIR requirements, we are using Dataverse platform by developing web services to retrieve the strains data obtained from MIRRI-IS in a JSON format file with the MIRRI-IS specifications for microorganisms. The web services will deal with

Dataverse API to create DOIs with rich metadata indexed in a searchable resource. Then DOIs are sent to MIRRI-IS. The use of the Dataverse platform will allow tracing back changes from data catalogue updates. Up to now, we have set up the main Dataverse platform available at the following (likely to change) address <http://dataverse.mirri.org:8080/>. We have finished writing part of the web services essentially for data processing to fit metadata JSON standard and dataset creation and publication. Currently, we are working on DOI registration and updating metadata. The next step is to set up an authentication process while keeping on developing web services. Then, the second step is to set up a metadata and semantic working group.

Task 6.4: Developing the new modules of the MIRRI-CWE and MIRRI-IS platform

(Led by CCG and KNAW; participation of UVEG-CECT, INRAE, UNITO, IBPM RAS)

The work carried out so far for the development of the four gates is described:

1. Gate to Research Infrastructure information. It is the “MIRRI Portal” www.mirri.org acting as the main entry to the CWE, the single access point to the full MIRRI Offer and it is accessible since March 2021. The MIRRI portal gives access to the other three Gates. As referred above, the MIRRI-CWE users must register to get a profile attributed and authenticated. For that, one Registration and Authentication System was developed and made available as part of Task 6.4. Regarding the access of users to the MIRRI-CWE, the WP6 members support to adhere to the Life Sciences Authentication and Authorization Infrastructure (LS AAI), conceived as a unique system to access Life Sciences Research Infrastructures’ on-line services. LS AAI is under refinement in the frame of the EOSC-Life project (in which some IS_MIRRI21 partners are involved) but not ready yet. Therefore, the integration of LS AAI as an alternative for authentication in MIRRI-CWE may be soon possible, provided its availability.

2. Gate to Microbial Resources, Data and Services. This gate gives access to the MIRRI centralized strains catalogue. At present, the MIRRI-IS that can already be accessed at catalog.mirri.org, contains data from 158,941 strains. Also, two taxonomic databases have been created that contain 546,141 taxa of fungi, yeasts and bacteria (https://catalog.mirri.org/page/Taxon_catalog_query) and another one containing 8,480 virus species (https://catalog.mirri.org/page/Search_virus_taxonomy).

The MIRRI online portal (Figure 11) is being continuously improved and updated, including the public catalogue (MIRRI-IS) (https://catalog.mirri.org/page/Strains_catalog_query) and the link to taxonomy databases. MIRRI partner CCs were invited to check the MIRRI-IS and to provide comments/suggestions for improvement. These comments were classified, to be refined, according to their nature and/or how to address them as: i) Software failures, ii) Actions required from CCs, iii) Political issues, iv) Software new features, v) Specifications (requirements of the data fields for microorganisms’ catalogues). Some of

the requests require approval from the MIRRI National Coordinators Forum (NCF) prior to be implemented.

For better and continuous support to the CC curators in the process of data preparation for MIRRI-IS, while at the same time registering their suggestions and questions, one ticketing system has been implemented and made available as an additional tool. For MIRRI ICT team, this system allows to address suggestions and follow up improvements. The tool is accessible at osticket.mirri.org.

Some improvements have already been done based on the feedback from MIRRI partner CCs and other stakeholders, and new features have been included like the dashboard, the Google-Like query, and several smaller improvements.

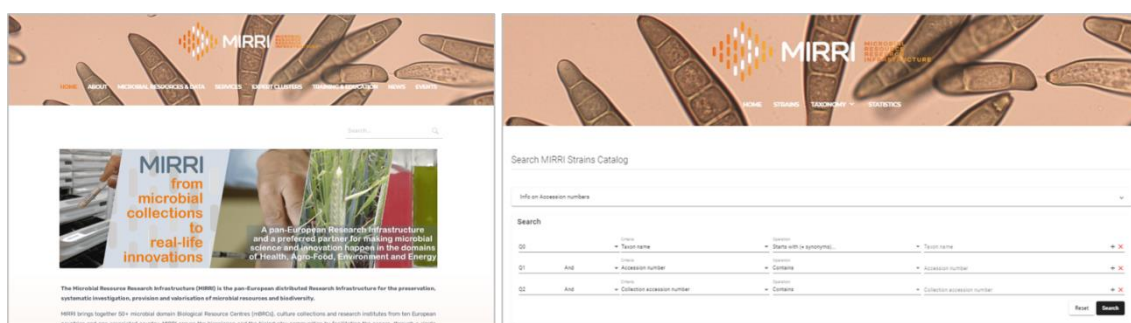


Figure 11 – MIRRI webportal / CWE (homepage and catalogue of microbial resources)

Another support tool was implemented and made available for the CCs to validate the conformance of the data to be imported for the MIRRI-IS, as compared to the specifications provided by the MIRRI (<https://tools.mirri.org/tools/validator>).

The Catalogue of Services is also available in this Gate (<https://www.mirri.org/mirri-services>) with three sections: 1. General Services grouped in 10 categories, and Application-specific and Integrated Services for the three main research domains: Health & Food, Agro-Food, Environment & Energy; 2. A General description of access/provision conditions for services, and 3. The TransNational Access (TNA), information on the programme and link to the ARIA platform, which at present contains the [IS_MIRRI21](#) pilot TNA offer.

The list of services has been reviewed (in collaboration with all partners and as part of the work carried out by CECT in WP2) and is being adapted to be implemented in the CWE as searchable and interactive catalogue, providing the MIRRI stakeholders the detailed information for each service, as well as the functionalities for directly inquiry MIRRI's CCU. In addition, other work is ongoing to complete information about the services, i.e., contact persons, fees, equipment, etc. In the same way, the list of Application-specific and Integrated Services is being revised to be shown in a more friendly way.

3. Gate to Collaboration and Experts. The development of this Gate is under progress. At present, a list of the different Clusters of Expertise is showed in the MIRRI portal covering the following Topics or Areas of Knowledge, as well as Specific topics/subtopics for each of them:

- Legal/Regulatory Issues & Standards
- Taxonomy
- Bioprospection, Cultivation & Preservation
- Applications in Biotechnology & Bioindustries
- High-End Technologies & Platforms
- mBRC Quality Management

Through this Gate, access to Clusters Discussion Forums will be provided through User Registration / Authentication (depending on Gate 1 Authentication) under different profiles. User profiles have been defined previously to the Profiles Configuration in the CWE. The Forum structure is being finalized and Forum moderators have been identified and the dedicated time for moderation by each partner has been established. In addition, the Gate will also provide Specific Direct Support access and provision by Expert Clusters, following same requirements (authentication, user profile,) using a tool under implementation, based on an open-source solution. Then, the platform for users and expert's participation is ready and moderators have been designated. The document of the Terms of Use that shall be accepted when entering the platform, is under refinement by CCG and CECT and almost ready to be included in the CWE.

4. Gate to Training and Education. At present the web summarizes the aim of this Gate and announces that a call will be launched for the "European Advance Studies Course on Microbial Resources Centre (EuroMiRC)". This Gate will evolve under the progress of the WP5, and information will be updated accordingly. These ongoing WP5 actions have already provided the list of courses and training actions offered by MIRRI. Such offer consists of a wide range of training and education (T&E) options, differing on scope, duration, type of frequency, etc. Currently, the module of T&E in CWE is being updated to give access to the course's information and direct access to the respective management platforms. The Backoffice management functionalities for this highly dynamic information update in the CWE are under implementation.

Task 6.5: Evaluation of MIRRI CWE by the end-users

(Led by UVEG-CECT and UNITO; participation of all partners)

Evaluation of the MIRRI CWE is an ongoing task that was first initiated internally. Since the MIRRI CWE portal was launched in March 2020, partners have been invited to check the platform, especially the MIRRI-IS module and their feedback is being compiled. Requests related to software failures in the MIRRI-IS are being directly managed by BioAware (KNAW); while other improvements might require some actions prior to their implementation, i.e., revision of the specifications, approval from the NCF, or software

new features development. As mentioned above a ticketing system was implemented to deal with the requests from users about the MIRRI-IS catalogue. Requests about software failures will be sent directly to BioAware team, and requests about new features, information display or data fields must be discussed and approved by the NCF and/or ICT Task force before the BioAware team implements these modifications.

For the global evaluation of the MIRRI CWE, a Task Force has been settled to approach usability tests with “real users” that will focus on the features: access to the catalogues of strains and services and the inquiry of TNA offers.

A first meeting took place in December 2021 and a Usability Test Plan (UTP) has been shared in the intranet to start compiling information about the procedures and goals to be achieved.

Neither deliverables nor milestones were foreseen for the reported period M19-M24.

2.6.1. WP6 Tasks: Delays/Problems and Corrective Actions (M19-M24)

The main problem was related to the difficulty of finding a new IT Specialist after the resignation of the former one in July 2021. A third call to hire an IT Officer was launched that closed on 15 July but with no valid candidates were found. The fourth call was launched in December 2021 that closed on 24 January and a candidate has been selected. He is expected to start at the beginning of March.

The main tasks of the IT Officer have been shared by CECT team, with the collaboration of CCG, KNAW and UNITO to keep work ongoing but it has caused some delay.

2.7. WP7 Activities “Outreach and Dissemination”

Following the RP1 report, this section is focused on the WP7 activities carried out by all beneficiaries during the fourth semester (August 2021 – January 2022) within the IS_MIRRI21 WP7.

SPI leads the WP7 “Outreach and Dissemination”, which has the following main goals: i) to expand awareness of IS_MIRRI21 and consequently MIRRI’s existence among potential microbial resource users and providers, members and publics; ii) to mobilise target audiences, such as academia and industry for the Transnational Access and Education and Training programmes, governmental and non-governmental organisations that are potential members of MIRRI and other audiences that promise short or long-term involvement; and iii) to raise awareness in the society about the benefits of microorganisms and microbial collections to support bio-economy and face societal challenges. In addition to the proposed Deliverables and defined Milestones (Table 13), WP7 has four tasks related to dissemination, communication, and stakeholder engagement.

Table 13 – WP7 expected Deliverables & Milestones

Action	Description	Due date
D7.1	Outreach and Dissemination Strategy	M3
D7.2	Outreach and Dissemination Activities report	M19
D7.3	Updated Outreach and Dissemination Strategy	M20
M7.1	First set of dissemination materials developed	M3
M7.2	Updated Dissemination materials developed	M20
M7.3	Final IS_MIRRI21 meeting implemented	M36

Task 7.1 Outreach and Dissemination Strategy development and update

(Led by SPI; participation of all partners) Duration: M01-M36

This task entails the development and regular update of an Outreach and Dissemination Strategy, also including a plan for implementing the respective activities by the partnership. This plan is based on a Deliverable submitted in 2020 with the objective to serve as a living handbook for the planning and execution of the dissemination and outreach activities of the project. The topics addressed in D7.1 that laid the groundwork for the dissemination and communication activities throughout the project lifetime are the following:

- a. Objectives of the Deliverable;
- b. Target audiences of WP7;
- c. Types of communication and dissemination tools and channels to be developed;
- d. Timeline for the development of communication and dissemination materials;
- e. Launch of internal events and participation in external events;
- f. Action plan for the project dissemination and outreach activities and involvement of other partners.

Task 7.2 Development of communication tools and channels

(Led by SPI; participation of all partners) Duration: M01-M36

D7.1 elaborated the action plans and timelines for the outreach, dissemination, and communication activities of the project from 2020 to 2023. This includes launching of events and workshops, participation in external events to represent IS_MIRRI21 and its activities, development of dissemination and outreach materials such as the project website, brochures, flyers, roll-ups, press releases and Newsletters, and social media posts. Task 7.2 closely follows the plans made in Task 7.1 (D7.1) to produce and disseminate project related materials, tools, and channels.

