BIOPOLIS

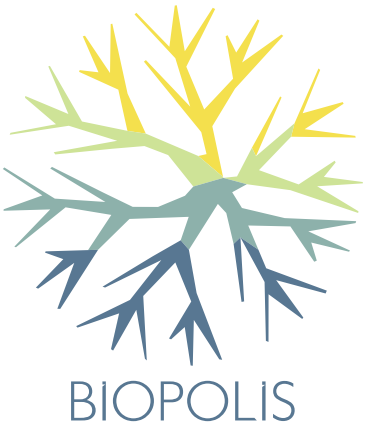
WP10

2nd Implementation Report

Deliverable 10.2

cibio

Porto Business School



2nd Implementation Report

Deliverable 10.2

Lead beneficiary	**BIOPOLIS**
Submission date	**18th October 2022**

BIOPOLIS

Deliverable 10.2 (D10.2)

2nd Implementation Report

(Period Covered: 01/01/2021 to 30/09/2022)

Project acronym:	BIOPOLIS
Project name:	Teaming to Upgrade to Excellence in Environmental Biology Ecosystem Research and Agrobiodiversity
Work Programme Topics Addressed:	H2020-WIDESPREAD-2018-01 (TEAMING)
Grant agreement:	857251
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Project's coordinator:	Nuno Ferrand

Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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1. Key aspects of the implementation of the project

1.1. Autonomy, Decision making

1.1.1. Autonomy

During the current reporting period (01-01-2021 to 30-09-2022), the Associação BIOPOLIS finalised its process of gaining full autonomy, through the transference of the activity from ICETA to BIOPOLIS. This transference has alredy been detailed in the revised version of the 1st Implementation Report (D10.1). Briefly, the terms of the transference were initially agreed on a protocol signed between the two entities on the 30th of April of 2021, and then the Associação BIOPOLIS formally took over the management of CIBIO on 17/12/2021, through a Demerger Contract, which transferred from ICETA to BIOPOLIS all CIBIO´s assets, liabilities, and equity funds. The effective transfer of all funding, HR, protocols, contracts of services rendered, external supplies and services, equipment, and other assets took place gradually from 01/06/2021 until the 01/12/2021. Prior to the signing of the protocol, a full inventory of all equipment of CIBIO owned by ICETA was carried out by an external auditing, accounting and advisory firm (Crowe Portugal), under the supervision of BIOPOLIS Installation Committee (Details in Deliverable 3.1). The whole transference process was led by the AD for Administration and Finance of BIOPOLIS, and benefited from the permanent technical support of both PRA law firm and BIOPOLIS Statutory Auditor (João Careca).

Before the demerger, the financial and administrative support services managing CIBIO's activity were guaranteed by: i) a Shared Resources Centre of ICETA with responsibilities over the three research centres under its management and ii) a team exclusively allocated to CIBIO, based in Vairão where the main facilities are located. With the demerger, four team members from the Shared Resources Centre were transferred to BIOPOLIS Association, as well as all the team members in the second group. Therefore, BIOPOLIS Association has benefited since its inception from expertise in some of these areas, brought by qualified colleagues with deep knowledge about CIBIO's activity. This was key to guarantee the smooth transition of the activity from one managing entity to the other.

A key final step for gaining full autonomy was the transference from ICETA to BIOPOLIS of the Teaming project. This was first requested to the EC services on the 3rd of September 2021 and the Grant Agreement amendment was signed on the 26th April 2022, with the effective date of transference set on the 1st of July of 2022.

1.1.2. Governance and decision-making

During the current reporting period, the governance and decision making structure of BIOPOLIS Center of Excellence remained like that described in the first Implementation Report (D10.1). Specifically, the management and decision-making structure is outlined in Fig. 1, which illustrates how the Teaming project is being coordinated and implemented, including the relation with the European Commission. The Board of Directors is the main responsible for executive decisions within the CoE, including aspects

related to administration, finances, innovation, and top-level relations with key stakeholders and the wider society, among others. The Science Council is the main responsible for coordinating the implementation of the research strategy and programme, working in strong collaboration with the International Advisory Council and the responsible for the Research Units. The Supervisory Board and the General Assembly have the key role of validating strategies prepared under the coordination of the executive governance bodies, and to assure that they are aligned with the vision, mission, and objectives of BIOPOLIS.

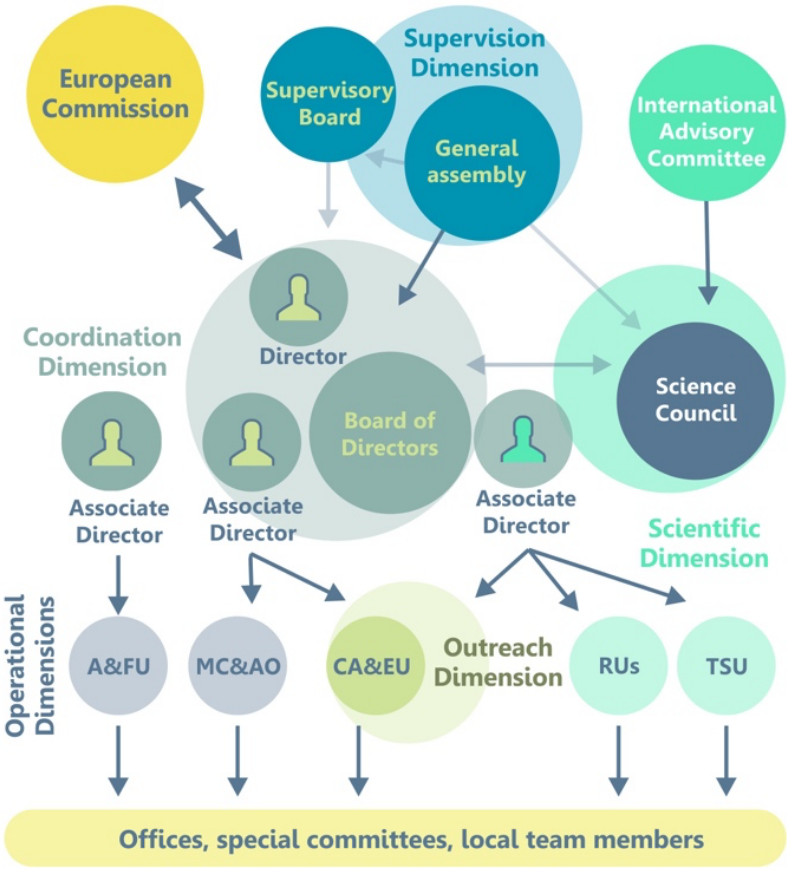

Figure 1 - Management and decision-making structure of BIOPOLIS Center of Excellence.

During the reporting period, there were two changes in the composition of the BoD, which were motivated by decisions taken by the Supervisory Board to increase its operationality, and to the recission of contract and subsequent replacement of one of its members. The first change was decided in the 5th meeting of the Supervisory Board that took place on the 5th of August of 2021, where it was discussed the urgent need to enhance the effectiveness of BIOPOLIS operation by strengthening the BoD. Accordingly, it was unanimously decided to invite Pedro Beja to integrate the BoD, as Associate Director for Operations, Fund Raising and Knowledge Transfer. His profile was considered adequate for the position, given his extensive knowledge and past experience as vice-Director of CIBIO, as well

as previous achievements in fund raising and interaction with business corporations. This change to the BoD was detailed in the revised version of the 1st Implementation Report (D10.1), and it was discussed during the ad hoc review meeting (14th of October of 2021). The second change to the BoD resulted from the decision of the Associate Director (AD) for Administration and Finances, Cláudia Ribeiro to cease the contract established with Associação BIOPOLIS, due to personal reasons, as specified in her letter of resignation date of the 13th of June 2022. To assure that the operation of BIOPOLIS was not affected by this decision, Cláudia Ribeiro remained as Associate Director until the 30th of August of 2022. During this transition period, a new call was open to select the new director, following the procedures adopted for the initial selection of the BoD (see details in Box 1). Following the selection procedures, a new Associate Director for Administration and Finances, Luís Folhadela, was hired by the Supervisory Board according to the BIOPOLIS by-laws. Luís Folhadela started its functions at the BoD on the 1st of September of 2022. Accordingly, the current Board of Directors is composed by Nuno Ferrand as the General Director, Pedro Beja as the Associate Director of Operations, Fund Raising and Knowledge Transfer; Gabriel Marais as the Associate Director for Research and Innovation, and Luís Folhadela as the Associate Director for Administration and Finances.

The other main Governing Bodies, including the General Assembly and the Supervisory Board, were fully operational. There were four General Assembly and seven Supervisory Board meetings during the reporting period. Highlights of these meetings include the unanimous approval of the BIOPOLIS internal Rules, the Management and Financial Report for 2021, and the Activity Plan and Budget for 2022.

BOX 1. Brief description of the recruitment procedures for the new Associate Director for Administration and Finances of BIOPOLIS.

Following the recission of the former Associate Director (AD) for Administration and Finances, Cláudia Ribeiro, on the 13th of June 2022, a new open call was open to find a new Associate Director in this area. The profile sought for Associate Director and the respective call for applications were defined by the Supervisory Board of the Associação BIOPOLIS, in articulation with the Board of Directors. The call was open between the 22nd of June and the 15th of July of 2022. To attract suitable candidates for the position, the call was widely advertised, including the BIOPOLIS-CIBIO mailing list, and several online platforms, namely:

- EURAXESS: https://euraxess.ec.europa.eu/jobs/802849
- CIBIO Platform: https://www.cibio.pt/?p=2177
- CIBIO website https://cibio.up.pt/en/open-positions/

The Selection Panel was composed by: Nuno Ferrand de Almeida (Director of Associação BIOPOLIS, President of the jury), Pedro Beja (Associate Director of Associação BIOPOLIS, vowel) and Paulo Azevedo (former President of the Installation Committee of Associação BIOPOLIS and Chairman of SONAE group, vowel). By the end of the application period there was only one candidate, Luís Folhadela Rebelo. The candidate presented all the required documentation, and it was verified that he fulfilled all the general and specific requirements demanded in the announcement of the opening of the competition. Thus, the candidate was admitted to the

BOX 1. Brief description of the recruitment procedures for the new Associate Director for Administration and Finances of BIOPOLIS.

call. The selection board evaluated the candidate in accordance with the criteria set out in the call. Through the curricular evaluation, the jury unanimously considered that the candidate had the necessary experience and knowledge to assume the position of Associate Director for Administration and Finance. The panel also recognized that the same candidate had already applied to the previous call for the same position (ICETA-2020-09), having been ranked second after the interviews. At that time, the selection panel considered that the candidate had experience and knowledge almost equal to that of the candidate who was then selected.

Still in the scope of the selection process, an interview was held with the candidate, which took place on the 18th of July, with the participation of two elements of the jury, Nuno Ferrand and Pedro Beja. During the interview the professional background of the candidate was appreciated, as well as his vision for BIOPOLIS in case he would occupy the position of Associate Director. Following the interview, both members of the jury agreed that the candidate met all the conditions to assume the position.

The jury members unanimously agreed to propose to the BIOPOLIS Supervisory Board the selection of the candidate for the position of Associate Director of Administration and Finance of the Associação BIOPOLIS. During the discussion, the jury considered the possible need to repeat the selection process, since only one candidate had applied. However, this possibility was ruled out due to the qualities shown by the candidate, as well as the fact that his skills, experience, and suitability for the position had already been recognized by the panel of the previous competition (ICETA-2020-09). Following the recommendation of the BoD and the selection documents provided, the BIOPOLIS Supervisory Board unanimously agreed to nominate Luís Folhadela as AD for A&F, on a meeting that took place on the 5th of August 2022.

The results of the selection process were communicated to the candidate who accepted the position and started functions of the 1st of September 2022. Luís Folhadela is now the responsible person for this component of the CoE, and he is supervising the work and decision-making of the A&F Unit, coordinating the strategic planning and reporting of this unit.

1.1.3. Membership of Associação BIOPOLIS

The BIOPOLIS Association was launched with its four promoter founding members, namely ICETA, the Universities of Porto and Montpellier, and the Porto Business School. During the current reporting period, efforts have been developed to enlarge the number of founding members of the Association. This growth strategy focused on key organisations that might strongly contribute to the development of BIOPOLIS activities. Particular effort was made to attracting business corporations and foundations, given their potential contributions to knowledge transfer and financial sustainability. Accordingly, three important organisations have expressed their willingness to integrate Associação BIOPOLIS: REN – Redes Energéticas Nacionais[1], SONAE[2], and Fundação Belmiro de Azevedo (FBA)[3]. REN is considered

[1] https://www.ren.pt/en-GB
[2] https://www.sonae.pt/en/
[3] https://fundacaobelmirodeazevedo.pt/

a key founding member of because of its long standing technical and scientific collaboration with BIOPOLIS-CIBIO, which resulted in the funding of two Invited Chairs. REN's participation as a Founding Member in the BIOPOLIS Association will create the conditions to deepen and expand these collaborations, allowing the development of new lines of research that are not only of the interest of REN abut also make a significant contribution to scientific knowledge. In parallel, REN's experience and leadership as a company of reference in the national context will provide the Associação BIOPOLIS with greater robustness and credibility, contributing to its success in terms of sustainability and scientific excellence. SONAE is one of the largest corporations in Portugal, with nearly 50,000 employees and serving as umbrella for a vast portfolio of companies with activities ranging from food retail[4], through fashion and retail in electronics and household appliances[5], to telecommunications[6], among others[7]. This is also a key founding member, with which is already working in the development of a corporate biodiversity and nature conservation strategy, and that can leverage a range of new collaborations in the future. Finally, FBA is an important founding member that is increasingly supporting BIOPOLIS activities, including one Invited Chair granted (Urban Ecology) and another in preparation (Rewilding), and the support to collaborative research on sustainable forest management (Forest Lab/Mangualde) and nature conservation (Serra da Aboboreira). Contacts with other key organisations have been established during the reporting period, which are expected to respond positively in the very short term.

