### Project Information

**IBISBA 1.0**  
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**Closed project**

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<th>Start date</th>
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<td>1 December 2017</td>
<td>31 May 2022</td>
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**Overall budget**  
€ 5 000 157,97

**EU contribution**  
€ 5 000 000

**Coordinated by**  
INSTITUT NATIONAL DE RECHERCHE POUR L'AGRICULTURE, L'ALIMENTATION ET L'ENVIRONNEMENT  
France

### Periodic Reporting for period 2 - IBISBA 1.0 (Industrial Biotechnology Innovation and Synthetic Biology Accelerator)

**Reporting period:** 2019-06-01 to 2020-11-30

### Summary of the context and overall objectives of the project
Industrial biotechnology (IB) is a Key Enabling Technology (KET) or Advanced Technology for Industry (https://ati.ec.europa.eu/) of the bioeconomy, being well positioned to play a role analogous to that of industrial chemistry in the fossil-based economy. Like many KETs, IB figures among Europe’s strengths, but world competitors are menacing that position. Moreover, although IB is growing quickly, so far it falls short of delivering its full potential in the different market sectors in which it is deployable.

In addition to competition from the fossil-based sector, many biobased products are handicapped by slow, costly R&D pipelines that, despite long development timelines, still deliver high risk IB-based processes. Moreover, although Europe’s IB sector is flourishing, being characterized by excellent public laboratories, many SMEs and some world leading multinationals, IB is still widely perceived as a technology that is difficult to deploy. Therefore, it is vital to federate IB’s public and private players, provide support for early stage R&D and create the conditions to accelerate R&D pipelines and the delivery of de-risked bioprocess concepts, better suited for industrial take up and translation to higher (above 6-9) TRL levels.

To reach the long-term goal of creating a European distributed research infrastructure (RI) for the IB sector, IBISBA 1.0 will:

- Create a network of infrastructure capable of working together using some common, basic business processes, including the use of standard operating procedures and harmonized practices
- Provide TransNational Access (TNA) to an array of state of the art facilities and thus contribute to optimizing European investments
- Create and implement some elements of future experimental business processes (e.g. workflows) and an e-registry for FAIR knowledge assets
- Perform a demonstration R&D project to illustrate how the use of harmonized practices and a common conceptual framework can provide integrated R&D services that support translational research pipelines and faster bioprocess development.

Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far

A key aspect of IBISBA is its network of facilities and stakeholders. Work has focused on its consolidation, drawing service-providing facilities into closer harmony and reaching out to a wider stakeholder community. Notable highlights are:

1. internal meetings that deepen common understanding of IBISBA’s goals and vision. Consortium-wide, 6-monthly meetings included sessions with non-beneficiary stakeholders. The wider community was invited to various workshops, including those held within conferences (BIOKET 2020 and Global Bioeconomy Summit 2020), and online training webinars (https://www.ibisba.eu/Webinars). Finally, IBISBA successfully organized a 1-day RI operator training session.
2. the refinement of a common vision. Further work on the common vision focused on key messages that can be used by partners to convey the essence of IBISBA to interested parties:
   “IBISBA is a European infrastructure that uniquely produces translational R&D&I services to an international community of industrial biotechnology stakeholders. IBISBA simplifies access to advanced multidisciplinary services that accelerate end-to-end bioprocess development and
contributes to the delivery of low carbon, low environmental footprint technologies for a wide variety of market sectors”.

3. communication tools were revamped and expanded. The website (www.ibisba.eu] was upgraded and repurposed, now primarily communicating on the overarching IBISBA enterprise, rather than focusing exclusively on IBISBA 1.0.

4. service catalogue and one-stop shop ([http://ibisba-services.eu/) came into operation, with several clients discovering IBISBA through these means.

A second aim of IBISBA 1.0 is the enhancement of internal interoperability and external data and knowledge asset sharing. In this regard, partners have:

5. made good progress on experimental work that tests the consortium’s ability to operate Design-Build-Test-Learn cycles. Through the collaborative development of several cell factories, partners tested and harmonized protocols, and defined good practices to accelerate experimental design and execution.

6. achieved further progress in establishing the IBISBA web-based registry ([https://hub.ibisba.eu) as the primary element of IBISBA’s information system and as a tool to capture projects’ knowledge assets (workflows, data sets, models, reports etc).

Regarding IBISBA 1.0’s final aim, as of January 2021, 4 calls were completed with 38 projects received (21 selected) from applicants in 21 countries, including European associated countries and Latin America. Despite restrictions imposed by the pandemic, facilities have pursued the production of R&D services, allowing successful completion of ongoing TNA projects.

**Progress beyond the state of the art and expected potential impact**

(including the socio-economic impact and the wider societal implications of the project so far)

Several authors (e.g. Kitney et al. 2019, [https://doi.org/10.1016/j.tibtech.2019.03.017) note that IB requires a more integrated approach to achieve further development, and a MacKinsey report on Biotechnology in Europe (by Le Deu and Santos da Silva, 2019) pinpointed fragmentation as a weakness. IBISBA 1.0 addresses these concerns and will thus achieve better integration of disciplines that underpin IB and reduce fragmentation in Europe’s innovation landscape, thus increasing the strength and competitiveness of IB.

IBISBA 1.0 will deliver a structured and coordinated network of European R&D infrastructure facilities, forming the basis for a distributed RI (IBISBA) using shared business processes. IBISBA 1.0 will thus contribute to the streamlining of European investment in R&D infrastructure. Harmonized practices, workflows, and smooth interfaces between infrastructure services will help accelerate R&D project lifecycles and procure faster delivery of pilot-tested prototype bioprocesses to industry. This will confer European industry players with a competitive edge and a greater share of global market profits. Focusing on the development of translational research that takes up early phase research results and produces concepts and pilot-tested prototypes, IBISBA 1.0 furnishes vital knowledge on how to bridge the gap in the innovation pipeline and thus supply key contributions to innovation in IB. This will result in better support to early innovation and higher conversion of public R&D investment into industrial success stories, and in turn lead to more qualified employment in sectors contributing to the
bioeconomy transition.
Promoting increased visibility in the RI landscape for R&D infrastructure in a powerful technology family, IBISBA 1.0 lays foundations for the use of IB to address a series of grand societal challenges. The future IBISBA infrastructure will form a technology brick in infrastructure ecosystems that contribute solutions to issues ranging from environmental pollution, to more sustainable materials, better quality food and innovative products for a healthier life.

Providing a demonstrated prototype for TNA, IBISBA 1.0 shows how greater European cooperation and access in the field of infrastructure for IB can enhance support for SMEs and contribute to training of a new generation of European IB practitioners adapted to 21st century needs and challenges, and to procuring a network of regional-based IB innovation hubs.
Finally, e-tools developed in IBISBA 1.0 contribute to delivering European Open Science policy and promote the sharing of assets produced in the framework of public-funded endeavors.