Task 7.3 Stakeholder engagement

(Led by SPI; participation of all partners) Duration: M01-M36

IS_MIRRI21 will have a strong outreach strategy to directly involve the target groups identified as potential users (academic community including researchers and students, bio-industry, food industry and health industry), and others stakeholders, such as providers of microbial material as well as country governments, including third countries, mBRCs, other CCs relevant for the enlargement of IS_MIRRI21, other BMS RIs, etc.. For this reason, this task undertakes the organisation of IS_MIRRI21 events at the national nodes and the annual IS_MIRRI21 meeting, in order to keep a close communication with its network of users and contribute to their long-term and sustainable engagement. It will also identify the key national and international conferences and events in which IS_MIRRI21 should be represented and manage its representation. The following is a selection of activities undertaken to keep a close communication with the IS_MIRRI21 network and ensure its representation in national and international events:

BEA

BEA held a presentation on “The microalgae collection at BAE as a tool for the conservation of biodiversity and the investigation in the sector of the Blue Biotechnology” at the VIII Jornadas Andaluzas de Biotecnología Marina in Spain. BEA held the very same presentation at the 2022 online conference cycle hosted by the Spanish Ficology Society, Sociedad Española de Ficología and at a master’s degree in Applied Blue Biotechnology, addressing the topic of “Patents and transfer of R&D&I results” at the Catholic University of Valencia.

Additionally, BEA produced three articles that were published in scientific journals, namely “Extracellular Polymeric Substances Produced by the Thermophilic Cyanobacterium *Gloeocapsa gelatinosa*: Characterization and Assessment of Their Antioxidant and Metal-Chelating Activities” (<https://doi.org/10.3390/md20040227>), “Characterization of Novel Selected Microalgae for Antioxidant Activity and Polyphenols, Amino Acids, and Carbohydrates” (<https://doi.org/10.3390/md20010040>) and “Bioeconomía azul: del uso sostenible de los recursos marinos a los productos de valor añadido en el sector cosmético”, which was published in *Noticias de Cosmética y Perfumería (NCP)* January/February (Vol. 383).

NKUA

NKUA held a presentation titled "Microbial Resource Research Infrastructure (IS_MIRRI21, Horizon 2020): Development and long-term sustainability of new pan-European research infrastructures" at the 9th Mikrobiokosmos conference. This talk presented the benefits and services offered by MIRRI and encouraged researchers to use them and organisations to join it. Around 300 people were reached via this conference.

UVEG-CECT

UVEG-CECT from Spain engaged in a range of dissemination and communication activities, which included promoting MIRRI webinars in the MicroBioSpain website and the participation of Rosa Aznar as speaker in the Webinar organized by WP2 "Microbial Resources for a green, healthy and sustainable future" with the presentation "SRA3: MIRRI's Strategic Area 3 | Research & Development of new, safe, healthy and sustainable food and feed products". Rosa also held an online presentation with the title "European Culture Collection Initiatives for the valorisation of microbial resources" at the XIII International Symposium on Genetic Resources for the Americas and the Caribbean (SIRGEAC) "Agrobiodiversidad, un mundo de oportunidades en tiempos de crisis", which took place between November 30th and December 3rd. Prior to the SIRGEAC event, Aurora Zuzuarregui from UVEG-CECT had also participated as speaker in the "III SYMPOSIUM ON VALUATION AND CONSERVATION OF MICROBIAL RESOURCES" organised by The Institute of Agricultural Research (INIA) and Catholic University of Maule, which took place online between September 6th and September 8th.

With regards to social media, UVEG-CECT engaged in the cross-promotion of several project-related activities, events, or news, such as the opening of 2nd TNA Call or the job opening for a new IT Officer. Overall, approximately 30 recommendations of MIRRI/IS_MIRRI21 accounts were produced on LinkedIn.

VKM

VKM from Russia translated the IS_MIRRI21 introduction video into Russian and held a standard presentation about the characteristics of MIRRI at the Russian microbiological congress in Pskov, in September 2021.

Task 7.4 Public engagement

(led by SPI; participation of all partners) Duration: M01-M36

This task is ongoing. One informative video and other materials have been prepared for public engagement activities similar to the "Science is Wonderful" event which took place online in 2021.

2.7.1. WP7 Tasks: Delays/Problems and Corrective Actions (M19-M24)

In the observed period (M19-M24), no major delays or problems were identified, thus there were also no corrective actions undertaken. In the spirit of a more efficient communication of events where IS_MIRRI21 found some sort of representation (e.g., an IS_MIRRI21-related session or a presentation by one the project partners), SPI was informed as WP7 Leader and ensured a swift development of a LinkedIn and Facebook post, as well as a tweet about the event. This ensures that the tripartite social media communication was deployed synchronously, albeit Facebook was, at a certain point, not used at all due to the very low engagement rates. The target groups were found to

be within closer reach and more engaged with the IS_MIRRI21 content on both LinkedIn and Twitter.

2.8. WP8 Activities “Consolidation & Enlargement of Membership”

Following the RP1 approval, this report concerns the activities that all organisations have carried out during the six months period (August 2021 – January 2022) in the IS_MIRRI21 WP8.

This Interim Progress Report concerns the activities that all organisations have carried out during six-month period, between 1st August 2021 and 31st January 2022 within the IS_MIRRI21 WP8.

Explanation of the work carried per WP (M19-M24)

Task 8.1. Consolidation of membership

(BELSPO is the task leader of task 8.1.)

In the frame of this task, BELSPO maintained contacts with the representatives of the Assembly of prospective Members, representing the countries that have signed the MoU or Letter of Intent and have expressed their intent to become Member or Observer of MIRRI-ERIC. A follow-up is ensured about the national processes to become a founding Member of MIRRI-ERIC.

Further, informal feedback from the EC on the step 2 submission that was submitted, some minor improvements on the Statutes of the future MIRRI-ERIC were done in consultation with the ApM.

During the ApM meeting of 7 October 2021, a discussion was held on the activities that must be done once MIRRI-ERIC will be created, to start the preparations in a timely way.

Task 8.2. Membership enlargement

(IAFB is the leader of WP8: Consolidation & Enlargement of Membership).

Based on the work done in the previous months we have continued the process of membership enlargement and actively took part in different workshops, symposiums, and webinars organized in 2021.

At the ECCO AGM Meeting (ECCO - the European Culture Collections Organisation, <http://www.eccosite.org/> 24 September 2021) we obtained the information from SAG - Culture Collection of Algae, Gottingen, Germany, that they are interested in collaborating with MIRRI. With this knowledge, we are proceeding with the next steps to contact SAG representatives as well as their country representatives and that will be the top priority for future engagement.

The Evaluation Report from 18 months of activity of IAFB was prepared for the EU.

We have prepared the draft of the short instruction, with the pinpoints on how to become a member, to be put on the MIRRI website.

The representative of NKUA participated at the Mikrobiokosmos conference, Athens, Greece, in December 2021 where MIRRI actions and possibility of becoming member were presented, as well the invitation for people to contact MIRRI.

Enlargement with Latin American countries (mainly Brazil and Chile) is being encouraged with different actions. Nelson Lima (UMinho) met different organizations. Rosa Aznar (UVEG-CECT) as Chair of the INCF has signed several letters of support on behalf of MIRRI for projects proposals. She volunteered as contact person (Spanish speaker) for any clarification in the process to negotiate with the Ministry of Chile to become a MIRRI member. BELSPO has made the calculations in order to provide to Chile and Brazil an estimation of their national contributions in case they become Members of MIRRI-ERIC. On the 18 January 2022 MIRRI Partners: Nelson Lima (UMinho), Rosa Aznar (UVEG-CECT), Marleen Bosschaerts (BCCM), Luís Soares (IS_MIRRI21 Director), Joanna Bucka-Kolendo (IAFB), Justyna Nasiłowska (IAFB) had a meeting concerning the organization of the next steps to reach out to the mBRCs and their country representatives, as a top priority with the potential of the enlargement of MIRRI consortium. The details are gathered in the D8.3 report.

Further to this meeting, Marleen Bosschaerts contacted potentially interested collections from Germany (SAG) and Czech Republic (CCF and CCM) as part of continuous effort for enlargement. More contacts are further expected.

Deliverable D8.3 common position papers resulting from international workshops

The main objective of this D8.3 was to present the common position papers resulting from international workshops concerning the current state of MIRRI, to ensure a successful implementation of the enlargement and consolidation plan, as the main goal of the WP8. The report from this deliverable was delivered in January 2022.

2.8.1. WP8 Tasks: Delays/Problems and Corrective Actions (M19-M24)

Since the COVID-19 outbreak is still ongoing, the activities that required physical attendance, like face-to-face meetings and workshops were moved online. The main problems that IAFB faced were the difficulties and limitations of the face-to-face contacts, other than that we haven't experienced any problems or delays in six months (August 2021-January 2022) of the IS_MIRRI21 project running.

2.9. WP9 Activities "Business Plan and Research Infrastructure Sustainability"

This WP oversees delivering mechanisms for long-term sustainability of MIRRI to be integrated into a global strategy to enhance technological developments and exploitation of research outcomes in the field of microbial diversity, biotechnology, and microbial resources.

WP9 is organised into three tasks, with three deliverables and two milestones. The WP is led by IP, in strong collaboration with BELSPO, UVEG-CECT, UMinho, and the participation of the other partner organisations: SPI, INRAE, ULPGC, KNAW, IBPRS, LU-MSCL, NKUA, CCG, UNITO.

Despite the schedule fixed in the GA for the three deliverables, some work related to tasks 9.2 and 9.3 had to be advanced to respond to the ESFRI monitoring questionnaire, which included questions about the Business and Financial Plans of the research infrastructure. A working group was established to work on this questionnaire, and as a result, a new draft of a MIRRI Business Plan was produced, based on the previous one developed during the MIRRI Preparatory Phase. The latest version of MIRRI Business Plan considered by the ApM at the time of this report is MIRRI-ERIC_Business Plan_v2_2020_11_24, from November 2020. In addition, a business model for MIRRI has been conceived and presented in the deliverable D9.1. However, the tasks of WP9 are continuously under development for the delivery of an updated version of the MIRRI-ERIC Business Plan (D9.2) at M36, which will include a revised Financial Plan (D9.3).

This report concerns the activities and outcomes of the fourth semester (M19 - M24) for WP9, which were mainly dedicated to tasks T9.2 and T9.3.

To advance on these tasks, several meetings were organised by IP, including targeted discussions in small working groups or with all partners.

Task 9.1 Establish a business model to prepare a long-term sustainable funding for the consortium

This task was completed with the submission of the deliverable D9.1: Business Model for MIRRI-ERIC, submitted on 23rd April 2021. Briefly, the document described which are the MIRRI target groups and the MIRRI value proposal to address their needs; how MIRRI will be governed and managed to deliver the services; and included an analysis of the socio-economic impact and of future opportunities.

This report had five chapters including:

- A brief introduction to MIRRI: mission, goals and values.
- An analysis of the different stakeholder categories, grouped according to their needs.
- The value proposition, including the channels to reach out the users, the projected costs and sources of income and how to access the services.
- A characterization of the targeted markets, together with a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis and description of the main challenges facing competition.
- A discussion about opportunities for expansion, in terms of membership/partnership and emerging markets.

An adapted version of a business model canvas was also produced to summarise the MIRRI-ERIC Business Model.