1.1.4. Management and technical support units

The three management and technical support units responsible for BIOPOLIS implementation and operation were established during the first reporting period and they were thoroughly documented in the first implementation report (Deliverable 10.1): Administration and Finances, Technical Support, and Communication, Advancement and Engagement. During the current reporting period the operation of these units was greatly reinforced, namely through the training of many of its officers (see Deliverable 5.2), but also through the increase in human resources.

Administration and Finances

Regarding the Administration and Finances, the main enhancement was the recruitment process (Box 2) and subsequent hiring of the chief Human Resources Officer, Ana Campos. This is a key position in the organizational administration structure of BIOPOLIS, as this officer will be responsible for the implementation of the BIOPOLIS HR strategy (Deliverable 2.1), and to deal with the increasing number of staff (details in Box 2).

[4] https://mc.sonae.pt/en/our-businesses/
[5] https://www.worten.pt/
[6] https://www.nos.pt/
[7] https://www.sonae.pt/en/investors/business-areas/

BOX 2. Brief description of the recruitment procedures for the Human Resources Officer of BIOPOLIS.

The recruitment of the chief Human Resources Officer of BIOPOLIS was based on an open call and a selection process by an independent panel. The profile of the HR Officer was prepared by the AD for A&F, with the support of the Teaming partner, Porto Business School. Specifically, the call target at an experienced HR officer, who will, among other responsibilities, support the development and implementation of HR initiatives and systems; provide counselling on policies and procedures, be involved in recruitment by preparing job descriptions, posting ads and managing the hiring process, maintain employee records (attendance, EEO data etc.) according to policy and legal requirements, manage the work contracts after recruitment, propose the necessary training programs and actions for all staff and review employment and working conditions to ensure legal compliance. The call was open between 3rd of March of 2022, and the 31st of March of 2022. To attract potentially suitable candidates, the announcement was widely advertised through the BIOPOLIS-CIBIO mailing list, as well as on several online platforms, namely:

- EURAXESS: https://euraxess.ec.europa.eu/jobs/746934
- CIBIO Platform: https://www.cibio.pt/?p=1951
- CIBIO website: https://cibio.up.pt/en/jobs/human-resources-officer-position/
- BIOPOLIS website: https://www.biopolis.pt/en/news-and-events/open-position-human-resources-officer-position/
- CIBIO LinkedIn: https://www.linkedin.com/feed/update/urn:li:activity:6907016341740793856
- Net empregos: https://www.net-empregos.com/8258885/human-resources-officer/
- Emprego SAPO: https://emprego.sapo.pt/offers/human-resources-officer?id=fcded2ef-5862-467f-af0a-7d739d427f4c

The Selection Panel was composed by: Claudia Ribeiro, (BIOPOLIS Associate Director for Administration and Finances, President of the jury), Rita Araujo (Executive Coordinator, Associação BIOPOLIS, vowel); Fernando Rodrigues (BIOPOLIS Head of Financial Services, vowel) and Pedro Beja (BIOPOLIS Associate Director for Operations and Fund raising, substitute).

By the end of the application period there were twenty-nine candidates, which were all deemed admissible based on the admission requirements. Each member of the Evaluation Jury analysed all the candidates independently based on the admission requirements, desired skills and competencies, and selection criteria of the call. The top seven candidates were invited for an interview. Based on the interviews the jury decided to offer the position to the candidate Ana Campos. This candidate was considered to have qualifications and past experience that closely matched that required by BIOPOLIS, having previously worked as senior HR Officer at a large research institute from northern Portugal.

Technical Support

The Technical Support Unit of BIOPOLIS was also strongly reinforced during the reporting period, thereby increasing its ability to implement its tasks of management of infrastructures and equipment, the management of IT infrastructures, the support to routine lab and field research tasks as well as the support to research project applications, among others. This reinforcement was particularly important

to support the intense activity during the reporting period in several aspects related to the management and upgrade of equipment and infrastructures, which are detailed in Section 1.6

Ten field and lab technicians were hired to support the BIOPOLIS research and services provision activities (details in section 1.5). There was also a reinforcement of the project management component, with the hiring of a Project Manager, Jorge Neves, and a Project Support Officer, Tatiana Coelho. Their functions are to support researchers in proposal preparation, and to help managing projects approved. This new staff is critically important to deal with the funding opportunities through Horizon Europe and national programs, but also to help managing the growing number of European projects obtained during the reporting period. Finally, a call was open to recruit the general coordinator of the IT and Bioinformatics component of the Technical Support Unit (Box 3). This call is aimed at attracting a senior researcher that can develop the IT and Bioinformatics organizational structure of BIOPOLIS, creating the conditions to expand this component and their ability to provide internal and external services, but also undertaking cutting-edge research in these fields. Currently, the selection panel is reviewing the applications received, and person is expected to be selected and start working at BIOPOLIS until the end of the current year.

BOX 3. Brief description of the recruitment procedures for the general coordinator of BIOPOLIS IT and Bioinformatics

A call for a Coordinator of IT and Bioinformatics Units of the BIOPOLIS Centre of Excellence was launched, being open from the 18th of July to the 9th of September 2022. To attract potentially suitable candidates, the announcement was widely advertised through the BIOPOLIS-CIBIO mailing list, as well as on several online platforms, namely:

- EURAXESS: https://www.euraxess.pt/jobs/814601
- CIBIO website: https://cibio.up.pt/en/jobs/coordinator-of-it-and-bioinformatics-units/
- BIOPOLIS website: https://www.biopolis.pt/en/news-and-events/open-position-coordinator-of-it-and-bioinformatics-units-of-the-biopolis-centre-of-excellence/

The selection panel included Nuno Ferrand (Director of BIOPOLIS), Pedro Beja (Associate Director of BIOPOLIS), and Paulo Célio Alves (Associate Professor at the University of Porto and BIOPOLIS Researcher). There were 5 applications submitted which are now under evaluation.

The selected candidate for the coordinator position will be responsible for reorganizing and upgrading the IT & Bioinformatics Units, with the aim of matching their capacities and operation with the increased activity and ambition of the BIOPOLIS Centre of Excellence. The coordinator will be responsible for leading the design of the strategy, structure and operational guidelines of the IT & Bioinformatics Units, including the technical and financial planning of the upgrade and maintenance of the IT infrastructure and will also be the ultimate responsible for the management of staff of these Units. Finally, the Coordinator will be responsible for establishing links between BIOPOLIS IT infrastructure and other IT systems of the University of Porto and its associated research centers (e.g., I3S), and well as with other computational infrastructures and national and international levels.

BOX 3. Brief description of the recruitment procedures for the general coordinator of BIOPOLIS IT and Bioinformatics

Along with the coordination responsibilities, the successful candidate is expected to establish a research group in bioinformatics, computational biology, or related areas. The group is expected to generate and integrate large datasets (big data), namely high-throughput sequencing data with a focus on genomic, transcriptomic and metagenomic data, to generate the best possible hypotheses to biological problems. This should be done by applying advanced computational methods or develop novel methods through the design of new algorithms, implementation of software pipelines, and by exploiting machine learning.

Communication, Advancement and Engagement

The Communication, Advancement & Engagement Unit was in charge of developing intense activity during the reporting period, and it was thus reinforced in terms of training (see Deliverable 5.2) and human resources (see below). Specifically, a Senior Officer in Science Communication was hired for the Unit, involving a public, open call (Box 4).

BOX 4. Brief description of the recruitment of Senior Officer in Science Communication

A call for a senior officer in science communication of the BIOPOLIS Centre of Excellence was launched, being open from the 16th to the 29th of May of 2022. To attract potentially suitable candidates, the announcement was widely advertised through the BIOPOLIS-CIBIO mailing list, as well as on several online platforms, namely:

- EURAXESS: https://euraxess.ec.europa.eu/jobs/784941
- CIBIO Platform: https://www.cibio.pt/?p=2081
- CIBIO website: https://cibio.up.pt/en/jobs/senior-officer-in-science-communication-and-dissemination/

The Selection Panel was composed by: Pedro Beja (Associate Director of Associação BIOPOLIS, President of the jury), Rita Araujo (Executive Coordinator, Associação BIOPOLIS, vowel) and Sandra Aresta (Knowledge Transfer and Dissemination Officer at Associação BIOPOLIS, vowel).

By the end of the application period there were four candidates, all deemed admissible based on the admission requirements. Each member of the Evaluation Jury analysed all the candidates independently based on the admission requirements, desired skills and competencies, and selection criteria of the call. Vitor Lima was the candidate chosen for the position.

Regarding the activities developed by the Unit, it is particularly noteworthy the production and/or revision of three strategic documents on internal and external communication, which have been submitted in the Participant's Portal and subsequently approved: the revisions requested to D6.1 – Internal Communication Plan of the CoE, D6.3 – Knowledge Management System, and the production of D6.2 – Communication, Dissemination & Exploitation Plan. These strategies have been implemented during the reporting period, involving a range of interrelated tasks mainly related to outreach, aiming

to enhance its visibility and profile of BIOPOLIS while raising public awareness and appreciation for science and biodiversity, advancing the technical, scientific and personal skills and competences of students and researchers at different career stages, and engaging with stakeholders and business and academic partners, at the national and international levels.

An important achievement during the reporting period was the establishment of a partnership with a specialized entity, the reference newspaper Público, which will greatly boost the visibility of BIOPOLIS, build capacities of its Unite, and increase the ability to effectively communicate its work (Box 5). Collaboration with Público involves the creation of dedicated section on biosphere and biodiversity on both its printed edition and website. This section is composed of a multidisciplinary team of journalists and scientists that generate up-to-date content on this topic's world developments. The public inauguration ceremony of this partnership, named Azul, took place on the 22nd of April 2022. This section has since been broadcasting and publicizing the research produced by BIOPOLIS and its partners in a format carefully designed to maximize knowledge transfer allowing its understanding by the general public.

BOX 5. Leverage of BIOPOLIS communication and dissemination through a partnership with the reference newspaper Público

The newspaper Público offers a wide range of expertise and communication potential that makes idea an ideal media partner of BIOPOLIS:

i. its team of social communication professionals observe the journalists' code of ethics and perform their work under the regulations of the ERC (Regulatory Entity for the Media) ensuring impartiality and professionalism in communication.
ii. Its strong skills and experience in the production of visually appealing content (with a dedicated team of infographics and web designers), a condition considered by BIOPOLIS as essential to ensure the engagement and permeability of the general public.
iii. a proven experience and ability that allows the production of podcasts. BIOPOLIS recognizes podcasts as one of the most successful communication tools of the last decade and wants to invest on their development.
iv. a broad audience, including a circulation of several thousand copies and a monthly number of page views of several hundred thousand, which is fundamental to ensure a comprehensive and extensive reach of the communication.
v. a paper-based content production that allows it to reach different segments of society. Although BIOPOLIS emphasizes the crucial importance of digital communication, it recognizes that this format, unlike the traditional paper format, often does not often reach elements of a higher age group.
vi. Público will make all content available free of charge and without paywalls, thus ensuring indiscriminate reach to all segments of society.

BOX 5. Leverage of BIOPOLIS communication and dissemination through a partnership with the reference newspaper Público

vii. a strong presence on social networks, thus ensuring a broad reach of its content through different communication channels.

viii. a proven experience in the area of science communication, with a dedicated and specialized team. Although BIOPOLIS recognizes that there are cross-cutting elements to communication, believes that the difficulty of transmitting complex scientific concepts requires specialization in order to ensure effectiveness and success in communication.

ix. Público has a formal commitment (e.g. editorial status) to the recognition, treatment and dissemination of topics that are aligned with the vision and mission of BIOPOLIS.

x. Público is geographically located close to BIOPOLIS thus ensuring close contact between its team and the BIOPOLIS team.

1.1.5. Research

The Strategic Research Programme of BIOPOLIS (Deliverable 4.1) was initially submitted on 6th of June of 2021. On the 9th of December 2021 BIOPOLIS received comments on the document by the Project Officer, requesting a revision of the Programme, considering that the Associate Director for Research and Innovation had been appointed only in September 2021. The revised version was submitted on the 27th of June 2022 and is currently under deliberation by the EC services.

During the reporting period, the Associação BIOPOLIS established its initial research workforce, following the process of transference of the human resources of CIBIO from its former host institution, ICETA. This process is fully described in Deliverable 10.1 (1st Implementation Report). BIOPOLIS also reinforced this initial workforce through the recruitment more than new 20 researchers, which strengthened its research areas, and contributed to the creation of new research groups and the reinforcement of the existing ones. In addition, during the same reporting period, 16 grants holders were hired for the different research groups as well as 12 lab and fields technicians to meet the needs of both the research groups and the services providers units (detailed information in Section 1.5 HR strategy of the CoE).