Task 9.2 Business Plan

The business plan will describe the strategy that will be followed by the future MIRRI-ERIC, including the organization and governance of the ERIC along with the implementation strategy settled by priorities (short, medium, and long term). The positioning of MIRRI-ERIC as a key stakeholder for knowledge transfer that will foster long-term collaborations with industry and policymakers to have an influence in the shaping of Europe's innovation ecosystem will be developed. It is expected this document will highlight the role of microbial Biological Resource Centres (mBRCs) in microbial resource management to preserve and supply biological resources, add value to R&D through their wide offer of microbiological services and repositories for protection of intellectual property. It will also be the foundation for the development of the knowledge-based bioeconomy to which MIRRI-ERIC will contribute.

In this regard, the task leader BELSPO has started to compile elements that will feed the business plan and long-term strategy of MIRRI. This work will be continued to have the final deliverable D9.3 in a timely manner. BELSPO has also contributed to the work programme 2022 for MIRRI, which was prepared by the IS_MIRRI21 Management Backoffice (MB). BELSPO participated in the WP9 meetings and working group meetings. On the sequence of previous contribution for the achievement of Deliverable 9.1, CCG has participated for the WP9 meetings with two main aims: (1) accompany and participate on the discussions contributing with its experience from similar tasks in previous projects and (2) keep informed and updated on the conclusions and decisions that may have direct impact on the specification and implementation of the MIRRI Collaborative Working Environment (CWE) under WP6.

Task 9.3 Five-year financial plan

The MIRRI-ERIC expenses and sources of income are briefly mentioned in the statutes and are discussed continuously with the ApM. A first version of a Financial Plan was included in the document MIRRI-ERIC_Business Plan_v2_2020_11_24 and in the work programme and budget 2022 for MIRRI. However, the exploitable outputs from the different work packages are being considered for the improvement of the financial projections for the next years. In this regard, the main strategic topics identified in WP2 Research Strategy (i.e., microbiome studies, culturomics, antibiotic resistance), as well as the services inventoried and tested during the TNA pilot (WP4) are being evoked as potential income sources. The work developed by WP8 for membership enlargement and the result of this exercise is also being considered for the estimations of members'/observers' contribution to the ERIC sustainability.

During the fourth semester of the project, two WP9 meetings and three working group meetings took place to advance on the definition of the income due to MIRRI services (MS29). For this, the output from WP2 regarding the prices offered by MIRRI partners is being considered for part of the estimations.

Related to this, UVEG-CECT elaborated the catalogue of individual services provided by partners (WP2, task 2.3) and asked partners about the prices of those services. This information is still being gathered. UVEG-CECT team is working closely with IP and together with the partners and the board of mBRCs directors in the discussion about the several rates to be applied to the different user segments and services. This will need to be validated later by the ApM. UVEG-CECT team participated in WP9 meetings and Task Force meetings in this regard.

According to our business model, the main income for MIRRI sustainability will come from the members' contribution. However, pricing and charging policies for MIRRI-ERIC services must be adopted for MIRRI-ERIC operations. Therefore, some aspects related to these points were discussed at WP9 meetings, and at ApM and board of mBRCs directors' meetings, as mentioned above. A matrix of type of prices according to user segments and product/services offered was proposed by the Director to decide on this regard. This matrix has been worked by IP with feedback from the partners and will continue to be discussed and revised to meet an agreement on the pricing/charging policies.

Regarding the D9.3, discussions took place about the criteria definition for income calculations and inclusion in the financial tables. The income due to members/observers' contribution will be dependent on countries ready to integrate MIRRI once recognized as ERIC, and on the expectations for the next years with countries having signed the Memorandum of Understanding (MoU) and in discussion to join MIRRI. The income due to services, although very minor in contrast to members/observers' contribution, is being estimated based on MIRRI-specific products/services, pricing/charging policies being discussed, prices of products/services from MIRRI partners and partners' income due to those items. Other sources of income will be addressed in more details in the upcoming months.

Table 14 summarizes the statuses of the WP9 deliverables and milestones.

Table 14 – WP9 Deliverables & Milestones

Action type	Description	Due Date	Achieved	Date
D9.1	Business model	M12	yes	23/04/2021
D9.2	Business plan	M36	ongoing	
D9.3	Financial plan	M36	ongoing	
MS28	Constitution of the working group	M3	yes	30/04/2020
MS29	Revenues estimation from MIRRI services	M24	ongoing	

2.9.1. WP9 Tasks: Delays/Problems and Corrective Actions (M19-M24)

WP9 partners have been working on the revenues estimation from MIRRI services (MS29) during the fourth semester of the project, to update the estimations made for the draft document MIRRI-ERIC_Business Plan_v2_2020_11_24. This milestone is highly dependent on outputs from other work packages and from decisions taken in other instances of the infrastructure development (mBRCs' board of directors, INCF, ApM), e.g., the definition of services (WP2); or the model about pricing and charging of MIRRI products/services. Although these reasons delayed the full achievement of MS29, advancements have been made regarding the pricing and charging policies, and definition of criteria considered for estimations. This milestone will be fulfilled in the upcoming months and included in the new financial tables in deliverable D9.3.



3. Resource Consumption & Needs: Efforts and Budget

3. Resource Consumption: Efforts and Budget

3.1. WP1 Resource Consumption: Efforts in PM

Estimation of efforts, in person months (PM), for each partner until the end of Year 2 (M1-M24):

Beneficiary No	Beneficiary Name	PM Consumed	PM Foreseen	% Consumed
1	University of Minho – MUM	15.38	28.00	55%
2	Sociedade Portuguesa de Inovação	1.05	1.50	70%
3	Universitat de València-Estudi General	3.44	6.00	57%
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	1.05	1.50	70%
5	Institut Pasteur	1.1	1.50	73%
6	Universidad de Las Palmas de Gran Canaria	0.99	1.50	66%
7	Koninklijke Nederlandse Akademie van Wetenschappen	0.25	1.50	17%
8	Service Public Federal de Programmation Politique & Third Parties	0.80	1.50	53%
9	Institute of Agriculture and Food Biotechnology	1.03	1.50	69%
10	University of Latvia	0.90	1.50	60%
11	National and Kapodistrian University of Athens	1.01	1.50	67%
12	Associação CCG/zgdv – Centro de Computação Gráfica	1.14	1.50	76%
13	Universita Degli Studi Di Torino & Third Parties	1.28	1.50	85%
14	All-Russian Collection of Microorganisms	0.60	1.50	40%
	TOTAL=	30.02	52.00	58%

3.2. WP1: Estimation of Budget Consumed

Estimation of budget consumption, in Euros, during 2 years period (M1-M24) for each partner.
 Note: *Overheads* are not included.

Beneficiary No	Beneficiary Name	Direct Costs/Personnel Costs	Other Direct Costs (travel, consumables, equip.)
1	University of Minho – MUM	51208.18	29611.61
2	Sociedade Portuguesa de Inovação	8323.42	0
3	Universitat de València-Estudi General	18852.1	1740.14
4	Institut National de la Recherche pour l'agriculture, l'alimentation et l'environnement	8368.2	0
5	Institut Pasteur	5307.5	2082.63
6	Universidad de Las Palmas de Gran Canaria	4757.23	0
7	Koninklijke Nederlandse Akademie van Wetenschappen	0	0
8	Service Public Federal de Programmation Politique & Third Parties	70.73	0
9	Institute of Agriculture and Food Biotechnology	1431.5	1221.71
10	University of Latvia	2700	0
11	National and Kapodistrian University of Athens	3934.42	0
12	Associação CCG/zgdv – Centro de Computação Gráfica	3726.96	0
13	Universita Degli Studi Di Torino & Third Parties	7604.84	0
14	All-Russian Collection of Microorganisms	0	0
	TOTAL=	116285.08	34656.09

3.3. WP2 Resource Consumption: Efforts in PM

Estimation of efforts, in person months (PM), for each partner until the end of Year 2 (M1-M24):

Beneficiary No	Beneficiary Name	PM Consumed	PM Foreseen	% Consumed
1	University of Minho – MUM	3.79	5	76%
2	Sociedade Portuguesa de Inovação	0.02	0	0
3	Universitat de València-Estudi General	5.74	8	72%
4	Institut National de la Recherche pour l'agriculture, l'alimentation et l'environnement	17.38	29	60%
5	Institut Pasteur	3.5	9	39%
6	Universidad de Las Palmas de Gran Canaria	0	0	0
7	Koninklijke Nederlandse Akademie van Wetenschappen	13.42	16	84%
8	Service Public Federal de Programmation Politique & Third Parties	0	0	0
9	Institute of Agriculture and Food Biotechnology	0	0	0
10	University of Latvia	1.16	2	58%
11	National and Kapodistrian University of Athens	8.97	9	99.7%
12	Associação CCG/zgdv – Centro de Computação Gráfica	1.12	2	56%
13	Universita Degli Studi Di Torino & Third Parties	1.72	2	86%
14	All-Russian Collection of Microorganisms	0	0	0
	TOTAL=	56.80	82	69%

3.4. WP2: Estimation of Budget Consumed

Estimation of budget consumption, in Euros, during 2 years period (M1-M24) for each partner.
Note: *Overheads* are not included.

Beneficiary No	Beneficiary Name	Direct Costs/Personnel Costs	Other Direct Costs (travel, consumables, equip.)
1	University of Minho – MUM	17239.88	1715.85
2	Sociedade Portuguesa de Inovação	22.47	0
3	Universitat de València-Estudi General	25573.96	0
4	Institut National de la Recherche pour l'agriculture, l'alimentation et l'environnement	92330.39	0
5	Institut Pasteur	16887.5	0
6	Universidad de Las Palmas de Gran Canaria	0	0
7	Koninklijke Nederlandse Akademie van Wetenschappen	94221	0
8	Service Public Federal de Programmation Politique & Third Parties	700	0
9	Institute of Agriculture and Food Biotechnology	0	0
10	University of Latvia	3480	0
11	National and Kapodistrian University of Athens	34942.29	4625.1
12	Associação CCG/zgdv – Centro de Computação Gráfica	5246.72	0
13	Universita Degli Studi Di Torino & Third Parties	8580.78	0
14	All-Russian Collection of Microorganisms	0	0
	TOTAL=	299224.99	6340.95

3.5. WP3 Resource Consumption: Efforts in PM

Estimation of efforts, in person months (PM), for each partner until the end of Year 2 (M1-M24):

Beneficiary No	Beneficiary Name	PM Consumed	PM Foreseen	% Consumed
1	University of Minho – MUM	11.33	24	47%
2	Sociedade Portuguesa de Inovação	0.21	0.5	42%
3	Universitat de València-Estudi General	5.88	10	59%
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	0.56	0.5	112%
5	Institut Pasteur	2.2	4	55%
6	Universidad de Las Palmas de Gran Canaria	0.5	0.5	100%
7	Koninklijke Nederlandse Akademie van Wetenschappen	3.33	10	33%
8	Service Public Federal de Programmation Politique & Third Parties	1.43	10	14%
9	Institute of Agriculture and Food Biotechnology	0.05	0.5	10%
10	University of Latvia	0.3	0.5	60%
11	National and Kapodistrian University of Athens	0	4	0%
12	Associação CCG/zgdv – Centro de Computação Gráfica	4.76	7	68%
13	Universita Degli Studi Di Torino & Third Parties	2.99	4	75%
14	All-Russian Collection of Microorganisms	0.82	1	82%
	TOTAL=	34.36	76.5	45%

3.6. WP3: Estimation of Budget Consumed

Estimation of budget consumption, in Euros, during 2 years period (M1-M24) for each partner.
Note: *Overheads* are not included.

Beneficiary No	Beneficiary Name	Direct Costs/Personnel Costs	Other Direct Costs (travel, consumables, equip.)
1	University of Minho – MUM	38262.66	2801.7
2	Sociedade Portuguesa de Inovação	433.84	0
3	Universitat de València-Estudi General	25962.51	0
4	Institut National de la Recherche pour l'agriculture, l'alimentation et l'environnement	2974.97	0
5	Institut Pasteur	10615	0
6	Universidad de Las Palmas de Gran Canaria	2387.02	1004
7	Koninklijke Nederlandse Akademie van Wetenschappen	18122	0
8	Service Public Federal de Programmation Politique & Third Parties	9602	0
9	Institute of Agriculture and Food Biotechnology	55.4	0
10	University of Latvia	900	0
11	National and Kapodistrian University of Athens	0	0
12	Associação CCG/zgdv – Centro de Computação Gráfica	15700.28	0
13	Universita Degli Studi Di Torino & Third Parties	14180.32	0
14	All-Russian Collection of Microorganisms	929.25	0
	TOTAL=	140125.25	3805.70

3.7. WP4 Resource Consumption: Efforts in PM

Estimation of efforts, in person months (PM), for each partner until the end of Year 2 (M1-M24):

Beneficiary No	Beneficiary Name	PM Consumed	PM Foreseen	% Consumed
1	University of Minho – MUM	0.76	1	76%
2	Sociedade Portuguesa de Inovação	0.46	0.5	92%
3	Universitat de València-Estudi General	10.68	18	59%
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	3.09	1	309%
5	Institut Pasteur	14.7	22	67%
6	Universidad de Las Palmas de Gran Canaria	1.09	1	109%
7	Koninklijke Nederlandse Akademie van Wetenschappen	0.06	1	6%
8	Service Public Federal de Programmation Politique & Third Parties	2.49	6.5	38%
9	Institute of Agriculture and Food Biotechnology	0.86	1	86%
10	University of Latvia	0.66	1	66%
11	National and Kapodistrian University of Athens	0.95	1	95%
12	Associação CCG/zgdv – Centro de Computação Gráfica	0	0	0
13	Universita Degli Studi Di Torino & Third Parties	0.91	1	91%
14	All-Russian Collection of Microorganisms	0.55	1	55%
	TOTAL=	37.26	56	67%

3.8. WP4: Estimation of Budget Consumed

Estimation of budget consumption, in Euros, during 2 years period (M1-M24) for each partner.
Note: *Overheads* are not included.

Beneficiary No	Beneficiary Name	Direct Costs/Personnel Costs	Other Direct Costs (travel, consumables, equip.)
1	University of Minho – MUM	2407.09	0
2	Sociedade Portuguesa de Inovação	792.28	0
3	Universitat de València-Estudi General	44097.09	0
4	Institut National de la Recherche pour l'agriculture, l'alimentation et l'environnement	16415.47	0
5	Institut Pasteur	70927.5	0
6	Universidad de Las Palmas de Gran Canaria	5244.72	0
7	Koninklijke Nederlandse Akademie van Wetenschappen	0	0
8	Service Public Federal de Programmation Politique & Third Parties	17228.49	0
9	Institute of Agriculture and Food Biotechnology	899.23	5856.87
10	University of Latvia	1980	0
11	National and Kapodistrian University of Athens	3700.69	1151.86
12	Associação CCG/zgdv – Centro de Computação Gráfica	0	0
13	Universita Degli Studi Di Torino & Third Parties	4443.6	0
14	All-Russian Collection of Microorganisms	1940	0
	TOTAL=	170076.2	7008.73

3.9. WP5 Resource Consumption: Efforts in PM

Estimation of efforts, in person months (PM), for each partner until the end of Year 2 (M1-M24):

Beneficiary No	Beneficiary Name	PM Consumed	PM Foreseen	% Consumed
1	University of Minho – MUM	4.25	10	43%
2	Sociedade Portuguesa de Inovação	0	0	0%
3	Universitat de València-Estudi General	2.08	4	52%
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	0.8	2	40%
5	Institut Pasteur	0.3	2	15%
6	Universidad de Las Palmas de Gran Canaria	1.12	2	56%
7	Koninklijke Nederlandse Akademie van Wetenschappen	0	2	0%
8	Service Public Federal de Programmation Politique & Third Parties	7.5	13	58%
9	Institute of Agriculture and Food Biotechnology	0.78	2	39%
10	University of Latvia	1.59	4	40%
11	National and Kapodistrian University of Athens	5	10	50%
12	Associação CCG/zgdv – Centro de Computação Gráfica	0	0	0
13	Universita Degli Studi Di Torino & Third Parties	3.62	8	45%
14	All-Russian Collection of Microorganisms	0	0	0
	TOTAL=	27.04	59	46%

3.10.WP5: Estimation of Budget Consumed

Estimation of budget consumption, in Euros, during 2 years period (M1-M24) for each partner.
 Note: *Overheads* are not included.

Beneficiary No	Beneficiary Name	Direct Costs/Personnel Costs	Other Direct Costs (travel, consumables, equip.)
1	University of Minho – MUM	14232.26	0
2	Sociedade Portuguesa de Inovação	0	0
3	Universitat de València-Estudi General	11284.42	0
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	4249.96	0
5	Institut Pasteur	1447.5	0
6	Universidad de Las Palmas de Gran Canaria	5412.82	
7	Koninklijke Nederlandse Akademie van Wetenschappen	0	0
8	Service Public Federal de Programmation Politique & Third Parties	67274	0
9	Institute of Agriculture and Food Biotechnology	1118.88	0
10	University of Latvia	4770	0
11	National and Kapodistrian University of Athens	0	0
12	Associação CCG/zgdv – Centro de Computação Gráfica	0	0
13	Universita Degli Studi Di Torino & Third Parties	0	0
14	All-Russian Collection of Microorganisms	0	0
	TOTAL=	109789.84	0

3.11.WP6 Resource Consumption: Efforts in PM

Estimation of efforts, in person months (PM), for each partner until the end of Year 2 (M1-M24):

Beneficiary No	Beneficiary Name	PM Consumed	PM Foreseen	% Consumed
1	University of Minho – MUM	0.73	1.00	73%
2	Sociedade Portuguesa de Inovação	0.33	0.50	66%
3	Universitat de València-Estudi General	12.27	24.00	51%
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	4.8	8.00	60%
5	Institut Pasteur	0.5	1.00	50%
6	Universidad de Las Palmas de Gran Canaria	0.7	1.00	70%
7	Koninklijke Nederlandse Akademie van Wetenschappen	11.96	15.00	80%
8	Service Public Federal de Programmation Politique & Third Parties	1.32	1.00	132%
9	Institute of Agriculture and Food Biotechnology	0.117	1.00	12%
10	University of Latvia	0.66	1.00	66%
11	National and Kapodistrian University of Athens	0.92	1.00	92%
12	Associação CCG/zgdv – Centro de Computação Gráfica	42.47	60.00	71%
13	Universita Degli Studi Di Torino & Third Parties	6.71	8.00	84%
14	All-Russian Collection of Microorganisms	1.89	4.00	47%
	TOTAL=	85.38	126.50	67%

3.12.WP6: Estimation of Budget Consumed

Estimation of budget consumption, in Euros, during 2 years period (M1-M24) for each partner.
Note: *Overheads* are not included.

Beneficiary No	Beneficiary Name	Direct Costs/Personnel Costs	Other Direct Costs (travel, consumables, equip.)
1	University of Minho – MUM	2880	0
2	Sociedade Portuguesa de Inovação	481.35	0
3	Universitat de València-Estudi General	66444.57	6477.76
4	Institut National de la Recherche pour l'agriculture, l'alimentation et l'environnement	25499.76	0
5	Institut Pasteur	2412.5	0
6	Universidad de Las Palmas de Gran Canaria	3362	0
7	Koninklijke Nederlandse Akademie van Wetenschappen	85387	0
8	Service Public Federal de Programmation Politique & Third Parties	9704	0
9	Institute of Agriculture and Food Biotechnology	1222.82	0
10	University of Latvia	1980	0
11	National and Kapodistrian University of Athens	3583.82	0
12	Associação CCG/zgdv – Centro de Computação Gráfica	98807.6	10822.55
13	Universita Degli Studi Di Torino & Third Parties	16134.65	0
14	All-Russian Collection of Microorganisms	6617	1524.3
	TOTAL=	324517.07	18824.61

3.13.WP7 Resource Consumption: Efforts in PM

Estimation of efforts, in person months (PM), for each partner until the end of Year 2 (M1-M24):

Beneficiary No	Beneficiary Name	PM Consumed	PM Foreseen	% Consumed
1	University of Minho – MUM	4.55	8	57%
2	Sociedade Portuguesa de Inovação	10.57	12	88%
3	Universitat de València-Estudi General	2.43	4	61%
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	1.05	2.5	42%
5	Institut Pasteur	1.5	3	50%
6	Universidad de Las Palmas de Gran Canaria	1.77	2.5	71%
7	Koninklijke Nederlandse Akademie van Wetenschappen	0.08	2.5	3.20%
8	Service Public Federal de Programmation Politique & Third Parties	0.48	3	16%
9	Institute of Agriculture and Food Biotechnology	1	3	33%
10	University of Latvia	1.4	2.5	56%
11	National and Kapodistrian University of Athens	2.47	2.5	99%
12	Associação CCG/zgdv – Centro de Computação Gráfica	0.78	3.5	22.30%
13	Universita Degli Studi Di Torino & Third Parties	2.79	2	140%
14	All-Russian Collection of Microorganisms	0.09	0.5	18%
	TOTAL=	30.96	51.5	60%

3.14.WP7: Estimation of Budget Consumed

Estimation of budget consumption, in Euros, during 2 years period (M1-M24) for each partner.
 Note: *Overheads* are not included.

Beneficiary No	Beneficiary Name	Direct Costs/Personnel Costs	Other Direct Costs (travel, consumables, equip.)
1	University of Minho – MUM	15575.34	1811.84
2	Sociedade Portuguesa de Inovação	20912.15	5874.8
3	Universitat de València-Estudi General	9108.94	1740.14
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	5578.07	0
5	Institut Pasteur	7237.5	0
6	Universidad de Las Palmas de Gran Canaria	8505.86	1358.55
7	Koninklijke Nederlandse Akademie van Wetenschappen	403.1	0
8	Service Public Federal de Programmation Politique & Third Parties	830	0
9	Institute of Agriculture and Food Biotechnology	1222.82	0
10	University of Latvia	4200	0
11	National and Kapodistrian University of Athens	9621.79	0
12	Associação CCG/zgdv – Centro de Computação Gráfica	2477.16	0
13	Universita Degli Studi Di Torino & Third Parties	12302.47	0
14	All-Russian Collection of Microorganisms	0	0
	TOTAL=	97975.2	10785.33

3.15.WP8 Resource Consumption: Efforts in PM

Estimation of efforts, in person months (PM), for each partner until the end of Year 2 (M1-M24):

Beneficiary No	Beneficiary Name	PM Consumed	PM Foreseen	% Consumed
1	University of Minho – MUM	3.3	3.2	103%
2	Sociedade Portuguesa de Inovação	0.09	0.5	18%
3	Universitat de València-Estudi General	1.51	2.5	60%
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	3.98	4.2	95%
5	Institut Pasteur	0.6	3	20%
6	Universidad de Las Palmas de Gran Canaria	1.48	2.5	59%
7	Koninklijke Nederlandse Akademie van Wetenschappen	0.01	1.75	1%
8	Service Public Federal de Programmation Politique & Third Parties	2.86	3.75	76%
9	Institute of Agriculture and Food Biotechnology	9.92	10	99%
10	University of Latvia	0.19	0.5	38%
11	National and Kapodistrian University of Athens	0.2	0.5	40%
12	Associação CCG/zgdv – Centro de Computação Gráfica	0	0	0%
13	Universita Degli Studi Di Torino & Third Parties	0.47	0.5	94%
14	All-Russian Collection of Microorganisms	0	0	0%
	TOTAL=	24.61	32.9	75%

3.16.WP8: Estimation of Budget Consumed

Estimation of budget consumption, in Euros, during 2 years period (M1-M24) for each partner.
 Note: *Overheads* are not included.