Also, during the reporting period, BIOPOLIS established the main governance structure of research activities, albeit adopting a largely bottom-up perspective that privileges the intellectual freedom of researchers (details in Deliverable 4.1). Particularly important was the deployment of the Science Council, which is chaired by the Director of BIOPOLIS, Nuno Ferrand, plus two researchers affiliated with BIOPOLIS and another two affiliated with the University of Montpellier:

- Henrique Miguel Pereira – Senior researcher affiliated with BIOPOLIS-CIBIO[8], but that is also Professor of Biodiversity Conservation at iDiv - German Center for Integrative Biodiversity Research Halle-Jena-Leipzig[9].
- Miguel Carneiro – Principal researcher affiliated with BIOPOLIS-CIBIO[10], and holder of an ERC Consolidator Grant[11].
- Nocolas Galtier – Senior Researcher affiliated with the University of Montpellier and with ISEM - Institut des Sciences de l' Évolution de Montpellier[12].
- Claire Billot – Senior researcher affiliated with the University of Montpellier and Director of the Joint Research Unit Genetic Improvement and Adaptation of Plants[13] / CIRAD.

Research at BIOPOLIS-CIBIO have been organised in three Thematic Lines and 36 Research Groups. These are detailed in Deliverable 4.1, with information provided on the coordinators and co-coordinators of each Thematic Line and Research Group, and the allocation of research groups across Thematic Lines. This organisational model was considered the most adequate to adapt the previous structure and scientific culture of CIBIO, to the successful implementation of the strategic pillars of the BIOPOLIS Teaming project.

1.1.6. Relations with the University of Montpellier

A strong attention has been given to the reinforcement of relations with the partner from the advanced country, to increase cooperation and leverage its contribution to BIOPOLIS development. This has involved a number of actions, including the organisation of meetings between BIOPOLIS board members and the direction of UM and the linked-third parties. In this respect, one of the highlights was the visit to Montpellier of the Director of Associação BIOPOLIS, Nuno Ferrand, and the President of its Supervisory Board, Luís Filipe Reis, between the 21st and the 25th of February 2022. Several meetings were organised during this visit, including with Patrick Caron – Vice president for International Affairs at University of Montpellier and President of Agropolis International and Jacques Mercier – Vice-President in charge of Research at the University of Montpellier. Meetings were also held with representatives of the following labs: Center for Functional and Evolutionary Ecology (CEFE), Center for Biotechnology and Plant Genomics (CBGP), Infectious Diseases and Vectors Ecology, Genetics, Evolution and Control (MIVEGEC), Botany and Modelling of Plant and Vegetation Architecture (AMAP), Pôle Agriculture Environnement Biodiversité, Montpellier Institute of

[8] https://cibio.up.pt/en/people/details/henrique-miguel-pereira/

[9] https://www.idiv.de/en/profile/132.html

[10] https://cibio.up.pt/en/people/details/miguel-jorge-pinto-carneiro/

[11] https://perin.pt/the-european-research-council-awards-6-portuguese-researchers/

[12] https://isem-evolution.fr/membre/galtier/

[13] https://umr-agap.cirad.fr/en/directory-access

Evolutionary Sciences (ISEM), Agropolis International, Biochemistry & Molecular Physiology of Plants (B&PMP) , Centre for Environmental Economics - Montpellier (CEE-M), Diversity, Adaptation, Development of Plants (DIADE) and Genetic Improvement and Adaptation of Mediterranean and Tropical Plants (AGAP). To further strengthen these relations, the Associate Director of BIOPOLIS, Gabriel Marais, has assumed the responsibility to steer the interactions with the UM, thereby organising several additional meetings and starting to develop several joint initiatives. These relationships and collaborations will be further reinforced during the next reporting period.

1.2. Complementary funding

1.2.1. Complementary structural funds

According to the DoA described in the GA, there is a commitment to BIOPOLIS of 15 million euros funded through structural funds, provided by Comissão de Coordenação e Desenvolvimento da Região Norte (CCDR-N), which are complementary to the grant of 15 million euros provided by the European Commission in the scope of the Teaming project.

The first portion of the committed 15M€ from CCDR-N was secured through the application NORTE-01-0246-FEDER-000063 "*BIOPOLIS –Enhancing the transference of scientific and technological knowledge through a new Centre of Excellence in Environmental Biology, Ecosystems and AgroBiodiversity*". Initially conceived as a 11.3M€ project, this application was approved by CCDR-N on the 14th of June 2021 and the respective Acceptance Term was signed on the 23rd of June 2021. CCDR-N performed the first payment – corresponding to 15% of the budget - on the 9th of July 2021, and the project has been under implementation since then. After the above-mentioned approval significant changes to its budget were agreed with CCDR-N, namely the permission to transfer funds (3M€) from the project NORTE-01-0246-FEDER-000063 to the infrastructural call that was published on the 28th of September 2021 (see below). An addendum to the Acceptance Term revising the value of the total eligible investment from 11.3 to 8.3M€ was signed on the 21st of February 2022.

Also, during this reporting period, the second portion of the complementary funds, totalling, 6.7M€, was secured through the application NORTE-01-0246-FEDER-000071 submitted on the 25th of February 2022, and approved on the 27th of April 2022. The Acceptance Term was signed by the end of April and the project is currently running with the eligible expenses dated since the 28th of December 2021. This transference of funds from the project NORTE-01-0246-FEDER-000063 to the infrastructures project NORTE-01-0246-FEDER-000071 is of most importance to BIOPOLIS as allows it to better execute the budget of both projects in due time as well as to ensure that all its premises will be intervened, while maintaining within both projects the total amount of 15M€ originally committed by CCDR-N.

1.2.2. Other regional funds

As reported in Deliverable 10.1 (1st Implementation Report), an additional application was submitted to CCDR-N, the NORTE-01-0145-FEDER-000046 "*Research Towards the Conservation, Restoration and Sustainble Use of Tropical Biodiversity and Ecosystems*", with a budget of 2 million euros. This was a complementary funding to the ERA Chair TROPIBIO, already approved and running. The application was submitted on the 30th of July of 2020, and it was approved on the 13th of November 2020, with the Acceptance Term being signed immediately. The eligible expenses for this application date from the 1st of September 2020 and the first payment (15% of the total budget) was performed on the 23rd of April 2021.

According to the commitment letters included in the GA, there is also a commitment from regional funds of 2.6M€, provided through three departments of the Regional Government of Azores (a European ultra-peripheral region). These funds are directed towards the development of BIOPOLIS researchers in the region, namely for those associated with the regional pole of CIBIO. Negotiations are underway with regional departments to secure these funds.

The business plan associated with the Teaming proposal also envisages that additional structural funds will be secure during the lifetime of the project. Specifically, the average annual expected to be raised are at least 500k€ in year 5, 750k€ in years 6-7, and 1 M€ thereafter. Work towards raising these funds will start in the following years when the new framework programme starts to be implemented in the country.

1.2.3. Horizon projects

The Business Plan of BIOPOLIS also estimated that considerable funding would be obtained through the Horizon programme, apart from the 15 million euros provided by the Teaming project. These included the final implementation of Horizon 2020, as well as the new framework programme Horizon Europe. Regarding Horizon 2020, it was estimated that BIOPOLIS would be able to attract a conservative value of 1.75 M€ of new grants, which would then be spent in the first 4 years of project development. This expectation has been largely exceeded, with the approval of projects that will be implemented in the early years of BIOPOLIS: an ERA Chair (2.5 million euros), two ERC consolidator grants (4 million euros), and several smaller projects (eLTER PLUS, EuropaBON, FutureMares, Urbinat, EvocolorIsla; 0.9 million euros).

The Business Plan also relied heavily on the attraction of funding through Horizon Europe (2021-27), representing a unique opportunity to an emerging CoE such as BIOPOLIS, which will strongly benefit from the new capacities and competencies gained from the Teaming project and from the coaching of UM, including international networking, insertion into international consortia, and increased visibility among the scientific community and stakeholders. Therefore, we envisage attracting 7M€ of Horizon Europe funding during the project lifetime, which was considered an ambitious, but realistic goal. About 0.7M€ was expected to be raised in year 3 of the project, with the annual value rising

progressively until year 7 and up to year 10, when 2.1M€ was expected to be attracted annually. These expectations have been greatly exceeded, with the award of 6 Horizon Europe projects (BGE, ISLADAPT MSCA, NaturaConnect, Selina, ANERIS and WildE), with an amount awarded to BIOPOLIS of 2.77M€. Highlights include the participation in the flagship project Biodiversity Genomics Europe[14] (BGE; GA nº 101059492). The project involves 23 partners coordinated by Stichting Naturalis Biodiversity Center – Naturalis, with an overall budget of 20M€, of which 1.3M€ will support BIOPOLIS activities. The main aim is to accelerate the application of genomic science to enhance the understanding of biodiversity, monitor biodiversity change, and guide interventions to address its decline. BIOPOLIS will also participate in two approved LIFE projects (Safeline4Birds e Wildwolf), though the final budget is still under negotiation.

1.2.4. Portuguese Science and Technology Foundation

Funding through the Portuguese Science and Technology Foundation (FCT) is a key component of BIOPOLIS Business Plan, with an estimated contribution of over the lifetime of the project 35M€. This value includes different typologies, including primarily PhD grants (see Deliverable 5.2), grants and contracts of researchers at different levels of career, the pluriannual funding of CIBIO, and research projects. During the reporting period, FCT awarded, 29 research projects to BIOPOLIS (10 in 2021 and 19 in 2022), corresponding to a total funding amount of 3,48M€. There were also **21 new employment contracts** (about **6,47M€**), under the scope of the 4th and 5th Edition of the FCT Individual Call to Scientific Employment and of the 2nd Edition of the FCT Institutional Call to Scientific Employment, which will be developed during the next 3-6 years. Additionally, BIOPOLIS was granted **with 772 k€ from FCT for the Associate Laboratory funding** running until the end of 2025. In addition to research projects and research contracts, during the reporting period, FCT awarded to BIOPOLIS a total of **44 PhD grants**, totalizing more than 670k€. Finally, FCT has kept is commitment to provide the co-funding required for all the Invited Chairs that will be implemented during BIOPOLIS.

1.2.5. New contracts and consultancy services

Funding through new contracts and consultancy services is another important source of funding expected in the Business Plan. CIBIO has a strong track record of providing services to several stakeholders, including a range of genetic analyses at its labs, and an array of consultancy services which encompass, among others, environmental impact assessment services and monitoring, wildlife management, and landscape planning and management activities. The capacity to provide these services has been greatly expanding through BIOPOLIS, leveraging on the increased critical mass of highly qualified research and technical staff, the higher visibility and prestige of the centre, the close contact with stakeholders, and the support from UM on numerous areas. Therefore, the Businnes Plan

[14] https://biodiversitygenomics.eu/

has considered this revenue source to be a key component for the sustainability of the CoE. The Plan assumed that annual values of around 0.8-1.0M€ will be earned during the first 3 years of BIOPOLIS´ operations, aligned with the levels previously achieved by CIBIO. Subsequently, services revenues are expected to rise around 25% per year, reaching a maximum of around 3.5M€ in the 7th year, leveraging on the greatly increased capacities and competences of the CoE. From year 7 onwards, services revenues are assumed to stabilize, growing at about 1% per year.

During the reporting period, the CTM - Molecular Analysis Centre, an internal unit of BIOPOLIS was contracted for a total of 103 services representing a total income of more than 455k€. Of these 103 services, 97 were specialized in Molecular Genetics, which include i) Genetic identification and Analysis of biological filiation (paternity/maternity) in domestic species (cattle, horses, donkeys, sheep, pigs, goats and dogs); ii) Assessment of the occurrence of hybridization in game species for repopulation purposes (rabbit, partridge and quail); iii) Molecular sex determination in birds and mammals; iv) Development and analysis of SNPs and Microsatellites; and v) Sanger sequencing. The remaining 9 referred to NGS services: (i) Gene Expression, (ii) Custom Amplicon, (iii) Genome Sequencing, (iv) Library QC, (v) Chip-Seq, (vi) Metagenomics, (vii) Whole genome sequencing, (viii) Resequencing and Plasmid sequencing.

Also, a total income of **3.67M€** was generated from contracts established during the research period for the provision of services in the area of applied ecology (biodiversity surveys, impact assessment and monitoring, wildlife monitoring, corporate biodiversity). These were provided either by individual research groups in the scope of their activity, or by GEPE - Centre for Studies and Projects in Applied Ecology, a unit of CIBIO established in 1998 and focused on the provision of services in the areas of management, conservation, and monitoring of biodiversity. From these, the main highlight is a **consultancy contract with the Kingdom of Saudi Arabia (KSA)** for service provision, with a budget of **2.3M€** (Box 6). Following the initial success of this project, the KSA invited BIOPOLIS two make two additional proposals, totalling **2.55M€**, which have been submitted in September 2022 and are currently under evaluation (Box 6). Also noteworthy are **contracts with Junta de Extremadura (Spain)** and Spanish corporations for the study of impacts on steppe birds, **totalling 327k€**, and **contracts with a consortium of wind farm promoters** for wolf monitoring, **totalling 510k€**. Other services have been provided to a range of other end-users, from big corporations (SONAE, Movhera, EDIA) to several municipalities (Porto, Oeiras).

BOX 6. Consultancy services of BIOPOLIS to the Kingdom of Saudi Arabia

The consultancy contract established by the KSA with BIOPOLIS will be developed until May 2024, involving the inventory and study of desert fauna, with tasks including: 1) Inventory: provide baseline information on the fauna; 2) Reporting: develop a set of resources that can be used for the long-term conservation, rehabilitation and management of faunal diversity; 3) Training: increase the knowledge and capacity building in field studies, species identification and monitoring, and species

BOX 6. Consultancy services of BIOPOLIS to the Kingdom of Saudi Arabia

and habitat mapping; and 4) Outreach: provide complete field guides for birds, reptiles and invertebrates to be used for monitoring, research and tourism purposes.

Following this project, BIOPOLIS was invited to submit another two proposals that are currently under evaluation:

- "Acacia Trees Dieback". This project aims to: 1) provide baseline information on the extent and possible causes of Acacia trees dieback; 2) provide possible direct and indirect causes of infection, list predator species that may control dieback-related insect and reduce the impact on trees; 3) provide potential control approaches based on bibliographical search on acacia and other species; 4) provide experimental design for practical and applicable controlling experiments and guidelines on how to select the best approach; and 5) provide methodology and plan for observing and monitoring the Acacia dieback extent.
- "Preferred plants by reintroduced wildlife". This project aims to: 1) Determine the diet composition and degree of overlap amongst reintroduced wildlife species (Arabian Gazelle, Sand Gazelle, Nubian Ibex, Arabian Oryx) and Hyrax; 2) Determine plant species abundance and identify the ones used as an indicator of forage availability; and 3) Investigate the preferred plant species and their abundance, which will be used to estimate grazing competition.

1.2.6. Invited Chairs and Collaborative Research Programmes

The establishment of Invited Chairs is another important source of revenue considered in the Business Plan, with an estimate of 4 active Invited Chairs in the first years of the project, raising progressively up to 10 chairs at the end of the project. Beyond Invited Chairs, BIOPOLIS is also establishing research protocols with business corporations and other stakeholders, which provide a more flexible model of collaboration. During the reporting period, there were two Invited Chairs operational (EDP[15] and REN[16]), and two others were approved by FCT and will start being implemented in the next reporting period (EDIA[17] and Fundação Belmiro de Azevedo[18]). There was also one collaborative research programme established with TOTAL Angola[19], totalling 231k€, and two others with Fundação Belmiro de Azevedo, for the development of work on Forest Restoration and on the design and management of regional protected areas (Serra da Aboboreira), totalling 345k€.

Work was also developed during the reporting period to expand the portfolio of Invited Chairs and collaborative programmes, though this faced some difficulties due to the impacts on business corporations of the COVID pandemic in 2021, and in 2022 the war in Ukraine and associated inflation,

[15] https://www.edp.com/en

[16] https://www.ren.pt/en-GB

[17] https://www.edia.pt/en/

[18] https://fundacaobelmirodeazevedo.pt/

[19] https://totalenergies.com/angola

increase of energetic costs, disruption of supply chains, and economic instability, among other factors. This is illustrated by the difficulties associated with the Invited Chair sponsored by Parques de Sintra - Monte da Lua[20], which was postponed in 2020 due to the COVID pandemic, shortly after being awarded, and that it was not possible to re-start yet. Nevertheless, proposals of new Invited Chairs have been formalised to the Municipality of Oeiras (Urban Ecology) and again to Fundação Belmiro de Azevedo (Rewilding), which on track for approval in the next few months. Additional negotiations are underway, some of which are expected to be successful in the coming reporting period.

1.3. Sustainability of the Centre of Excellence

1.3.1. Overview

One of the key strategic objectives of BIOPOLIS´ Business Plan is the diversification of its funding sources, covering a mix of national and international, public, and private sources. This goal is to reduce dependency from FCT funding, thus increasing the resilience of the CoE to unexpected fluctuations in the public funding of science in Portugal, as well as providing higher flexibility and agility to BIOPOLIS´ management and investment decisions. As described in the previous Section, this strategy is paying off, with a large amount of revenues obtained from a range of funding sources. Some of these are greatly exceeding the forecasts based on the previous track record of CIBIO, and they are a direct consequence of the increased visibility and capacity of BIOPOLIS. Highlights include the BGE project, where the large share of funds secured by BIOPOLIS (1.3 out of 20M€ shared by 23 partners) was only possible though the increasing notoriety of its researchers. Likewise, the 2.3M€ contract with the Kingdom of Saudi Arabia, together with the potential for another 2.55M€ contract within the next few months, was greatly leveraged by the increased capacity fostered by the Teaming project. Overall, these successes result from the work of BIOPOLIS along six main axes, which are described below.

1.3.2. Promoting successful application to research funding

Attracting project-based funding is one of the key components of the strategy for assuring the long-term sustainability of BIOPOLIS. To achieve this goal, during the reporting period BIOPOLIS continued the implementation of its Project Support Office, thereby promoting and enhancing its participation in research funding programs. This Office support BIOPOLIS researchers in i) seeking funding opportunities for their research and innovation projects; ii) preparing reports and other written documentation; and iii) providing assistance in partner searches, project, and consortium management. To boost its capacity, the human resources of the Office were reinforced with one Project Manager (Jorge Neves) and one Project Support Officer (Tatiana Coelho), as described in Section 1.1.4. Training of project managers was another key activity to increase the capacity of the Office, involving their participation in workshops and training courses focused on research proposal

[20] https://www.parquesdesintra.pt/en/

preparation and management, as detailed in Deliverable 3.2. Briefly, examples include the participation of Isa Ribeiro in the "COST Academy - 10th Grant Holder Managers Seminar" (Brussels, 21st June of 2022), and the participation of Jorge Neves and Isa Ribeiro in the training action "Grant Management Event for Finance/Project Administrators in Host Institutions" organized by the European Research Council Executive Agency (ERCEA) in collaboration with the Portuguese ERC National Contact Point. Through the joint work of the project support office and researchers, BIOPOLIS has been remarkably successful in the attraction of new projects and contracts at European and national levels, as detailed in sections 1.2.3 and 1.2.4, involving a budget of over 14M€.

1.3.3. Promoting partnerships with stakeholders through problem-solving research

This component involves the development of innovation-led, problem-solving research together with the public administration, business corporations, and other stakeholders, providing a mechanism to diversify funding sources and contribute to CoE sustainability. The strategy for this component involves the establishment of Invited Chairs co-funded by business corporations and by FCT, as well as the establishment of collaborative research programmes with a range of stakeholders, as detailed in Section 1.2.6. Moreover, the strategy involves the establishment of an Affiliates Programme, with its planning concluded during the reporting period (D7.1). To implement this strategy a Business Relations and Knowledge Transfer Office was established under the Communication, Advancement and Engagement Unit. This Office was initially staffed with a Knowledge Transfer Officer transferred from ICETA, who is promoting contacts and negotiating agreements with a range of end-users of BIOPOLIS research and innovation. To reinforce this Office, it is planned to hire a Business Relations Officer during the next reporting period.

Resulting from this work, two Invited Chairs have been active during the reporting period (REN, EDP), and another two were approved by the organisations and FCT (FBA, EDIA), and will be implemented in the next reporting period. Two other Chairs were approved by the organisations (FBA, Oeiras), and the processes are being concluded for approval by FCT. In addition, two collaborative research contracts were established with Total Angola and FBA. Despite these successes, the development of collaborations with business corporations has been proved more difficult than initially planned, due to the impacts of COVID on business, and the ensuing changes in corporation strategies and priorities. More recently, the economic crisis and international instability has further increased the reluctance of many corporations to engage in long-term research partnerships in the areas of biodiversity and ecosystems. Two overcome these difficulties, a contingency plan has been implemented, involving a close collaboration with PBS and UM to identify and develop new partnerships. Additional details on problem-solving research are provided in section 1.2.6., while the strategy to overcome the current difficulties is outlined in section 2.1.

1.3.4. Intellectual Property Rights and Licensing of BIOPOLIS Innovation

The long-term sustainability of BIOPOLIS is also dependent on the returns produced by research investment, namely through licensing of Intellectual Property rights to use specific research outputs (patentable ideas or products). To this end, BIOPOLIS KTO, Sandra Aresta, and BIOPOLIS researchers are working alongside with a team of PBS - Center for Business Innovation in order to better evaluate the potential for intellectual property protection and eventual commercialization of research products. PBS´s team encompasses Filipe Castro, Entrepreneurship Lab, Head of Unit; Ana Jogo Mendes, Innovation Lab Director and Catarina Reis, Project Officer for Funded Projects. Furthermore, two patent applications are under preparation and will be registered in a few months.

1.3.5. New businesses and spin-offs

The creation of new businesses and spin-offs is one of the key components of BIOPOLIS strategy towards achieving long-term sustainability. One of the main activities during the reporting period involved continued support to ElectricBlue[21], a non-profit technology transfer start-up created in 2018 at CIBIO, and now embedded within BIOPOLIS activity. This company co-develops loggers and other devices with BIOPOLIS-CIBIO researchers, which are then used in internal projects, but are also sold worldwide to a number of applications. The funds obtained by selling these products are then totally reinvested in research and the development of new products. Devices recently developed by this start-up include a new cardiac frequency logger for mollusks and crustaceans. Six of these systems were assembled and distributed among internationally renowned scientists in exchange for their feedback. In addition, ElectricBlue finished the development of two miniaturized temperature loggers to study the thermal performance of crocodiles: one to be inserted under the skin and another to be embedded in a small spherical float to be ingested by these animals. In 2022, ElectricBlue created an Android app to aid and organize the collection of biodiversity data in the field. It is an important conceptual improvement over previous methods as it allows for fieldwork to be decoupled from taxonomic expertise. The app is now being thoroughly tested by BIOPOLIS-CIBIO researchers. In June 2022, ElectricBlue participated in sea-going trials of the developed tri-axial accelerometer loggers (codename Trident and MultiS) off the Azores where mako sharks were tagged for the first time. In total, the tags were deployed and retrieved five times. During the trip, pop-off timers were also successfully tested. As a result, six Tridents and four MultiS were supplied to the Marine Biological Association of the UK (MBA-UK).

Also, during the reporting period, negotiations have been developed with a French company for establishing a Joint Venture in Portugal. This Joint Venture will be dedicated to environmental monitoring based on novel molecular methods. To develop this partnership, BIOPOLIS-CIBIO researchers participated in missions to test and showcase these techniques in French Guyana, Gunea Bissau and Namibia. Further details cannot be provided at this stage, as they are protected by a non-

[21] https://electricblue.eu

disclosure agreement between the two entities. This negotiation is expected to be concluded and the Joint Venture started to implement during the next reporting period. Also during this period, opportunities will be actively sought to harness new business opportunities contributing to BIOPOLIS sustainability.

1.3.6. Consultancy and services provision

As detailed in the DoA of the GA, the provision of specialised services and consultancy is one of the cornerstones of BIOPOLIS sustainability strategy. This strategy has been anchored in the enhanced capacities and visibility of BIOPOLIS driven by the Teaming project, which are contributing to attract an ever-increasing range of potential customers. In this context, the highlight during the reporting period is the 2.3 million euros contract with the Kingdom of Saudi Arabia, and the ensuing invitation to participate in another two calls for tender. Also noteworthy is the participation of BIOPOLIS in the framework partnership concerning the European Topic Centre on Biodiversity and Ecosystems (ETC-BD) 2023-2026, which will provide expertise and capacity to support the European Environment Agency and its member countries with implementing the EEA-Eionet Strategy[22]. Finally, stressing the increasing visibility of BIOPOLIS, it is important to note the invitation to participate in a consortium applying to a very competitive call to support the European Investment Bank (EIB) Advisory Services activities inside and outside the EU-27 (Lot No. 1: Environment)[23]. To support the growth of its consultancy and service provision sector, BIOPOLIS has been working in a number of internal improvements, including the administrative and financial structure to deal with complex, international projects, but also reinforcing the human resources, and the scientific and technical components, required to successfully implement the projects obtained.

Building on the work developed so far, BIOPOLIS will continue to offer consultancy and lab analysis services, which will contribute to its turnover and long-term sustainability. It is expected that the range of services provided by BIOPOLIS will be enlarged, with the purpose of not only attracting more potential clients, but also achieving a more effective cost-structure of these services units. This revenue stream will naturally build on the research and innovation results produced by BIOPOLIS, and on the extensive experience of its researchers and technical staff. Considering the track record of CIBIO, the following services will be routinely provided: i) Laboratory analysis of tissues and non-invasive genetic samples for species identification, DNA fingerprinting, sex determination, parentage analysis; ii) Environmental monitoring and assessment of water, soil and air based on eDNA and NGS; iii) Wildlife management; iv) Environmental consultancy related to environmental impact assessment and monitoring; v) Regional and landscape planning, including the design of green and blue infrastructures; vi) Environmental management of urban areas and nature-based solutions.

[22] https://www.eea.europa.eu/about-us/tenders/calls-for-proposals/records-of-opening-of-proposals-1/etc-be-terms-of-reference/view
[23] https://etendering.ted.europa.eu/cft/cft-display.html?cftId=9751

The profits obtained with these activities will be reinvested in BIOPOLIS, both in the development of the fundamental and applied research lines, and to reinforce the capacity to providing further consultancy and services.

1.4. Impacts

1.4.1. Overview

After three years of implementation, the Teaming project is already producing the expected impacts described in the Grant Agreement (Section 2.1), despite the difficulties and delays associated with the constraints imposed by the COVID pandemic in 2021 and 2022. The most relevant impacts at this early stage of BIOPOLIS implementation are described below.