Beneficiary No	Beneficiary Name	Direct Costs/Personnel Costs	Other Direct Costs (travel, consumables, equip.)
1	University of Minho – MUM	14184.69	5435.77
2	Sociedade Portuguesa de Inovação	135.60	0.00
3	Universitat de València-Estudi General	8039.96	0.00
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	21143.55	0.00
5	Institut Pasteur	2895.00	0.00
6	Universidad de Las Palmas de Gran Canaria	7144.25	0.00
7	Koninklijke Nederlandse Akademie van Wetenschappen	0.00	0.00
8	Service Public Federal de Programmation Politique & Third Parties	20491.85	0.00
9	Institute of Agriculture and Food Biotechnology	9835.68	0.00
10	University of Latvia	330.00	0.00
11	National and Kapodistrian University of Athens	467.46	0.00
12	Associação CCG/zgdv – Centro de Computação Gráfica	0.00	0.00
13	Universita Degli Studi Di Torino & Third Parties	0.00	0.00
14	All-Russian Collection of Microorganisms	0.00	0.00
	TOTAL=	84668.04	5435.77

3.17.WP9 Resource Consumption: Efforts in PM

Estimation of efforts, in person months (PM), for each partner until the end of Year 2 (M1-M24):

Beneficiary No	Beneficiary Name	PM Consumed	PM Foreseen	% Consumed
1	University of Minho – MUM	3.14	6	52%
2	Sociedade Portuguesa de Inovação	0.13	2	7%
3	Universitat de València-Estudi General	5.54	8	69%
4	Institut National de la Recherche pour l’agriculture, l’alimentation et l’environnement	0.27	1.5	18%
5	Institut Pasteur	5.6	14	40%
6	Universidad de Las Palmas de Gran Canaria	0.98	1.5	65%
7	Koninklijke Nederlandse Akademie van Wetenschappen	0.01	1.5	1%
8	Service Public Federal de Programmation Politique & Third Parties	0.53	8	7%
9	Institute of Agriculture and Food Biotechnology	0.63	1.5	42%
10	University of Latvia	1	1.5	67%
11	National and Kapodistrian University of Athens	1.48	1.5	99%
12	Associação CCG/zgdv – Centro de Computação Gráfica	1.2	1.5	80%
13	Universita Degli Studi Di Torino & Third Parties	1.57	1.5	105%
14	All-Russian Collection of Microorganisms	0	0	0%
	TOTAL=	22.08	50	44%

3.18.WP9: Estimation of Budget Consumed

Estimation of budget consumption, in Euros, during 2 years period (M1-M24) for each partner.
 Note: *Overheads* are not included.

Beneficiary No	Beneficiary Name	Direct Costs/Personnel Costs	Other Direct Costs (travel, consumables, equip.)
1	University of Minho – MUM	8844.30	0.00
2	Sociedade Portuguesa de Inovação	266.78	0.00
3	Universitat de València-Estudi General	26906.11	0.00
4	Institut National de la Recherche pour l'agriculture, l'alimentation et l'environnement	1434.36	0.00
5	Institut Pasteur	27020.00	0.00
6	Universidad de Las Palmas de Gran Canaria	4706.80	0.00
7	Koninklijke Nederlandse Akademie van Wetenschappen	0.00	0.00
8	Service Public Federal de Programmation Politique & Third Parties	4255.00	0.00
9	Institute of Agriculture and Food Biotechnology	751.88	0.00
10	University of Latvia	3000.00	0.00
11	National and Kapodistrian University of Athens	5765.28	0.00
12	Associação CCG/zgdv – Centro de Computação Gráfica	3064.56	0.00
13	Universita Degli Studi Di Torino & Third Parties	9245.55	0.00
14	All-Russian Collection of Microorganisms	0.00	0.00
	TOTAL=	95260.62	0.00

4. Future Work Plans



3. Planned work for next 6 months period

3.1 WP1: Work foreseen for the next 6 months (M25-M30)

All Beneficiaries

In the upcoming period, the beneficiaries will continue to participate to the deliverables, reports, work package meetings and to contribute to the project activities. As we are approaching the second reporting period RP2, the beneficiaries will try to make the best conclusions of the project and outline recommendations for the setup of the prospective MIRRI-ERIC.

UMinho-MUM

Second General Assembly 28-30 March 2022

The 2nd General Assembly of IS_MIRRI21 will take place on the 28th, 29th and 30th of March 2022 at Mercure Hotel in Braga, Portugal. The meeting will be organized in a hybrid system (online and face to face mode). Together with the support of a multimedia company (Projeção Multimédia), we plan to have around 40 people in the online sessions and 30 participants attending on-site.

The event is being organized by the IS_MIRRI21 Management Backoffice (MB). The goal of the meeting is to show the work developed up to date and the future activities of IS_MIRRI21, which include the preparation of the 2nd Annual Report. There are also sessions dedicated to MIRRI's future.

The three-day meeting is divided into the different WPs' presentations done by the Work Package Leaders. The agenda also includes a session in which the Ethical Board and Advisory Board will present their recommendations about the project activities; a session about the 2nd Annual Report and a talk about the critical challenges, best practices, and useful recommendations for an ERIC-to-be with the guests Jens Habermann & Jana Pavlic-Zupanc from the BBMRI & ERIC Forum.

The event ends with two open sessions for the MIRRI prospective members. A set of invitations to participate in the sessions will be sent to potential or interested countries in MIRRI such as Chile and United Kingdom, among others. The presentations contain information about the establishment of National Nodes and their inclusion in the national Roadmaps (as critical success factors for the consolidation and sustainability of MIRRI-ERIC). The ESFRI Vice-Chair & MIRRI ApM member, Inmaculada C. Figueroa Rojas, will talk about her experience in the field and the MIRRI-PT coordinator Nelson Lima and Cristina Varese from MIRRI-IT will share a practical view of the respective nodes. Finally, the IS_MIRRI21 Director- Luís Soares will introduce the MIRRI's Work Program for 2022 and an outlook for 2023-2026 program.

Request for extension of the project

Due to the Covid-19 delays and procedural issues of human resources, which had an impact on the timely implementation, the consortium plans to request to the EC a possible extension of six months. Importantly here, in their report (Annex 1) the advisory board recommended and supports the extension of the IS_MIRRI21 project.

Possible Amendments to the General Agreement

The consortium will work on the amendments to the General Agreement that were found necessary to adjust and improve the progress of IS_MIRRI21 project. As WPL, UMinho will continue working on the tasks 1.1, 1.2, 1.3. In addition, UMinho will support other partners and WPs especially WP5 to move the training and education forward as this is an important outcome for the project and for the Gate 4 on the CWE Platform.

CCG

For the next period, CCG will continue its contribution for the project coordination activities, as planned and expected. These contributions will be translated, among other tasks, on keeping the internal mandatory records and registries, providing the reporting information to the coordinator for periodic reports, contributing for the coordination and management deliverables or the contribution for the communication tasks. Furthermore, the contribution and collaboration with the coordinator and the other partners for review meetings preparation and realization. Attending and actively participating for the WP1 meetings (general assembly meetings, regular meetings, ...) will also be part of CCG's contribution for this WP during the next period.

3.2 WP2: Work foreseen for the next 6 months (M25-M30)

In the fifth semester of IS-MIRRI21 project the WP2 activity will be oriented to the development of tasks 2.1, 2.2 and 2.3. The specific activities planned for the next 6-month period are:

Task 2.1:

Contact experts to collect and write the **first set of common protocols and standards** for resources characterization (Task 2.1B, Deliverable 2.2).

Task 2.2:

In the framework of Task 2.2 Interactions with other BMS-RIs, MIRRI plans to implement the activities in the next 6 months as subsequently described by partners.

Task 2.3:

MIRRI workflows are being revised under the scheme of the MIRRI Strategic Agenda, the actual provision of services and the expertise of partners.

In the coming months, specific meetings and collaboration from partners will be requested for the revision and update of workflows, as well as to decide on operational aspects about how to provide user access to them.

Description, from 1 February to 31 July 2022:

- Tasks partners plan to work on

All Beneficiaries

Finally, the tasks planned in the next months will contribute to the development of **Deliverable 2.2** (MIRRI common procedures and standards for strain characterization) and **Deliverable 2.3** (MIRRI workflows) both scheduled for the end of the IS-MIRRI21 project (M36).

INRAE

For **Task 2.1B** INRAE will coordinate the development of the planned activities. WP2 leader will chair the scheduled monthly meetings and will ensure the project progression by prioritizing the accomplishment of the specific sub-tasks. INRAE will coordinate the collection of protocols and the identification of common standards for strain characterization. INRAE will promote the exchanges and discussion on new technologies and high throughput methods that have a high potential for the implementation of characterization of MIRRI resources as well as for offer of cutting edge MIRRI services. INRAE will also participate to the activities of **task 2.2 and 2.3** according to the needs of these tasks.

UMinho-MUM

MUM will participate in the monthly meetings to contribute to the WP2 tasks and will share protocols for identification of filamentous fungi.

UVEG-CECT

As leader of task 2.3, UVEG-CECT is managing the implementation of services, including operational aspects, and the revision of workflows that could be provided by the partners under the scheme of the Strategic Agenda. Once the single services and the expertise of the partners is described in detail, we plan to develop workflows matching the users' requests (TNA feedback) and the Research Strategic Agenda. Dedicated meetings will be organized to discuss ideas to take decisions about operational aspects.

IP

IP will participate to monthly meetings to contribute to the WP2 tasks.

Contribution to Task 2.1: IP will contribute with protocols for bacterial strains isolation and characterisation (taxonomy).

Contribution to Task 2.2: IP will continue to participate in activities to enhance interactions with other European RIs, as the Kick-off meeting of the ISIDORE project, scheduled for the 24th February 2022.

Contribution to Task 2.3: IP will contribute to the development of workflows based on the collaborations and joint projects that were developed with other partners for the 1st TNA call of 2021 (three workflows could be established among IS_MIRRI21 partners). In addition, IP will analyse together with UVEG-CECT the results from the users' survey to identify the top-requested integrated services and, consequently, the strengths and an expertise of each MIRRI partner to set-up workflows responding to users' needs.

KNAW-Westerdijk Institute

KNAW-WI will continue to participate in the WP2 regular meetings. KNAW-WI will contribute to the implementation of Deliverable 2.2 by sharing protocols on taxonomic characterisation of yeasts and participating in the meetings dedicated to the synthesis of common MIRRI protocols and standards. Also, KNAW-WI will contribute to the other WP2 tasks corresponding to the demands of the project.

NKUA

NKUA will participate in monthly and other meetings. In addition, it will provide additional protocols and participate in other activities as required.

CCG

CCG's main contribution will be on the context of Task 2.3, for services catalogue implementation and related information maintenance on MIRRI CWE. The technical solution for MIRRI services catalogue exhibition will implement the requirements identified in the discussions and meetings with partners, such as the possibility of searching over the entire catalogue, sending inquires to MIRRI access officer about services, etc.

UNITO, including Third Parties USMI/IRCCS, UMCC/ UNIMORE, ITEM/CNR and DBVPG

In the next semester, UNITO and its third parties will continue to participate to the monthly meetings giving its contributions to the discussions and plans.

UL-MSCL

UL-MSCL will participate in the monthly meetings, communication/collaboration with prospective users (especially from neighbouring countries, for instance, Lithuania)

regarding new characterization technologies including genome sequencing of microbial resources will be continued.

BELSPO, including Third Parties BCCM/IHEM, BCCM/MUCL and BCCM/ULC

BCCM/ULC will participate in the monthly meetings, communication/collaboration with the Belgian culture collections on the topics of D 2.2. and D 2.3. More specifically, ULC will be working group facilitator for the protocols on cyanobacteria.