"upgrading the facilities already available at Campus de Vairão into a hub for excellent research and innovation in the biological sciences"

The upgrade of infrastructures at Campus de Vairão is currently underway, with the deployment of a research and knowledge transference hub, involving the creation of new office and lab spaces. Particularly relevant are the deployment of a first dedicated lab for "Ancient and degraded DNA in the country", and the significant upgrade of the Phyto-labs building (Details in section 1.6). These infrastructures will become operational on the second half of 2023, but they are already generating much interest among researchers and other stakeholders at the national level. At the same time, there has been a continuous work towards re-equipment of the seven research platforms of BIOPOLIS, including the deployment of a new computational cluster, and improvement of the molecular labs.

"consolidation and expansion of education and training activities, particularly the doctoral and post-doctoral programmes"

Education and training have been some of the strongest components of BIOPOLIS activity, as described in Deliverable 5.2. These activities have had a major impact, with highlights including the award of 84 PhD grants from various funding sources, the enrolment of 60 new PhD students (27% of international students), the production of 29 PhD Thesis, and the development of training and mentoring activities for nearly 150 junior researchers (including 27 advanced courses and 93 scientific seminars).

"**the development of innovative concepts, tools and approaches for nation-wide research"**

BIOPOLIS has been developing a number of innovative concepts, tools and approaches that are increasingly being used by researchers and stakeholders at national and international levels. For instance, the biologging research capacities based on BIOPOLIS have worldwide attracted partners and potential investors in this technology from all around the world, in order to build networks of environmental sensors that help monitoring human activities footprint and/or mitigate their impact. Also, technology for animal tracking developed in collaboration with BIOPOLIS researchers is being increasingly used for studies carried out in Portugal and elsewhere. Also relevant are a number of tools and approaches based on genomics and metagenomics, which making their way towards application by a number of stakeholders.

"creating capacities and facilitating research in Africa, particularly in Portuguese-speaking African countries"

Collaborative research in Africa has been severely hindered by the COVID pandemic, which greatly restricted travelling to most countries. Still, work has been developed towards the implementation of the network of TwinLabs in Lusophone and Anglophone African countries, with highlights including the deployment of a molecular laboratory in Namibia. Also important is the contribution to the creation of the Gulf of Guinea Biodiversity Centre[24] . Collaborative research and capacity building initiatives have also resulted in the publication of several textbooks, including the first guide for the identification and first aid for poisonous snakes in Angola[25], and the first book on the biodiversity of the islands of the Gulf of Guinea, recently published in Springer[26].

"the development of innovation-led, problem-solving research together with business corporations"

Partnerships have already been established to develop collaborative research together with business corporations and other stakeholders, resulting in new Invited Chairs and collaborative research programmes. Examples include the development of the biodiversity chairs established with EDP and REN, as well as new chairs already approved with EDIA and FBA, and chairs under negotiation with several other organisations (See Section 1.2.6). Collaborative research also involves partnerships with Total Angola on Tropical Ecology, and with FBA on sustainable forest management, and the planning and management of protected areas. These projects build on the increasing capacities that have been built through the Teaming project, and they promote the transfer of knowledge to these stakeholders and society as a whole.

"the development of innovations for the conservation, management, and sustainable use of biodiversity and ecosystem services"

BIOPOLIS and its researchers are increasingly recognised as leaders in the development of new tools and approaches for the conservation, management, and sustainable use of biodiversity and ecosystem services. This includes the development of innovations such as environmental DNA for the monitoring of biodiversity, or the use of remote sensing for the mapping and valuation of ecosystem services, among others. This leading position is clearly stressed by the invitation to BIOPOLIS researchers for participation with leading roles in European projects on these topics, including flagship projects such as EUROPABON[27] and Biodiversity Genomics Europe[28]. Also, this innovation capacities, in particular in the field of molecular monitoring technologies, have been a key-factor in the decision of Saudi Arabia to award a 2.3M€ services provision contract with BIOPOLIS for the complete inventory of desert Fauna. Likewise, innovation in the field of animal tracking have been key to several contracts

[24] https://gulfofguineabiodiversity.org/

[25] https://www.researchgate.net/publication/357910673_Serpentes_Venenosas_de_Angola_Guia_de_Identificacao_e_Primeiros_Socorros

[26] https://www.amazon.com/Biodiversity-Gulf-Guinea-Oceanic-Islands/dp/3031061527

[27] https://europabon.org/

[28] https://biodiversitygenomics.eu/

established with Junta de Extremadura (Spain), for the development of studies on the evaluation and mitigation of impacts of photovoltaic energy production on bird species of conservation concern.

"the development of innovations regarding the sustainability of food production systems and the use of agrobiodiversity to develop new products and processes"

BIOPOLIS is developing innovations to improve the sustainability and competitive of Portuguese food production systems. Relevant examples include, for instance, the use of genomic tools for characterising vine varieties and their hybridization with wild relatives[29], generating important insights for wine producers in the country. Also relevant is for instance the use of molecular tools to understand pest control in agricultural and forest systems, as a prerequisite to design conservation biocontrol strategies[30]. Another example is the development of innovations by combining knowledge from the natural and social sciences, to develop frameworks improving sustainable farmland management[31].

"more efficient approaches for innovation management and knowledge transfer adapted to the Portuguese reality"

BIOPOLIS is already having impacts in the development of novel approaches for innovation management and knowledge transfer adapted to the Portuguese reality, particularly in the areas related to the conservation and management of biodiversity and ecosystems, and the sustainability of food production systems under global change. In this context, it is particularly noteworthy the on-going deployment of the field stations of Estação Biológica de Mértola and Branda Científica de São Bento do Cando (details in Section 1.6.2), in regions that are normally outside the main centres of scientific development in the country. These stations involve the creation of new research infrastructures (offices, support labs, accommodation for students, classrooms), and they are designed to serve as local anchors to stimulate research towards the sustainable development of territories that in the one hand are very rich in biodiversity and ecosystem services, but that in the other hand are highly vulnerable to human and environmental desertification, land abandonment, wildfires, drought, and climate change in general. These stations are also designed to promote collaborations and transfer knowledge across institutions in Portugal and elsewhere, with the first protocols of collaboration already signed between BIOPOLIS, other research organisations, municipalities, business corporations, and other stakeholders.

The potential impact of these initiatives promoted by BIOPOLIS is very high, as clearly expressed at the highest political levels. This is illustrated by the participation in the public ceremony marking the beginning of the rehabilitation works which will create the Estação Biological de Mértola (23-09-2022), of the European Commissioner for Cohesion and Reforms, Elisa Ferreira, and the Portuguese Minister of Territorial Cohesion, Ana Abrunhosa. In their speech during the ceremony, both dignitaries highlighted the importance of the initiative as a very successful example of using structural funds to bring together scientific excellence, knowledge transfer, support to regional and local development,

[29] https://www.science.org/doi/full/10.1126/sciadv.abi8584
[30] https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/eap.2457
[31] https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/fee.2292

among other benefits. Along the same lines, the public ceremony for presenting the Master Plan of the Branda Científica (29-07-2022), was attended by the Ministry of Science, Technology and Higher Education, Elvira Fortunato, and again by the Ministry of Territorial Cohesion, Ana Abrunhosa, who jointly expressed their support to the initiative. The importance of these field stations was also highlighted by a protocol signed with the Portuguese Science and Technology Foundation involving a package of 20 PhD grants to be awarded during the next five years for research conducted in association with EBM, and another 20 grants already committed for the Branda Científica.

"improve their chances to seek competitive funding in international fora"

The Teaming project is greatly increasing the notoriety and capacity of BIOPOLIS to obtain competitive funding, with major recent successes in HORIZON calls, as described in Sections 1.2.3 and 1.3.2. These successes represent a major increase in the performance of BIOPOLIS researchers in European projects, considering either the number of projects obtained, the budget secured, and the leading role taken in project's implementation. It is also expected that these projects contribute to increase the capacity of other Portuguese research institutions to access international competitive funding. For instance, while in the European flagship project BGE BIOPOLIS is the sole Portuguese institution, it is serving as focal point to link with a range of other Portuguese research organisations involved in the ERGA (European Reference Genome Atlas) community[32]. Likewise, in project ANERIS BIOPOLIS is participating as a linked third-party to LifeWatch ERIC[33], making in this way the link to the scientific community involved in the Portuguese research infrastructure PORBIOTA[34]. Overall, therefore, besides contributing to increase the chances of BIOPOLIS to access competitive international funding. The Teaming project is also starting to have wider benefits on the engagement of the Portuguese community in European consortia.

"over the medium to long term achieve a measurable and significant improvement in terms of research and innovation culture"

In line with the DoA, BIOPOLIS is developing a range of actions that are having strong impacts in terms of research and innovation culture in Portugal. Part of these impacts are directly linked to the implementation of the ambitious programme of communication, dissemination, and exploitation (WP6), through which the CoE is reaching out to a number of targeted audiences. Highlights include the partnership with the newspaper Público (Section 1.1.4), through each BIOPOLIS is progressively contributing to enhance the visibility of biodiversity research, conservation, and sustainable use in the public agenda. Among the outputs of the first months of this partnership is an article on Publico´s Azul section regarding the integration of BIOPOLIS in the consortium of the European project Biodiversity Genomics Europe, a 17M€ project (1.3M€ for BIOPOLIS) published on the 28th of September 2022[35]. Other examples are the high-profile work of BIOPOLIS researchers Joel Alves, Miguel Carneiro and

[32] https://cibio.up.pt/en/events/establishing-the-european-reference-genome-atlas-erga-of-biodiversity/
[33] https://www.lifewatch.eu/
[34] https://www.porbiota.pt/
[35] https://www.publico.pt/2022/09/28/azul/noticia/nasceu-maior-projecto-europeu-ligado-genomica-estudar-biodiversidade-2022090

Nuno Ferrand published in PNAS[36], which feature in Azul in August 2022[37]. Also noteworthy is the Azul's podcast of BIOPOLIS researcher Luís Ceríaco, in June 2022[38].

Another extremely important initiative strongly impacting on research and innovation culture is the editorial scientific component ensured by the BIOPOLIS Publishing House "Arte e Ciência". During this reporting period, the books published by BIOPOLIS researchers in "Arte e Ciência" included "The Poisonous Serpents of Angola" by Luís Ceríaco, which will be soon followed by others such as the Portuguese versions of the books first published in Springer: "Biodiversity of the Gulf of Guinea Oceanic Islands Science and Conservation", edited by Luís Ceríaco, Ricardo Lima, Martim Melo and Rayna C. Bell, and the "Railway Ecology", edited by Luís Borda-de-Água, Pedro Beja, Rafael Barrientos and Henrique Miguel Pereira, and "The Biomes of Angola", by Brian Huntley. BIOPOLIS Publishing House "Arte e Ciência" was also present at the 92ª Feira do Livro de Lisboa 2022 (annual book fair) which took place from the 25th of August to the 11th of September 2022, where our stand was visited and commented positively by the President of the Republic, Marcelo Rebelo de Sousa.

Impacts on research and innovation culture are also starting to be achieved through actions related to the education and training programme (WP5), which are detailed in Deliverable 5.2. Besides the doctoral and post-doctoral programmes, and the internal training programme, education and training at BIOPOLIS also include actions targeted at the wider society. Highlights include, for instance, the training of corporate professionals in the areas of biodiversity, ecosystem services, and natural capital, of one of the largest corporations in Portugal (SONAE[39]) and of the company responsible for waste management in the metropolitan region of Porto (LIPOR[40]), among others. Also relevant for these impacts is the engagement of BIOPOLIS in Living Science (Ciência Viva) centres[41], including the participation in initiatives of the Gallery of Biodiversity[42] and the participation as associate and member of the directive board in the Living Science Centre of Vila do Conde[43]. Finally, there are also growing impacts on children and their teachers, as illustrated by eight new protocols signed with schools in Vila do Conde and other municipalities regarding the development of educational activities that will allow to improve environmental awareness and help the engagement of civil society in biodiversity conservation from the very beginning. Collaborations with corporations and other stakeholders are also having significant impacts in terms of research and innovation culture (WP7), by enhancing the exchange of ideas between scientists and corporate professionals. This is particularly

[36] https://www.pnas.org/doi/full/10.1073/pnas.2122734119
[37] https://www.publico.pt/2022/08/22/azul/noticia/serem-selvagens-coelhos-ingleses-conquistaram-australia-2017734
[38] https://www.publico.pt/2022/06/03/azul/noticia/luis-ceriaco-explorador-natureza-historias-ciencia-2008735
[39] https://www.sonae.pt/en/
[40] https://www.lipor.pt/en/
[41] https://www.cienciaviva.pt/en/
[42] https://mhnc.up.pt/galeria-da-biodiversidade/#english
[43] https://viladoconde.cienciaviva.pt/

important in Portugal, where corporations, the public administration and other stakeholders often have a small incorporation of research and innovation developments in their activity.

"*reinforce the potential impact of the new/upgraded Centre of Excellence in terms of sustained excellence*"

The project is having major impacts on the CoE in terms of sustained excellence, as illustrated by the indicators detailed in section 1.4.2. Among the numerous performance indicators, it is worth noting the publication by BIOPOLIS researchers of 840 scientific papers, including the regular publication of papers in top-level multidisciplinary journals and highly cited papers. These papers not only corroborate the high and increasing scientific performance of researchers, but also contribute to enhance the dissemination of BIOPOLIS research to a wider audience.