3.3 WP3: Work foreseen for the next 6 months (M25-M30)

As mentioned in the activities, WP3 partners have organized three workshops for June 2022 in Belgium. Following these 3 workshops, deliverables D3.5 and D3.6 will be prepared by the end of Month 30. A fourth workshop is expected in December 2022 (TBD) and deliverable D3.4 is still dependent on its fulfilment. At last, D3.2 is still under discussion to be presented until M30.

All Beneficiaries

In the next semester, it will be discussed how to scale-up from the current structure of the MB to the expected needs of the future MIRRI ERIC CCU. The research Infrastructure (RI) must be as autonomous and independent as possible from mBRCs, incorporating within it the skills and expertise needed for the management of the RI.

UMinho-MUM

In the next six months, consolidation of governance will be pursued. UMinho will collaborate with beneficiaries KNAW and BELSPO with three workshops organization and later with Deliverables 3.4, 3.5 and 3.6.

SPI

For the next period, SPI will continue its contribution to the project activities, as planned and expected.

UVEG-CECT

Main tasks planned for the next semester are:

- The new IT officer is expected to start working at the beginning of March, so he will have to be introduced into the project and the operation of the MIRRI CCU.
- A hybrid meeting for mBRC directors is going to be organized by CECT-UVEG in Valencia and on-line on the 4 February 2022. At this meeting, important

decisions will be taken, allowing to progress on operational procedures (Rules of Operation, policies, etc.)

- Lead the final approval of the MIRRI CWE terms of use to be able to implement the forum of experts
- Participation in any other meeting or task organized by the other partners

INRAE

For the next months, INRAE will participate in the activities and meetings of WP3 as planned. INRAE will also participate in the foreseen workshops and share its experience.

IP

The Access officer will contribute to the establishment of solid operational procedures for an efficient TNA programme by gathering users' feedback on the TNA calls and providing the results of the 2nd TNA call. IP will also participate in discussions and decision-making activities related to operational aspects of future MIRRI-ERIC, such as the establishment of pricing and charging policies (see also WP9), as well as in workshops under preparation.

ULPGC-BEA

BEA will participate in the planned meetings, workshops and activities organized for the next semester.

KNAW

For the next period, KNAW will continue its contribution to the project activities, as planned and expected. In the upcoming period, KNAW will be especially engaged in the organization of two of the workshops announced for June (in Belgium).

BELSPO AND ITS THIRD PARTIES

BELSPO and Third Parties will keep participating in ongoing activities. Specifically, in the workshop to explain the ISO 20387 foreseen for the 23 June 2022, in combination with two other workshops from this WP. BELSPO and its third party BCCM/MUCL will take care of logistics. BELSPO will be in contact with other experts to put together and realise the programme.

To prepare the internal audits, the checklist for the ISO20387 will be finalised and provided to the volunteering collections. Ideally, two internal audits will take place in this period.

IAFB

For the next period, IAFB will continue its contribution to the project activities, as planned and expected. IAFB will also participate and share its experience during the foreseen workshops.

UL-MSCL

For the next period, UL-MSCL will continue participating and contributing to the project activities, as planned, and expected.

NKUA

For the next period, NKUA will continue its contribution to the project activities, as planned and expected.

CCG

CCG team will continue its participation for the WP3 meetings, discussions, and decisions with the partners. Further developments and implementations for the CWE functionalities, to reflect the WP3 decisions, will also be carried out by CCG, in particular on what concerns the finalization of the Expert Clusters module and the workshops information and publication. CCG's technical/technological expertise will also be made available for the discussions and decisions to be taken by MIRRI in terms of common operational procedures.

UNITO AND ITS THIRD PARTIES

UNITO and third Parties will participate in the planned meetings and activities organized for the next semester, including the workshops in June, where UNITO and Third Parties will share experiences.

3.4 WP4: Work foreseen for the next 6 months (M25-M30)

Description of the Tasks that partners plan to work on and the Deliverables and Milestones that partners will contribute to fifth 6-month period (from 1 February 2022 to 31 July 2022).

IP

- **D4.2 under the form of written document**
- **Complete feedback from all the awardees of the 1st TNA call and organization of the symposium (in collaboration with BELSPO).** We will gather the EC

questionnaires of all the awardees once all the accesses have been completed (mid-March). Next, the workshop with the four awardees will be organized by BELSPO.

- **Recruitment of new members for the USP panel.** New USP members, who are specialist in the research area of the projects submitted, will be recruited.
- **Update guidelines for reviewers and Liaison officers.** This will be done in collaboration with UVEG-CECT.
- **Evaluation and selection of the awardees for the 2nd TNA call.** Interested applicants already contacted the Access officer to obtain further information about the offers and partners' facilities before submitting a project proposal. The projects submitted through the [online platform](#) will be checked for eligibility and technical feasibility by the Access and Liaison officers of the nine providers. Afterwards, projects will be dispatched to the reviewers (USP members). They will score the proposals online according to internal guidelines. The evaluation and selection of the applications will be done online entirely. Proposals with the highest scores will be selected for access (one proposal for TNA offer) and the awardees will be notified by e-mail and announced on the MIRRI webpage in June 2022.
- **Production of a FAQ document.** Frequently asked questions by potential users interested in getting access to the Provider's facility through the TNA programme will be listed in a document.

UMinho-MUM

The activities for the next 6 months will be centred in support and help any user who wishes to develop a project for the TNA application in the field of Food Mycology. In the case of a successful application MUM will receive the user. MUM will also participate in meetings and activities proposed within the WP4.

SPI

SPI will continue to contribute to WP4 activities and meetings.

UVEG-CECT

In the next 6 months, UVEG-CECT will check the user's needs and help them to produce a project for the TNA application adapted to our offer. User's access will be provided at the end of the 5th semester or the beginning of the 6th. The team will contribute to the evaluation of the results of the 1st TNA call and will also participate in meetings and activities proposed within the WP4.

INRAE

INRAE will participate in WP4 meetings, will provide requested feedback and contribution to different tasks.

ULPGC, including the Third-Party FCPCT

ULPGC-BEA will continue its contribution to the project activities and provide feedback on requests from the users.

KNAW-Westerdijk Institute

KNAW-WI will host the users interested and continue to provide feedback on requests from users who are interested in strains.

BELSPO, including Third Parties BCCM/IHEM, BCCM/MUCL and BCCM/ULC

BELSPO will organise the symposium to gather the feedback of all persons involved in the 1st TNA call.

BCCM/MUCL

In the next 6 months, BCCM/MUCL will continue to advertise the TNA offer and will interact with potential applicants to the 2nd call of the TNA to discuss their projects and answer their questions. Possible applicants will be assisted with the administrative procedures and logistics related to the access. BCCM/MUCL will also participate to meetings organized by the Access Officer.

BCCM/IHEM

In the next 6 months, BCCM/IHEM will interact with potential applicants to the 2nd call of the TNA to discuss their projects and answer their questions. Technical feasibility of the TNA proposals applying for access will also be verified. Possible applicants will be assisted with the administrative procedures and logistics related to the access. BCCM/IHEM will also participate to meetings organized by the Access Officer.

BCCM/ULC

In the next 6 months, BCCM/ULC will continue to advertise the TNA offer and interact with interested candidates who would like to apply for the second call of the TNA, to answer scientific, practical, logistic, and legal questions and discuss their plans. BCCM/ULC will participate to the meetings organized by the Access Officer.

IAFB

For the next period, IAFB will continue its contribution to the project activities, as planned and expected.

UL-MSCL

We will try to continue our contribution as it was expected.

NKUA

NKUA will continue to participate in WP4 meetings and to contribute to the project activities.

CCG

Despite not having resources approved for WP4, for the next period, as this is directly linked to the WP6 activities, CCG will continue its technical contribution for the updates on the actual implementation of the TNA platform in CWE. Such updates may be both in terms of content and functionalities relative to the 2nd TNA call results.

Furthermore, CCG will keep participating for the WP4 meetings and interactions with the partners for the activities foreseen in the period.

UNITO, including Third-Parties USMI/IRCCS, UMCC/ UNIMORE, ITEM/CNR and DBVPG

In the next six months UNITO and third parties will host potential users awarded in the frame of the 2nd TNA call, provide services and strains, if required, and will actively participate to the project activities as in the past.

IBPM RAS

IBPM RAS will attend all the WP4 monthly meetings. IBPM RAS offer remains the same.

3.5 WP5: Work foreseen for the next 6 months (M25-M30)

To complete the information available about the T&E on mirri.org. Users will be able to search for specific content with images and use key words associated to the search process.

It's also planned a constant update of the T&E offer from different partners available on the website as well as the improvement of the display of the courses by categories (strategic areas, expert clusters, and types of resources).

All Beneficiaries

Task 5.1: Advanced training courses for users

This task is completed but the implementation of new T&E and the update of information on the existing offer is still possible and desired.

Task 5.2: Implementation of the “European Specialization course on Microbial Resource Centres: EuMiRC”

BELSPO will provide input on possible courses and teachers to be included in the EuMiRC and prepare the necessary course materials.

UVEG-CECT will continue participating in the design of the EuMiRC course and will contribute with teachers for the different activities and preparing the contents

IP will contribute to the EuMiRC course with teachers and material related to CIP-CRBIP expertise.

Task 5.3: Development of IS MIRRI21 video materials

UVEG-CECT will contribute with ideas and supporting the video’s translation and dissemination.

The following tasks will be conducted in the next six months:

1. Decide the themes and messages for the next 3-4 videos (begin March 2022)
2. Prepare scenarios (end March 2022)
3. Shooting and assembling the videos (end May 2022)
4. Subtitling of the videos (end June 2022)
5. Dissemination of the videos on the CWE and other platforms (July 2022)

UVEG-CECT will participate in the tasks 1, 4 and 5 scheduled above.

IP will provide support for tasks 1, 4 and 5.

3.6 WP6: Work foreseen for the next 6 months (M25-M30)

UMinho-MUM

UMinho continues to support WP6’s plans and activities.

SPI

SPI will support WP6 with content for the CWE.

IAFB

For the next period, IAFB will continue its contribution to the project activities, as planned and expected.

CCG

For next period, CCG will continue its contribution for the CWE implementation. All the gates and modules will be updated, going from a simple content update or the development to implementation of new functionalities. For the MIRRI-IS update with new content (Gate to Microbial Resources, Data and Services), CCG will participate to the specifications’ discussion about virus and plasmids, as well as for the implementation of new validation tools, to be made available in the portal of additional tools (tools.mirri.org), for CC’s data validation and conformance to the specifications before upload in the catalogue.

Moreover, for the Expert clusters gate, CCG will avail the forum module and fully configure it to support all the user profiles in MIRRI CWE. Another module will be implemented and configured for the CWE users to interact with the members of the expert cluster for specific questions, direct support, etc.

The catalogue of services and Training&Education (T&E) Gate will also be updated, in terms of content and functionalities. The Transnational access programme platform will also be implemented and updated, whenever necessary, in the CWE.

UVEG-CECT

As WPL, UVEG-CECT will continue with the organization and moderation of the WP6 and ICT Taskforce meetings to keep ongoing activities. Regarding the MIRRI-IS, UVEG-CECT will continue working on the development of the tools needed to update the MIRRI-IS with the data from the different CCs: i) tools that will interact with the corresponding MIRRI-IS available web-services; ii) a new tool to compare strains data with those previously sent by the CCs, in order to reduce dramatically the amount of time and computing resources needed to update strains data from CCs in the MIRRI-IS. In addition, UVEG-CECT will continue providing support to the CCs (as part of the ICT Task force) in technical aspects related to the tools that are being developed.

UVEG-CECT will continue supporting CCG and INRAE groups by providing the required servers to host the tools that must be developed for the CWE implementation and MIRRI-IS data FAIRification processes, respectively.

As Task 6.5. leader, UVEG-CECT coordinates and will work on the preparation of the usability tests contributing to the definition of the interviewees' profiles; the recruitment of interviewees; and the design of questionnaires to test usability of the Strains and Services catalogues, and TNA. The IT officer will support the interviews with the real users recruited.

IP

IP will contribute to Task 6.5. The Access Officer will be part of the Task Force to approach usability tests with "real users" on the different Gates and modules as soon as they are fully operative. In addition, it will provide the user feedback from the 1st TNA call. IP will also contribute to task 6.4, working on the export of strains to be included in the MIRRI-IS. For this, a previous work of data curation has been done locally.

INRAE

In the next 6 months INRAE will keep on its participation to ICT Task Force and WP6 meetings, as well as on the development of the FAIRification of MIRRI database. INRAE will continue working on DOI registration and updating metadata and will set up an authentication process while keeping on developing web services.

NKUA

NKUA will continue to participate in monthly and other meetings. In addition, it will provide additional protocols and participate in other activities as required.

UL-MSCL

MSCL will continue to work with electronic strain catalogue by the additional involvement of IT specialist, will participate in the planned WPs meetings.

ULPGC-BEA

BEA will continue to participate in monthly meetings and any testing and protocol to improve the service and the MIRRI strains catalogue as required.

UNITO AND ITS THIRD PARTIES

In the next semester, UNTO and its third parties will continue participate to every organized monthly and additional meeting. Together with UVEG-CECT will set up and start to perform the Usability Tests for the CWE, focusing on the MIRRI-IS strains and MIRRI-IS Services catalogues, and TNA. USMI is also involved in the definition of specifications for viruses and plasmids, that will be completed in the next semester. Support to the FAIRification of MIRRI-IS is also planned.

KNAW

KNAW will continue giving support to the MIRRI-IS full implementation by incorporating the required refinements in the MIRRI-IS search tool. In addition, KNAW will accommodate the current MIRRI-IS software to accept and produce strains data according to the JSON specifications to ensure machine interoperability. KNAW is currently working on several fronts to produce several workflows that will allow automating actions necessary within the framework of the RI. For instance, a newly integrated tool will allow end-users to identify DNA barcodes in batch in an efficient and precise manner.

KNAW will also work on the creation of the needed databasing infrastructure to store and manage virus and plasmids and will also help curating and import the latter data from the providers. KNAW will also continue to import missing data from bacterial and fungal collections.

BELSPO AND ITS THIRD PARTIES

BELSPO and its linked third parties have only limited number of PM in WP6. BELSPO will further provide the requested data and information to build the CWE and MIRRI-IS.

IBPM RAS

IBPM RAS will work on the following:

- the Registration of MIRRI resources (FungalDC, MIRRI-IS, MycoBank, Yeast-ID, YeastIP, MIRRI data standard) in FAIRsharing,
- Upgrades for MIRRI data standard together with the ICT group,
- Corrections proposal for D6.2,
- Upgrades for strains catalogues of VKM and Russian NN partners.
- Participation in WP6 meetings with ICT problems solution (FAIRfication, metadata, MIRRI data standard)
- In EOSC-Life: FAIRfication analysis of Open Call projects

3.7 WP7: Work foreseen for the next 6 months (M25-M30)

UMinho-MUM

During the next six-month period, UMinho-MUM will identify relevant national and international events where IS_MIRRI21 can be represented, which in turn will promote the creation of additional content for dissemination and communication purposes.

SPI

As leaders of the WP7, SPI seeks to fulfil the tasks of the work package in a timely fashion and will recommend and help in the organization of scientific workshops and networking events on the external and internal levels.

IAFB

During the next six-month period, IAFB will assist in any relevant dissemination and communication activities.

CCG

During the next six-month period, and during the remaining of the project, CCG will continue its activities of support for the IS_MIRRI21 project dissemination activities, among other, by implementing and updating the information available online in the MIRRI Portal (www.mirri.org) - the collaborative Working Environment (CWE). Most of the resource allocation for this WP will happen during the upcoming and last period, as the effort for technical and scientific publications can be performed just after the implementation of CWE (the main contribution of CCG for the project) in its more definitive version. That is the reason why the remaining ~77.70% of human resources allocation for this WP will happen in the period M25-M36.

UVEG-CECT

The CECT will continue participating in the activities proposed by WP7 within the project as well as in the dissemination and promotion of MIRRI in the scientific events in which the CECT staff participates, also through its web pages and social networks.

IP

The IP will continue collaborating with WP7 for all the outreach and dissemination activities regarding the 2nd TNA call and by promoting MIRRI through its webpages.

INRAE

INRAE will continue working with WP7 on outreach and dissemination activities.

NKUA

NKUA will continue to participate in monthly and other meetings. In addition, it will look for opportunities to disseminate information about MIRRI and utilise them to do so.

UL-MSCL

UL-MSCL will continue to contribute to WP7 activities, promote the 2nd TNA call using electronic communications tools and will finalize the IS_MIRRI21 Brochure translation in Latvian.

ULPGC-BEA

ULPGC-BEA will continue carrying out activities to increase the impact of the results of the project by communication and dissemination among the scientific community (scientific papers and workshops), industry, society and policymakers through networking programs, web pages (BEA, ULPGC and FCPCT webs) and social networks (LinkedIn, Twitter, Instagram).

UNITO AND ITS THIRD PARTIES

UNITO and its third parties will continue to contribute to project activities, raising awareness of MIRRI and advertising events such as the TNA calls. UNITO will also organise presentations on MIRRI, mainly through the activities of the JRU MIRRI-IT and within the COST Ocean4biotech.

BELSP0 AND ITS THIRD PARTIES

INRAE will continue coordinating with WP7 especially in relation to the scientific video capsules produced in the framework of WP5. They will also take part in any relevant dissemination and communication activities.

3.8 WP8: Work foreseen for the next 6 months (M25-M30)

All beneficiaries

All WP8 beneficiaries will continue to help with the tasks and efforts to attract new members, mBRCs and CCs to join MIRRI

UMinho-MUM

UMinho-MUM will continue the efforts and communications to attract new members for MIRRI within and beyond Europe such Chile and Brazil, or the federated states of Paraná and São Paulo, through the current collaboration with FioCruz Foundation.

SPI

SPI will collaborate with IAFB and WP8 to organize the MIRRI enlargement and consolidation of membership events.

UVEG-CECT

UVEG-CECT will support any activities related to member enlargement. Rosa Aznar and Aurora Zuzuarregui, as Chair and Member of the INCF respectively, will participate in the meetings that will be scheduled with mBRCs' directors and/or Ministry representatives from prospective members.

INRAE

In the next 6 months, INRAE will discuss on its contribution to WP8 with IS_MIRRI21 director and WP8 leader to define the best strategy towards private partners.

IP

In the next 6 months, IP will continue supporting WP8 activities participating in the decision-making process of mBRCs' directors and during the ApM meetings. IP will strengthen the communication with potential new members.

ULPGC, including the Third-Party FCPCT

ULPGC-BEA will participate in the planned meetings to enlarge the membership and will disseminate by different channels to attract new members.

BELSPO, including Third Parties BCCM/IHEM, BCCM/MUCL and BCCM/ULC

BELSPO will further ensure the role as Chair of the Assembly of prospective Members. Once the MIRRI-ERIC is created (now expected for June 2022), the necessary steps must be taken to adapt the present governance structures to the official bodies as foreseen in the statutes. In this regard, additional documents (such as the Rules of Operation) must be written, and other activities prepared (engagement of staff for the CCU).

BELSPO will continue contacting prospect mBRCs and follow up these contacts.

IAFB

Within the next 6 months (M25-M30), IAFB is planning to continue the process of enlargement of the membership through the organization of the next steps to reach out to the mBRCs and their country representatives, as a top priority with the potential of the enlargement of MIRRI consortium. Future Members will be engaged by signing the MIRRI MoU or directly joining the MIRRI when a legal entity has already been adopted. The representatives of the countries will be approached by the Chairs of Assembly of prospective Members (ApM) and Interim National Coordinators Forum (INCF) and the plan for membership enlargement will be tailored individually to each country. Due to the difficulty of planning and organizing workshops, and face-to-face meetings because of the current COVID-19 pandemic situation, it is our priority to contact Country representatives, intergovernmental organizations, and culture collections we reached out to in the past. Likewise, we need to gather new information about the high potential of interest in joining MIRRI.

1. SAG - Culture Collection of Algae, Gottingen, Germany
2. DSMZ - German Collection of Microorganisms and Cell Cultures GmbH, Germany
3. CCF - Culture Collection of Fungi, Charles University, Prague, Czech Republic
4. CCUG - Culture Collection, University of Gothenburg, Sweden
5. CCY - Culture Collection of Yeasts, Institute of Chemistry, Slovak Academy of Sciences, Slovakia
6. NCAIM - National Collection of Agricultural and Industrial Micro-organisms, Corvinus University of Budapest, Hungary
7. Montenegro - as MIRRI is on the Montenegrin Research Infrastructures Roadmap 2019-2020
8. LuxMCC - Luxemburg Microbial Culture Collection
9. CCOS - Culture Collection of Switzerland

A package with several relevant documents about the infrastructure (the MIRRI statutes, presentation of the MIRRI Institutional profile and its key achievements, and the SRIA (Research and Innovation Strategic Agenda) will be sent to the CCs together with the invitation letter (request for a meeting). The meeting proposal with country representatives will have the participation of the IS_MIRRI21 project Coordinator, the Director, and the Interim National Coordinators Forum (INCF), as in many countries the decision might be highly politicized.

Acquiring the ERIC status soon will certainly boost the enlargement and business efforts and thus IS_MIRRI21's partners are ready to operationalize and lead the prospective members to join MIRRI, which needs work on a legal, procedural, and managerial level. At this moment 5 countries have gone through their national procedure and will become founding members of MIRRI-ERIC.

UL-MSCL

UL-MSCL will continue to work internally for the membership of Latvia as a founding member of the MIRRI-ERIC after signing the memorandum of understanding.

NKUA

NKUA will participate in monthly and other meetings. In addition, it will look for further opportunities to find and communicate with potential new members.

3.9 WP9: Work foreseen for the next 6 months (M25-M30)

UMinho-MUM

UMinho-MUM will continue to work closely with WP9 beneficiaries on the pricing of services and offers. UMinho team will also participate in the organisation of the Business and financial plan, both due in Month 36.

SPI

SPI will share their experience on business activities.

IAFB

For the next period, IAFB will continue its contribution to the project activities, as planned and expected.

CCG

For the upcoming period, CCG will continue its contribution for the discussion and decisions regarding the MIRRI's business plan and model of sustainability. Therefore, participation to the WP9 meetings with partners, contribution to deliverables and update of information in CWE are foreseen in the next six-month period. The final version of CWE is one of the tools supporting the MIRRI Business model implementation. Therefore, CCG's accompaniment and participation for the discussions in this matter may be of importance for the implementation of the multiple gates of CWE platform in its final version.

UVEG-CECT

UVEG-CECT will continue the task of gathering the information of prices regarding partner services and will participate in the discussion of the definition of rates for MIRRI

services. The team will also participate in next meetings and in the progress of the foreseen deliverables.

IP

IP will continue organizing WP9 and working group meetings, continue working on the update of the financial plan, and participating in discussions about the revisions of the business plan.

For the financial plan revisions, IP will gather information related to European projects to which partners are participating, for estimations about income due to grants, and average revenues from services per partner when possible. IP will coordinate the discussions on the pricing and charging policy of future MIRRI-ERIC products and services and contact other RIs (BBMRI, EMBRC) to have insights on their business models and pricing/charging policies.