"*benefits for the internationally leading scientific institutions*"

The project is having the first impacts on the partner of the advanced country, the University of Montpellier. Highlights include the access of Montpellier students to field infrastructures in Portugal, as illustrated by the first summer school organised in Mértola; the participation and co-organisation of training, networking, and scientific activities, such as the high-profile workshop in plant genomics organised in May[44], and the forthcoming meeting on the Biology of Colour[45], both at Campus de Vairão, and the development of new collaborations and training of talented students, as illustrated by the first PhD thesis developed in co-tutelle. These and other impacts are expected to increase greatly during the next reporting period.

1.4.2. Key Performance Indicators

The implementation of BIOPOLIS has been regularly monitored and evaluated, based on key performance indicators (KPIs), which have been defined together with its corresponding targets in the DoA of the revised GA (Part B, Table 2.1b). Short-, medium- and long-term targets have been defined for each KPI, with periods adjusted to account for the one-year extension of project's implementation: short term – Years 1 to 3 (01/10/2019 to 30/09/2022); Medium term – Years 4 to 7 (01/10/2022 to 30/09/2026); and Long Term – Years 8 to 10 (01/10/2026 to 30/09/2029). According to the DoA (Task 9.2, the KPIs are provided in Table 1, and will be updated in forthcoming Implementation Reports. As it can be seen from the Table, BIOPOLIS is on track or close to achieve most targets, despite the difficulties raised by the COVID pandemic and the current economic crisis. These delays are most related to KPIs that were affected by travelling constraints during 2020 and 2021, but also to those involving partnerships with corporations and other stakeholders, that have become more difficult due the economic difficulties faced by many of these organisations. Based on the evaluation of

[44] https://cibio.up.pt/en/events/training-and-research-workshop-in-evolutionary-genomics-for-plant-models-and-crops/

[45] https://cibio.up.pt/en/events/tibe-2022-the-biology-of-colour/

performance, corrective measures are being considered and will be developed during the next reporting period, including the adaptation to the current circumstances of the work towards attracting collaborations with corporations and other stakeholders.

Table 1. Key Performance Indicators used to monitor BIOPOLIS impacts

KPI	Baseline *	Short Term Performance (Y1-3)	
		Target	Achieved
I. EXCELLENCE TOWARDS INNOVATION			
(i) Tap into Portugal´s potential in Research and Innovation			
I1.1 Financial and self-sufficiency (balance between revenues and costs)	n.a.	Nearly neutral	Positive
I1.2 Annual n. of projects funded by a foreign agency (non-UE) or private entity	3	4	**7**
I1.3 Percentage of funding for research obtained from EU programmes	5%	20%	**13%**
I1.4 Nº. of invited Chairs funded by business corporations	5	10	**5**
(ii) Build up Human and logistic capacities			
I2.1. Annual No. of private or public academic and business using the platform facilities	5	8	**22**
I2.2. Annual No. of courses for technology and knowledge updating	1	4	**5**
(iii) Tackle cutting-edge research problems in the frontiers of current knowledge			
I3.1. Annual No. of projects in fundamental research nationally funded	5	10	**28**
I3.2. Annual No. of projects in fundamental research internationally funded	1	2	**4**
I3.3. Annual No. of international scientific meetings organized by CoE researchers	1	2	**2**
I3.4. No. of scientific publications in top ranked journals (SCI impact factor >10)	5	8	**45**
II. EMPOWER ECONOMY AND SUSTAINABILITY FOR A BETTER SOCIETY			
(iv) Develop Solutions to Societal Challenges			
II4.1. No. of TwinLabs established in low- and middle-income countries	5	5	**7**
II4.2. No. of students from low- and middle-income countries enrolled in post-graduation	4	5	**8**
II4.3 No. of contracts with the public administration regarding biodiversity and ecosystems	2	4	**4**

KPI	Baseline *	Short Term Performance (Y1-3)	
		Target	Achieved
II4.4 No. of contracts with key actors in the agrifood sector and with SMEs for the exploitation of results	0	1	**0**
II4.5 No. number of innovative solutions developed to address environmental challenges	1	2	**2**
(v) Enhance appreciation of science, biodiversity, and ecosystems by the society			
II5.1. No. of articles on news outlets about BIOPOLIS activities	1	3	**22**
II5.2. No. of scientific dissemination publications edited or authored by BIOPOLIS	1	3	**4**
II5.3. No. of non-academic people involved in scientific outreach activities or enrolled in exchange training programmes with business and industry	8	15	**4**
II5.4. No. of joint activities with regional and local authorities on societal issues	2	4	**5**
II5.5. No. of outreaching events organised for the general public and number of participants	2/2000	4/6000	**2/6600**
(vi) Promote specialised jobs, economic growth and investment			
II6.1. No. of patents, open innovative solutions, technical guidelines, and manuals derived from BIOPOLIS research	1	2	**4**
II6.2. No. of stakeholders enrolled in the CoE's Affiliates Programme	3	10	**0**
II6.3. No. of innovative and marketable outputs of partnerships with business corporations	2	6	**0**
II6.4. No. of new businesses, start-ups and spinoffs initiated	2	4	**1**
II6.5. No. of Invited Chair established by private corporations	3	4	**5**
III. INTERNATIONALIZATION IN RESEARCH AND TRAINING			
(vii) Raise Critical Mass and international visibility			
III7.1. No. of new top-ranked researchers attracted	2	5	**4**
III7.2. Percentage of permanent staff from abroad	10%	15%	**10%**
III7.3. Percentage of the staff enrolled in mobility programs	1%	2%	**1%**
(viii) Improve international experience and networking capacities			
III8.1. No. of collaborations with foreign top ranked institutions	1	3	**10**
III8.2. No. of international consortia leaded by BIOPOLIS	1	1	**1**

KPI	Baseline *	Short Term Performance (Y1-3)	
		Target	Achieved
III8.3. % of post-graduation students from other nationalities	10%	15%	**25%**
(ix) Train a new generation of Highly Skilled Researchers			
III9.1. No. of students annually enrolled in the CoE's post-graduation programmes	24	35	**20**
III9.2. No. of doctoral thesis submitted per year	12	14	**10**
III9.3. No. of employees from national or international organizations trained at BIOPOLIS	6	12	**26**

1.5. HR Strategy of the CoE (Personnel, Recruitment)

A deliverable (D2.1) describing the human resources strategy of the CoE for the next decade, addressing, among other components, the development of scientific and technical careers, categories, and functions of doctorates, was submitted in the previous reporting period and approved by EC services during the current reporting period. The human resource strategy of BIOPOLIS was drafted with the support of Porto Business School, and is currently being implemented, including the HR On-boarding External Program. In addition, the Gender Equality Plan of BIOPOLIS Association was elaborated during the reporting period, defining the guidelines for the goals of gender-equality, diversity, and inclusion that BIOPOLIS aims to achieve. An important step regarding HR management was the contracting of a senior Human Resources Officer (Ana Campos), who will initiate functions on the 1st of October (Details in Section 1.1.4).

During the reporting period there was also a major reinforcement of BIOPOLIS workforce, including the conclusion of the hiring process of the Board of Directors, and the contracting of a number of key staff for the management and technical units. In addition, BIOPOLIS contracted 23 researchers at different levels of seniority, which are funded by different funding sources other than the TEAMING (Table 2). Recruitment followed all provisions of applicable legal frameworks and involved open, independent, merit-based, and competitive calls, and followed the best international practice, adjusted to the type and level of the position to be filled. Besides all provisions defined in Portuguese legislation and best practice guidelines, the recruitment of Researchers and staff and the evaluation of applications followed the European Charter & Code for Researchers and the tenets of the EU Employment Equality Directive (2000/78/EC59) and other relevant provisions regarding Equal Opportunities standards. Calls were always widely advertised and the announcements for the positions were clear in providing the selection criteria and the selection procedures which included the CVs detailed assessment, reference and motivation letters, and interviews to assess professional experience, creativity, communication, interpersonal relationships, and other relevant skills. In the case of the recruitment of the Board of Directors members, the selection panels included persons external to BIOPOLIS, as detailed in Deliverable 1.1 and 10.1

Table 2- Human resources recruited during the reporting period

Name	Funding source	Date of contract	Category
Board of Directors			
Gabriel Marais	BIOPOLIS TEAMING	1st September 2021	Associate Director for Research and Innovation
Nuno Ferrand de Almeida	BIOPOLIS TEAMING	1st October 2021	Director
Cláudia Ribeiro	BIOPOLIS TEAMING	1st October 2021; ended contract on 31st August 2022	Associate Director for Administration and Finance
Luís Folhadela	BIOPOLIS TEAMING	1st September 2021	Associate Director for Administration and Finance
Researchers			
Raquel Tavares	Complementary funding: CCDRN	1st September2021	Principal researcher
Pedro Esteves	CEEC FCT 2020	1st October 2021	Principal researcher
Raquel Xavier	CEEC FCT 2020	1st November 2021	Assistant researcher
Francisco Alvares	Complementary funding: CCDRN	1st April 2022	Principal researcher
Gonçalo Cardoso	CEEC INST FCT 2021	18th August 2022	Principal researcher
José Melo Ferreira	CEEC FCT 2021	1st September 2022	Principal researcher
Roberto Arbore	ERC EYESPOT	15th November 2021	Assistant researcher
António Munoz	Complementary funding: CCDRN	8th February 2022	Assistant researcher
Pedro Monterroso	Complementary funding: CCDRN	8th March 2022	Assistant researcher
Pedro Vaz Pinto	Complementary funding: CCDRN	1st April 2022	Assistant researcher
Soraia Barbosa	ERC EYESPOT	1st April 2022	Assistant researcher
John Archer	Complementary funding: CCDRN	1st April 2022	Assistant researcher
Raquel Godinho	CEEC FCT 2021	1st August 2022	Assistant researcher
Marta Soares	CEEC FCT 2021	1st August 2022	Assistant researcher
Zbigniew Boratyński	CEEC FCT 2021	1st August 2022	Assistant researcher
Inês Catry	CEEC FCT 2021	1st October 2022	Assistant researcher
João Carlos Pimenta	HIBRID CHANGE project	15th August 2021	Junior researcher
Marisa Graziela Cerqueira Vedor	FUTURE 4 MAKOS project	1st September 2021	Junior researcher
Sandra Trigo	NEUROSOCIALNET PTDC project	1st October 2021	Junior researcher
Cristina Romero Diaz	PlasticSexDifference PTDC project	1st October 2021	Junior researcher
José Ricardo Rocha	CEEC FCT 2020	1st October 2021	Junior researcher
Pedro Andrade	CEEC FCT 2020	15st October 2021	Junior researcher
Nicolas Dubos	MAD RAD project	7th October 2021	Junior researcher
Joana Santana	EUROPABON project	1st November 2021	Junior researcher
João Queirós	WILDLIFE RP	1st November 2021	Junior researcher

Name	Funding source	Date of contract	Category
Cátia Monteiro	FutureMARES H2020	1st December 2021	Junior researcher
Pedro Humberto	Complementary funding: CCDRN	23rd December 2021	Junior researcher
Filipa Martins	Complementary funding: CCDRN	1st January 2022	Junior researcher
Joana Bernardino	Complementary funding: CCDRN	1st March 2022	Junior researcher
Francesco Baluardo	MAD RAD project	3rd March 2022	Junior researcher
Ana Margarida Vitorino Leitão	EVOCOLORISLA project	4th April 2022	Junior researcher
Bruno André Santos Marcos	SEVERUS PT project	1st May 2022	Junior researcher
Fabiana Neves	Complementary funding: CCDRN	19th May 2022	Junior researcher
João Pedro Marques	HIBRID CHANGE project	20th May 2022	Junior researcher
Ana Teresa Marques	Complementary funding: CCDRN	1st June 2022	Junior researcher
Rita Silva	CEEC FCT 2021	1st September2022	Junior researcher
Rui Morgado	Complementary funding: CCDRN	16th September2022	Junior researcher
João Queirós	Complementary funding: CCDRN	15th October 2022	Junior researcher
Pierre Barry	INVCONTINUUM PTDC	15th October 2022	Junior researcher
Marisa Vedor	CEEC FCT 2021	10th November 2022	Junior researcher
Administrative staff			
Jorge Neves	BIOPOLIS TEAMING	13th April 2022	Project manager
Victor Lima	BiOPOLIS TEAMING	1st July 2022	Communication Officer
Ana Campos	BIOPOLIS TEAMING	1st October 2022	HR Officer
Tatiana Coelho	BIOPOLIS TEAMING	15th October 2022	Project Support Officer
Lab and field Technicians			
Sara Freitas	GRAPEVISION project	1st September 2021	Lab technician
Sandra Afonso	ERC EYESPOT project	1st October 2021	Lab technician
Ana Serronha	FUI BASE	1st November 2021	Field technician
Beatriz Saldanha	NEUROSOCIALNET PTDC project	1st January 2022	Lab technician
Patrícia Isabel Serra Gil	Services provision unit GEPE LOBO	16th February 2022	Field technician
João Pedro Monteiro Cardoso	Services provision unit GEPE LOBO	1st March 2022	Field technician
Liliana Farelo	FUI BASE project	1st March 2022	Lab technician
Daniel Oliveira	IEFP	1st March 2022	Field technician
Ludmilla Blaschikoff	IEFP	1st March 2022	Lab technician
Susana Magalhães	IEFP	1st March 2022	Field technician
Luís Miguel Dias Venâncio	GEPE ENERGIA	1st April 2022	Field technician
Rita Alexandra Fernandes Fortuna	ERC COOPERATIVE PARTNER	1st April 2022	Field technician