INRAE

INRAE will participate to the meetings and to the different discussions on the pricing and charging policy of future MIRRI-ERIC products and services.

NKUA

NKUA will continue to participate to project meetings and to contribute to the project activities.

UL-MSCL

UL-MSCL will continue to keep permanent communication with Ministry of Education and Science Republic of Latvia on different issues, especially regarding to the future long-term support of MIRRI-ERIC, UL-MSCL will participate in the next WPs meetings.

ULPGC-BEA

ULPGC-BEA will continue participating in the meetings, providing the requested information and contributing to the discussions and planned activities.

UNITO AND ITS THIRD PARTIES

UNITO and its third parties will continue to contribute to the activities of WP9.

BELSPO AND ITS THIRD PARTIES

BELSPO will work further on the final Business Plan, gathering the new pieces of information that will become available in the coming period.

IBPM RAS

IBPM RAS inspected the Business Plan text and prepared proposals for its upgrade.



4. Conclusion and Final Remarks

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To conclude, this report demonstrates the intense work and efforts performed by all partners to initiate and to develop the activities and work planned in the [IS_MIRRI21](#) Grant Agreement. The project was launched during the COVID-19 pandemic global outbreak, which redefined drastically our work routine and required us to re-adapt and postpone some of our foreseen activities.

Although the activities developed under suboptimal conditions, due to the lack of face-to-face meetings and site visits. All partners adapted and were strongly committed to all tasks. Although some activities are behind schedule and not yet completed, we see, as evidenced in this report, an extremely positive momentum within the consortium to achieve the objectives

The money that is not yet spent due to the current limitations resulted from the ongoing pandemic situation will be used to accelerate the work to be done; moreover, a and a possible extension of the project is under consideration.

Finally, due to the conflict in Ukraine, funding to the Russian partner IBPM-VKM (no. 14) was suspended (EC REA Head of Unit's Letter 08/03/2022). The participation of IBPM-VKM was unfortunately terminated (letter Ref. Ares(2022)2268463 - 28/03/2022) and subsequently the EC requested the [IS_MIRRI21](#) Consortium to organize an amendment to the GA and redistribution of resources (Ref. Ares(2022)3596485 - 11/05/2022).



5. Annex 1 : Advisory Board Report

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Introduction

The IS_MIRRI21 Meeting on March 28-30, 2022 in Braga, Portugal, was only the second opportunity for members of the Advisory Board (AB) to meet face-to-face with the leadership and participants of the IS_MIRRI21 project. The COVID-19 pandemic had greatly reduced such possibilities in 2020-2021. Three of the four members of the AB (Lene Lange, Manfred Ruthsatz and Eero Vuorio) participated. The fourth member of the AB (Agnes Borg) was planning to attend the AB meeting on March 30 via Zoom. Unfortunately, this did not work out as technical problems disrupted the connection before the meeting could start.

The three AB members present found it very useful to participate in the Meeting. Although the Meeting was still organized in hybrid format the AB was able to obtain a more comprehensive view of the progress of the IS-MIRRI21 project. The AB was pleased to note that the IS_MIRRI21 community had now come together in a much more cohesive way. The AB also noted that its advice and recommendations given at the General Assembly in July 2021 had been taken seriously. The participants had made major efforts to reach their Milestones and produce their Deliverables within the time specified in the Grant Agreement.

The MIRRI infrastructure proposal had also been evaluated by ESFRI (European Strategy Forum of Research Infrastructures). The AB also heard analysis of the ESFRI evaluation and found that only part of the recommendations were pertinent for the IS_MIRRI21 project. Some were similar to the recommendations given by the AB in its report in 2021. Unfortunately, the ESFRI evaluation report had not been circulated to the AB members, who only received – upon their request - a summary of the criticism and recommendations during the meeting.

One the strengths of the IS_MIRRI21 project has been inclusion of a Russian partner and microbial collection. Unfortunately, this asset has been lost as a result of the war in Ukraine.

IS_MIRRI21 Advisory Board Report during the second General Assembly, March 30, 2022, Braga, Portugal

Eero Vuorio and Manfred Ruthsatz presented the key observations of the AB based on its meeting on March 30, 2022, to the Meeting the same day and circulated a draft written report among the AB members for review. This final written version is thus endorsed by all AB members Agnes Borg, Lene Lange, Manfred Ruthsatz and Eero Vuorio.

1. Delays caused by the COVID-19 pandemic

As the initiation of the IS_MIRRI21 project had been seriously affected by the COVID-19 pandemic, the AB had recommended in 2021 that all project partners should maintain a sense of urgency in all their work as the end date of the Project is quite near regardless of a possible extension. The AB was pleased to note that IS_MIRRI21 Work Packages had been able to meet most of their Milestones and delivery dates despite the delayed start. This had also resulted in some underspending by several partners and Work Packages.

The Advisory Board repeats its recommendation to consider seeking for a cost-free extension of the Project from the European Commission in order to carry out the agreed work which cannot realistically be done via online meetings.

A potentially critical moment in the time schedule of the Deliverables stems from the fact that the final Business Plan and the Financial plan due at Month 36 are dependent on the Deliverables of the Work Packages which are also due at Month 36. It is obvious that time is needed to incorporate the Deliverables into the final Business and Financial Plans.

The concern extends to the establishment of the CCU (Central Coordination unit). It cannot be put together overnight, but requires time to conduct the recruitments in a proper way, even if some members of the current Management Back Office may be available to continue in these positions. Also new and additional expertise will be needed, particularly legal support.

2. Prioritization of IS_MIRRI21 activities

Last year the AB noted that the scope of IS_MIRRI21 and MIRRI is very wide as described in the current versions of the Business Plan and Strategic Research Agenda. It is obvious that the project will have to **focus on activities which bring visibility to what MIRRI brings in terms of added value to EU culture collections.** This is a challenging recommendation as the ESFRI evaluation of the MIRRI infrastructure has resulted in a very large number of further recommendations. Many deal mainly with future development of Infrastructure rather than the current IS_MIRRI21 project. The AB reminds IS_MIRRI21 leadership and partners not to spread yourselves too thin – with the current funding and manpower available you can only achieve a limited number of goals. Remember to prioritize your work and keep in mind the Milestones and Deliverables listed in the Grant Agreement. Although the ESFRI evaluation report lists a

number of very useful future directions, they cannot be reached without further manpower.

In 2021, the AB proposed IS_MIRRI21 to explore if there could be some “low-hanging fruits”, and areas identified, being suitable for applying for additional funding to MIRRI? Potential future activities which could make MIRRI a global leader in developing state-of-the-art technologies for preserving microbiome samples include a **microbiome repository** using technologies which introduce only the smallest possible change to the biodiversity of the microbiome sample.

The AB notes that the current **Geopolitical momentum in Europe speaks for an urgent need for MIRRI**; Europe needs MIRRI and cannot rely on US and Chinese repositories and expertise alone. This should be seen as a golden opportunity for MIRRI. The AB suggests that MIRRI reminds Member States of their sizeable earlier investments in setting up national microbial collections. Only small increases in these investments towards the coordination budget of MIRRI could greatly increase the pan-European value of such national collections and make Europe a leading player in this field.

The AB repeats its earlier recommendation for a future activity to consider: a small, **open access, bioeconomy-focused repository** to pave the way for newcomers into the field of bioeconomy. Such Open Access BioEconomy collections should include suitable strains, placed in the public domain and proven to be very easy to work with and no strings attached (no safety-concerns, and no patenting, Convention of Biodiversity or royalty issues) for biological production (wildtype and recombinantly) and bio-processing (bacterial and fungal) of enzyme producers, suitable for many types of biomass conversion. Such activity could give visibility to how MIRRI-activities contribute to making it easier for new players (e.g., in developing countries) to use the biological resources more efficiently (by reducing waste and upgrading side streams); which again opens for increased food security and for contributing to climate change mitigation by resource circularity giving basis for reduced CO2 emissions.

3. Visibility of IS_MIRRI21 and MIRRI infrastructure

Although Work Package 7 has continued the dissemination and outreach activities via several channels to make IS_MIRRI21 and MIRRI better known among different stakeholders, further work is needed to increase visibility of MIRRI. It is not clear to the AB how well these dissemination and outreach activities have reached their target groups in current and prospect MIRRI Member States and in non-MIRRI countries.

Acknowledgement of MIRRI infrastructure, collections and services in scientific publications should be increased. In the future, such acknowledgements could serve to increase the visibility of MIRRI and – over the years – help MIRRI collections to become a stamp of quality/excellence in scientific publications.

The suggestion above of a small, open-access, bioeconomy-focused repository would obviously also bring MIRRI increased visibility.

4. Industrial participation

Despite the recommendation of the AB last year, industrial participation in MIRRI activities received little attention during the second Meeting. It seems that industry continues to be viewed primarily as a client/user rather than a potential member. This

view should be widened and other forms of industrial participation welcomed. One example is to join forces with industries to ensure optimized, state-of-the-art conditions for storing Budapest Treaty patent deposits.

5. Success of the Transnational access (TNA) pilots should be continued

The TNA is a very important activity to demonstrate the importance and feasibility of services provided by IS_MIRRI21/MIRRI. Work Package 4 presented four success stories of the first round of the pilot. The AB was pleased to note that a second call for application had been initiated. This hopefully leads to new applications which are found suitable for IS_MIRRI21 ensuring that all money for this subproject will be spent. The experience gained through the TNA project should be very useful for MIRRI to further develop its activities and services. Furthermore, the TNA pilots bring increased visibility to MIRRI.

6. Completion of the MIRRI catalogue

Last year the AB emphasized that a well-functioning and extensive catalogue of culture collections of MIRRI partners will be the **unique selling point for MIRRI**. It will be compared with catalogues of other microbial resource centers. This year the AB learned that considerable progress had been made in this domain. The Board acknowledges this work and encourages further work to make the catalogue extensive, up-to-date and user-friendly; interoperability and comparability of the data with other repositories is important.

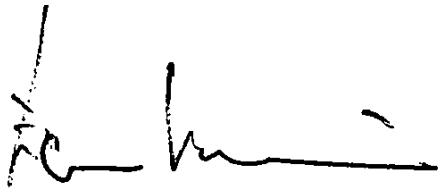
7. Ethical Board

From the beginning of the IS-MIRRI21 project an Ethical Board working parallel with the Advisory Board has been mentioned. However, it appears that the Ethical Board has not been active. No progress has been reported. If an Ethical Board is a requirement of the European Commission for successful completion of IS_MIRRI21, this work needs serious consideration and reorganization. The AB recommends IS_MIRRI21 to contact other Research Infrastructures (e.g. BBMRI-ERIC) and learn about their ELSI (Ethical, Legal and Societal) documentation and solutions, and modify them to suit the needs of MIRRI.

Time is short now, you do not need to reinvent the wheel, but learn from others.

In summary, the Advisory Board was pleased to see considerable progress in most areas of IS_MIRRI21 since the first Annual General Assembly 9 months earlier, but also repeats its call for a sense of urgency. The AB is delighted to see successful build-up of the IS_MIRRI21 community and their work under difficult circumstances towards timely completion of the Deliverables. This report emphasizes some of our earlier recommendations and includes new recommendations for the final year of the project. Finally, the AB thanks the leadership and partners of IS-MIRRI21 for their hospitality and open communication during the second Meeting in Braga.

On behalf of the IS_MIRRI21 Advisory Board (Lene Lange, Agnes Borg, Manfred Ruthsatz and Eero Vuorio).

A handwritten signature in black ink, appearing to read 'Eero Vuorio', with a long horizontal stroke at the end.

Turku, Finland

May 23, 2022

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MIRRI IS21

IMPLEMENTATION AND
SUSTAINABILITY FOR
THE 21ST CENTURY

MICROBIAL RESOURCE RESEARCH INFRASTRUCTURE