Name	Funding source	Date of contract	Category
Helga Babette Fourie	ERC COOPERATIVE PARTNER	5th May 2022	Field technician
Ana Luísa da Costa Alves Ramos	FUI BASE project	16th July 2022	Lab Technician
Marisa Rodrigues	FUI BASE project	1st August 2022	Field technician
Rosendo Silva	URBINAT European project	1st September 2022	Field technician
Cindy Sarmento	IEFP	1st September 2022	Lab technician
Tereza Almeida	*ZoonoMed PTDC project*	8 th September 2022	Lab technician
Eva Pinto	FBA *"Serra da Aboboreira protocol*	16 th September2022	Field technician
Mariana Filipe	FBA *"Serra da Aboboreira protocol*	16 th September 2022	Field technician
Mariana Orsini	FBA *"Serra da Aboboreira protocol*	16 th September 2022	Field technician
Ana Senra Portela	SEVERUS PT project	16 th September 2022	Field technician
Miguel Canibe Iglesias	FBA *"Serra da Aboboreira protocol*	1st October 2022	Field technician
Grant holders			
Ana Catarina Dias de Sousa	ENVARCH research group budget	16th June 2022	Initiation of scientific research grant
Tatiana Maia Silva	CONGEN research group budget	1st April 2022	Initiation of scientific research grant
Sasha Vasconcelos	Complementary funding: CCDRN	1st October 2021	PhD grant
Mariana Marques	Complementary funding: CCDRN	1st May 2022	PhD grant
Daniel António Garcez	Complementary funding: CCDRN	1st May 2022	PhD grant
Paulo Andrade Dias Pereira	Complementary funding: CCDRN	1st May 2022	PhD grant
Ninda Baptista	Complementary funding: CCDRN	15th May 2022	PhD grant
Joana Cristina Martins Pereira	OCEANLOG project	16th June 2022	PhD grant
Diana Carina Lobo	Complementary funding: CCDRN	1st July 2022	PhD grant
Maria Carolina Pacheco Freitas	Complementary funding: CCDRN	1st July 2022	PhD grant
Javier Lobon Rovira	Complementary funding: CCDRN	8th July 2022	PhD grant
Francesco Valerio	Complementary funding: CCDRN	1st August 2022	PhD grant
Selma Kosmas	Complementary funding: CCDRN	1st September 2022	PhD grant
Joana Bernardino	REN Invited Chair	1st October 2021	PhD grant
João Pedro Nogueira Marques	EVOCHANGE research group budget	1st January 2022	PhD grant

Name	Funding source	Date of contract	Category
João Silva	Complementary funding: CCDRN	1st June 2022	Pos-doc grant
Francesco Valerio	Complementary funding: CCDRN	1st August 2022	Pos-doc grant

Upon recruitment, strong attention and care has been placed to ensure the full integration of new workers in BIOPOLIS, especially those arriving from abroad. In particular, the best efforts have been made in order to make the new staff acquainted with all aspects of the CoE, including administrative and financial procedures, working conditions, lab facilities, rules and guidelines, while ensuring the necessary counselling and assistance regarding all aspects required to work in Portugal (e.g., housing, schools, health, tax information, among other aspects).

1.6. Infrastructure, equipment

1.6.1. Overview

During the reporting period there were major advances in the strategic planning and implementation of activities related to the management and upgrading of BIOPOLIS infrastructures and equipment. The work involved the thorough revision of Deliverable 3.1, "Management Plan of Infrastructures (including IT) and Equipment", and the preparation of Deliverable 3.2, "Plan of infrastructures upgrade and re-equipment". Regarding D3.1, it was initially submitted in November 2020, and a revision was requested by the Project Officer in June 2021, mainly because it lacked the inventory of the initially available physical resources. A greatly improved version of D3.2 was submitted in September 2021 and approved in December 2021. Regarding D3.2, it was submitted on the 10th of October of 2022, providing a detailed description of the current status and planning of activities targeting at infrastructure upgrade and re-equipment, as well as the expected timeline and costs of implementation in the near future. This is clearly one of the most ambitious and advanced components of BIOPOLIS implementation, as described in the following sections.

1.6.2. Infrastructure upgrade and management

Major work towards infrastructure upgrade has been concentrated at Campus the Vairão and at two Field Stations. Campus de Vairão hosts the headquarters, labs, and most activities of BIOPOLIS, justifying a range of on-going and planned interventions. The main activity started during the reporting

period corresponds to the rehabilitation and adaptation for scientific research of buildings at the complex of Quinta do Crasto, which started in August 2022 and are expected to end in June 2023. The intervention involves a budget of 6.7 million euros supported by CCDR-N through the complementary structural funds to the Teaming project (NORTE-01-0246-FEDER-000071; see Section 1.2.1). The rehabilitation work is mostly focused on: (i) the architectural and constructive characterization of the buildings of Quinta do Crasto; (ii) Exterior interventions (facades and roofs) ; (iii) Interior interventions (for offices, meeting rooms and labs); (iv) the necessary interventions in the surrounding outer spaces aiming to turn the outdoor spaces more attractive and pleasant. The second intervention is the rehabilitation of the Main Building of BIOPOLIS, which is currently in the planning phase (architecture and engineering studies), with implementation expected to start in 2023, possibly after the end of interventions at Quinta do Crasto.

Investment on Field Stations are concentrated in south-eastern (Estação Biológica de Mértola; EBM) and in north-western Portugal (Branda Científica de São Bento do Cando), representing the extremes of an ecological gradient running through the country. EBM has been established as a private, non-profit scientific Association in June 2021, having Associação BIOPOLIS as its main shareholder, with its shareholding approved by the Supervisory Board in May 2021. Investment at EBM includes the rehabilitation and adaptation (functionalization) of an old industrial building, in an advanced state of degradation, with the creation of office and lab spaces, accommodation for students, auditorium, and other facilities needed for the biological field station operation. The intervention involves an investment of 4.4 million euros, which is co-funded by CCDR-Alentejo through structural funds (ALT20-03-0246-FEDER-000042), and by the municipality of Mértola. EBM will promote research by BIOPOLIS in collaboration with other national and international partners, in the fields of biodiversity, agroecology and wildlife biology, and on the monitoring and assessment of the impacts derived from climate change and desertification.

Regarding Branda Científica, a Master Plan has already been prepared, with more detailed preparatory studies to be carried out in the next few months. The investment will be supported by structural funds and the municipality of Arcos de Valdevez. The beginning of interventions is expected to start in 2023. The Field Stations initiative is raising much interest at the highest levels, as expressed during visits to the sites of several ministers of the Portuguese government, and even the European Commissioner for Cohesion and Reforms (Mértola, 23-09-2022), as indicated in Section 1.4. Investments on infrastructures in Biopolis TwinLabs in Lusophone and other African countries is also being considered, though the work is still in the phase of developing initial interventions and producing preliminary plans.

1.6.3. Equipment upgrades and management

The work towards the re-equipment of BIOPOLIS is focusing on seven research platforms that are key to the development of its activities: (i) Computational platform; (ii) Omics platform; (iii) Plant and Microbiology Platform; (iv) Animal Platform; (v) Environmental and Ancient Genomics Platform; (vi) Ecology platform; and (vii) Storage platform. From these, significant investments have already been

made in the computational and omics platforms (>0.5 million euros), supported by funding to national research infrastructures of research interest. To evaluate additional equipment needs and define priorities, an enquiry has been made to BIOPOLIS researchers. This data requested included key information for each piece of equipment including technical characteristics, quantities, statement of purpose, year of purchase, technical assays, utilization rate, space requirements, among others. Particularly important additional investments to be made in 2022-2023 include the deployment of a world-class "Ancient and Degraded DNA" Lab at Quinta do Crasto, which will be the first such laboratory in Portugal. Also important is the investment on the "Plant and Microbiology Platform", with the upgrade of conditions at a dedicated "Plant Lab" building, also at Quinta do Crasto. Investment on the other platforms involves a strong component of upgrade to the most recent technology, but also the progressive replacement of equipment at the end of life or that becomes obsolete. Overall, the re-equipment involves an estimated investment of 3.9 million euros until 2027, which will be supported by structural complementary funds, BIOPOLIS direct investment, and FCT, among others.

2. Key aspects of the implementation for the coming period

2.1. Strategy for the upcoming period

During the next reporting period, the work will focus on implementing the different activities and actions included in the DoA of the GA, while introducing the adjustments required by the challenges and opportunities raised by ever changing national and international contexts. Moreover, BIOPOLIS will continue to implement the different strategies that have been produced since the beginning of the Teaming project and that have been submitted as deliverables to the services of the European Commission. Particularly important in this context are the "Administration and Financial Strategic Plan" (D1.3), the "HR Strategic Plan" (D2.1), the "Management Plan of Infrastructures (including IT) and Equipment" (D3.1) and the "Plan of infrastructures upgrade and re-equipment" (D3.2), the "Strategic Research Programme" (D4.1), the "Internationalisation Strategy" (D4.4), the "Implementation Plan for Ethics and Animal Welfare Guidelines" (D4.5), the "Data Management Plan including ORDP: Open Research Data Pilot" (D4.7), the "Education and Training Strategy" (D5.1), the "Internal Communication Plan of the CoE (D6.1), the "Communication, Dissemination & Exploitation Plan" (D6.2), the "Knowledge Management System" (D6.3), the "Report of the Planning of the Affiliates Programme" (D7.1), the "Quality Assurance system" (D9.1), the "Risk Management and Mitigation Plan" (D9.3), the "Consortium communication plan" (D10.6), and the Quality Plan (D10.7). From these strategies, plans and systems, only the Plan of the Affiliates Programme is due to be reviewed during the reporting period (30-09-2023; D7.2). However, they will all be evaluated during implementation

and changes will be introduced if needed, with eventual significant modifications described in the next Implementation Report (31-03-2024; D10.3).

Considering the timeline of actions in the DoA, and the different strategies and plans outlined above, the implementation strategy for each of the 11 WPs of the Teaming project.

- **WP1 - BIOPOLIS CoE Management**. Tasks 1.1 to 1.5 have essentially been concluded during the previous two reporting periods. During the next reporting period, the focus will be on the strengthening of the organisational structure of BIOPOLIS, to deal with the increasing pressure on the administration and finances officers. This will involve work towards improving the daily management of BIOPOLIS (T1.5), with a particular attention to treasury management and financial monitoring (T1.7). Although the strategic plan for administration and finances (D1.3) was produced during the previous reporting period, its implementation will be assessed to detect eventual adaption and improvement needs. Financial monitoring and reporting (T1.8 will be another important component of the activity, involving the preparation of annual budgets for 2023 and 2024, and producing the annual financial reports for 2022 and 2023, all of which need to be approved by the Supervisory Board and the General Assembly.
- **WP2 - Recruitment and Management of Human Resources**. The human resources strategy (D2.1) has been previously produced (T2.1), and it will be used to guide the management of HR during the next reporting period (T2.5). This activity will be overseen by the new senior HR officer, who will reorganise the HR Office and will assess the need to hire new HR support officers. This will be part of the wider activities related to recruitment of administration and support personnel (T2.2) and technical support staff (T2.3), which was started in previous years (Section 1.1.4) and will continue in the next reporting period. Priorities include the responsible for coordinating BIOPOLIS IT and Bioinformatics components, and the Legal effort, whose recruitment processes are expected to be completed until at most the end of 2022. Work will also be developed to recruit additional research staff (T2.4), with a strong focus on researchers at later stages of career development. Researchers in top level positions have been difficult to attract in the initial years of BIOPOLIS, possibly due to the COVID pandemic, but efforts will be developed towards head-hunting of potential interested researchers that will be encouraged to apply to open calls. Hiring of HR will be supported with funds from the Teaming project and the complementary structural funds provided by CCDR-N (NORTE-01-0246-FEDER-000063), but also by a range of additional funding sources (FCT, HORIZON, among others).
- **WP3 - Infrastructures and equipment management**. Protocols with the University of Porto and ICETA have been established as planned (T3.1), defining the terms of the use of Campus de Vairão and the transference of equipment of CIBIO to BIOPOLIS. Following initial implementation, work will be developed towards improving the terms of use of Campus de Vairão by BIOPOLIS, namely by creating the conditions to foster collaborations with other institutions working within the Campus or in nearby areas. The infrastructures and equipment currently available to BIOPOLIS will continue to be managed and monitored according to the Plan defined in D3.1. Major efforts will be devoted to the rehabilitation of infrastructures and re-equipment as described in D3.2 and in

Section 1.6. Major achievements in this context are expected during the next reporting period, including the conclusion of the works of rehabilitation of Quinta do Crasto and Estação Biológica de Mértola; and the raising of funds and start of the rehabilitation work at the main building of Campus de Vairão and of the field station of Branda Científica. It is also expected that the Ancient and Degraded DNA lab will become fully operational, and the other six scientific platforms will be re-equipped. The main operation of infrastructure rehabilitation and re-equipment at Campus de Vairão is supported through CCDR-N by the project NORTE-01-0246-FEDER-000071, which ends in June 2023. Therefore, achieving such targets will require a tight compliance with the deadlines, budget, and procurement rules, among others, set by CCDR-N and other funding agencies. To address these risks, BIOPOLIS set an internal task force to implement and monitor this component of the work, and it has contracted specialise legal and project management consultants to support the tasks. Moreover, it is in close contact with governmental departments to ensure the extension of the deadline for a few months in case this is required to fully implement the operation.

- **WP4 - Operationalisation of the Research Programme**. The strategic research programme finalised in 2022 (T4.1) will be implemented during the next reporting period. This strategy involves the reinforcement of the human resources to foster the implementation of BIOPOLIS strategic research lines, which will be supported with funds from the Teaming project and the complementary structural funds provided by CCDR-N (NORTE-01-0246-FEDER-000063), among others. The success of this strategy will be thoroughly monitored and evaluated, in preparation for its review that is due in the end of the reporting period (D4.2, 31-03-2024). The internationalisation strategy produced in 2021 will also continue to be implemented during the next reporting period, with key axis of action corresponding to the strengthening of relations with the University of Montpellier. These will include the establishment of a Virtual Laboratory hosted by Agropolis International, allowing permanent representation of BIOPOLIS CoE Montpellier, which will facilitate interactions with the scientific community in Montpellier and with its partners at regional, national, and global scales. Initial discussions on this topic have been made during meetings organised in Montpellier (Section 1.6), but work is still on-going. The internationalisation targets also include the expansion and reinforcement of relations with top level institutions worldwide, the support of researchers for participating in COST actions and other networking programmes and activities, and the reinforcement and expansion of the TwinLab initiative. The later will involve work towards establishing field stations for supporting work in Africa, including the island of Príncipe, and in Cabinda and Iona (Angola), among others. Attention during the next reporting period will also be given to all aspects related to research ethics and the welfare of animals used in experiments (T4.4), as described in D3.2 and in WP11 below. Finally, work will be done in the area of data management and open access (T4.5), which will benefit from the hiring of the IT and bioinformatics coordinator until the end of 2022. This task will involve defining the rules for the use of our storage capacity, as well as improving data management practices by BIOPOLIS researchers. Based on the experience gained from the first years of implementation, a

revision of the data management plan will be produced at the end of the next reporting period (D4.8; 31-03-2024).

- **WP5 - Education and Training**. The education and training strategy produced in 2021 (T5.1) will continue to be implemented in the next reporting period, with eventual adaptations required to improve its effectiveness. Details of the work to be done during the next reporting period are detailed in the 1st Report of Education and Training Activities (D5.2), and they are briefly summarised here. Work will be done to further improve the doctoral programme (T5.2), with a focus on increasing internationalisation. This will involve the streamlining of the co-tutelles with Montpellier, the increase of co-supervisions with researchers from top institutions in Europe and elsewhere, and the increasing attraction of the programme from international students, including students from less developed countries. Regarding the post-doctoral programme (T5.3), the work will focus on promoting short- and medium-term training visits of junior researchers to labs from the University of Montpellier and other top-level institutions, increasing the offer of in-person and hybrid training events, and the reinforcement of training targeted at soft skills and career development in articulation with UM and PBS. The advanced training and continuous development programme will be strengthened (T5.4), with the organisation of more scholarly events such as summer schools and high-profile workshops; the strong reinforcement of the training opportunities offered to internal administration and technical staff; the organisation of new training events for business corporations, schools and other stakeholders, and the reinforcement of the engagement of Living Science Centres and other initiatives for the wider public (e.g., Bioblitz). Finally, monitoring of satisfaction and impact of these activities will be reinforced (T5.5), through targeted enquiries to participants and monitors.
- **WP6 - Communication, Dissemination and Exploitation**. The plans for internal (T6.1) and external (T6.2) communication produced in 2021 will continue to be implemented during the next reporting period. To this end, a strong reinforcement of the office dedicated to this task is planned for early 2023, thereby increasing all activities related to communication (T6.3), dissemination (T6.4) and exploitation (T6.6). Highlights of the planned activities are provided in section 2.2.
- **WP7 - BIOPOLIS CoE Affiliates Programme**. The plan of the Affiliates Programme was produced in 2021, and it has been implemented since then. However, there have been obstacles in attracting business corporations and other stakeholders to join the programme, mainly to the economic difficulties and changing priorities associated with the COVID pandemic and the current economic crisis. Therefore, a contingency plan has been set and started to be implemented to correct this situation, involving a closer work between BIOPOLIS and Porto Business School to adjust the Programme to the new reality. Effort have already started to pay off during the reporting period, with new corporations sponsoring Invited Chairs (EDIA), and other stakeholders starting to engage in this type of partnership (e.g., municipality of Oeiras). During the next reporting period, the work will thus involve the development of new contacts with corporations and other stakeholders to attract them to the Affiliates Programme, adjusting if needed the type and benefits involved. Work will also be developed to produce the revision of the Affiliates Programme that is due in September

2023 (D7.2). It is expected that these efforts will result in the full implementation of the programme until at most the end of 2023.

- **WP8 – BIOPOLIS CoE Sustainability**. Working towards the sustainability of BIOPOLIS is one of the key activities developed until now (see Sections 1.2 and 1.3), and that will be strengthened and expanded in the next reporting period. Building on the considerable success achieved during the current reporting period (Section 1.2), BIOPOLIS will continue promoting the successful application to research funding (T8.1), having as main targets the national programs (FCT, CCDR) and Horizon Europe. The work will be leveraged by the recent hiring a new project manager and a project support officer, with further reinforcement of the Project Support Office planned in 2023. Concurrently, there will be new initiatives to train administrative staff and researchers in the preparation of proposals and management of projects. Finally, researchers will be encouraged to get involved in international consortia and to apply to new projects, with benefits in terms of office and lab space awarded to those achieving high success rates in obtaining new projects. During the next reporting period there will also be a reinforcement of contacts with corporations and other stakeholders to promote partnerships through problem-solving research (T8.2). This task has proved more difficult implement than previously anticipated, due to the constraints impose on corporations during the COVID pandemic and the current economic crisis. However, it is expected that these difficulties will be overcome during 2023, through a stronger involvement of the UM and PBS in finding new collaborations, and the leverage of current collaborations with key corporations in Portugal (SONAE, EDIA, REN, EDP) to leverage new partnership opportunities. Work will also be developed to reinforce the intellectual property rights and licensing of innovation (T8.3), which until now has been a minor component of BIOPOLIS activity. This will be achieved through a dedicated Knowledge Transfer Officer working closely with UM, PBS and BIOPOLIS researchers, to find innovations worth patenting. It is expected that at least two new patents resulting from BIOPOLIS research will be registered during the next reporting period. Regarding the component of consultancy and service provision (T8.4), there has been a major increase during the reporting period in request to BIOPOLIS, which is expected to continue and expand during the next reporting period, with associated increases in the pressure on BIOPOLIS internal services. Therefore, work will be done to reinforce the organisational structure supporting external services, including the definition of administration and financial procedures, the reinforcement in technical human resources, and the improvement of procedures to engage with customers. There will also be a revision of the strategy regarding consultancy and services, with an increasing focus on large, high-profile projects like those associated with the Kingdom of Saudi Arabia, the European Investment Bank, and the European Environment Agency (ETC-BE) (Sections 1.2.5 and 1.3.4). Finally, during the next reporting period there will be a reinforcement of the work towards supporting new businesses and spin-offs. This will involve continued support to the expansion of activities by ElectricBlue, and the establishment of a Joint Venture with a French company to develop molecular biomonitoring services (Section 1.3.5). Additional opportunities were explored to the establishment of new businesses based on BIOPOLIS research and innovation. A review on

the research funding (D8.1) and of the business relations and knowledge transfer (D8.4) will be produced in September 2023.

- **WP9 - Quality Assurance, Monitoring and Evaluation**. The quality assurance system of BIOPOLIS has been produced in early 2022 (D9.1), and it has been implemented since then (T9.1). The system will continue to be implemented in the next reporting period, with improvements and adjustments introduced to streamline the components of project management, service provisioning, and laboratory analysis. These improvements are being designed in a collaboration between BIOPOLIS and PBS, and with inputs from UM. Monitoring of Key Performance Indicators will also continue, with a revision of achievements due towards the end of the next reporting period (D9.4; 28-02-2024). Finally, risks will continue to be monitored and evaluated, with contingency measures implemented when needed (T9.3).
- **WP10 - BIOPOLIS Teaming Project Management and Coordination**. During the next reporting period there will be a major intensification of BIOPOLIS activities, requiring a streamlined management of all project components (T10.1). This will be achieved through the reinforcement of the administration, finances, and project management offices of BIOPOLIS, together with an improved articulation of activities across the three consortium partners. Internal communication also needs to be streamlined, though a more effective implementation of the consortium communication plan (D10.6), ensuring that all researchers and technicians from all partners involved are well aware of the project's objectives, initiatives, and achievements (T10.2). The project will be monitored, and its quality will be controlled according to the guidelines set in the Quality Assurance System established in 2022 (D10.7). This will ensure that all activities are developed according to the plans, and that the seven deliverables expected during this period are submitted on time. Towards the end of the reporting period, BIOPOLIS will start preparing the mid-term evaluation by a panel of external experts, though reporting on this evaluation is only due in September 2024 (D10.8).
- **WP11 - Ethics requirements**. BIOPOLIS will continue to monitor closely all activities with potential ethical implications. Particularly relevant are all aspects related to animal experiments, with the implementation of the plan described in D4.5, and the establishment of a new protocol with the national laboratory INIAV, involving the use of bioterium facilities available in its facility in Vairão. Work will also be developed towards increasing the fair benefit sharing of biodiversity research in less developed countries, involving in particular the establishment of Nagoya protocols in countries where BIOPOLIS has or is developing TwinLab agreements. Finally, BIOPOLIS will improve its capacities to deal with plant GMOs, by deploying a specialised lab, obtaining the necessary authorisations, and develop research under the strictest ethical standards.

2.2. Communication activities for the upcoming period

Internal and external communication of BIOPOLIS during the next reporting period will be implemented according to the corresponding strategic plans (D6.1 and D6.2), but with a strong

reinforcement of the organisational structure, and significant expansion of the scope and intensity of the activities.

The reorganisation of the communication office will involve the recruitment of new officers, which should be hired throughout 2023 and 2024, according to the needs and priorities. The preliminary profiles of these new officers have already been broadly established and are listed below, though they may need to be adjusted to meet the future needs of BIOPOLIS:

- **Education and outreach officer**: responsible for devising and implementing outreach strategies with the general public, including students at different levels. This includes development outreach materials. This person will also assist researchers in developing outreach initiatives and projects based on their research. This person should have a background in science communication or education and strong interpersonal skills.
- **Communications and press officer**: responsible for designing and handling the internal and external non-scientific communications of Biopolis – internal newsletter/digest, seminars, message forwarding, and improving internal communication channels. This person will handle relationships with the press – crafting and sending official press releases, and maintaining contacts with reporters. Brief members of the Biopolis community in advance of interviews, seminars or engagement with key external organisations. This will be the first point of contact between Biopolis and all external entities. This person should have a background in communication and strong oral and written communication skills.
- **Research communication officer**: Responsible for coordinating contents and materials across research groups in Biopolis and for translating and communicating the research outputs of Biopolis to the general public. It will assist in writing scientific press releases and the Biopolis scientific community in the process of scientific communication and grant writing. This person should be the first point of contact between researchers and the communication office. This person should have a scientific background, ideally a PhD and a good understanding of the academic environment, and strong written communication competencies.
- **Digital contents officer**: responsible for handling the digital activities of CIBIO – website redesign and updating, coordinating social media presence on multiple platforms (Facebook, Twitter, Instagram, Tiktok, YouTube, LinkedIn), helping update Wikipedia pages, managing photo banks. Assist in the graphic designing and technical development of communication content. Create and edit visual content, including website design, infographics, image, and document templates. This person should have a background in web and/or graphical design and demonstrate the ability to manage social media communications.

Given this strengthening of the communication office, a number of activities have been planned for the upcoming period. Highlights include:

- **Reinforcement of the online visibility of BIOPOLIS**, with a particular focus on social media presence on multiple platforms (Facebook, Twitter, Instagram, Tiktok, YouTube, LinkedIn), but also in Wikipedia pages and other platforms.
- **Publication of new brochures and leaflets** for the communication of BIOPOLIS and its initiatives, including the Field Stations and the TwinLabs in Africa.
- **Development of innovative science communication materials** (including podcasts, documentaries, infographics, etc.), by building inhouse production capacity and/or through partnerships with external organisations.
- **Reinforcing the communication with stakeholders** in the context of the Affiliates Programme and other collaboration initiatives, involving the development of an online collaborative platform for stakeholders.
- **Preparation of the editorial plan of "Arte & Ciência"** for the period 2023-2024, and publication of several books that are already in advanced stage of preparation. These include the Portuguese versions of books already published in Springer, some of which are key elements of collaborations with African Lusophone countries: "Biodiversity of the Gulf of Guinea Oceanic Islands Science and Conservation", "The Biomes of Angola", and "Railway Ecology".
- **Reinforcement of the partnership with Público**. This will involve, the development of training programs for BIOPOLIS staff and students, including an internship program at Público, communication workshops, and the collaboration in the establishment of a curriculum module in science communication. Also, the partnership will involve publishing (online and in print) a set of newspaper and reporting articles on BIOPOLIS research projects, produced by Público´s Science section and/or Azul teams in coordination with BIOPOLIS scientists. Two members of BIOPOLIS will be integrated in the Advisory Board of Azul, which will serve as a think-tank forum on the editorial work developed or to be developed by the project. These activities may be updated in the next implementation report, as the result of the regular in-person meetings at Público's editorial office in Porto to discuss and present potential topics and work that may be addressed by Público according to its editorial decision.

BIOPOLIS

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