Co-funded by the European Union

Germ of Life

Interreg Euro-MED Project GERM OF LIFE

"Digital Drought Risk Management enabling the drought mitigation and adaptation strategies for the restoration of the ecosystem equilibrium in Mediterranean European Countries".

Test Project (Thematic Project)
Mission: NATURAL HERITAGE

Duration: 33 months from 01/01/2024
Coordinator: UNIVERSITY OF PATRAS

Deliverable ID.:	**D1.6.1**	
Deliverable title:	**Joint developed Innovation procurement platform for technologies and NBS**	
Planned delivery date:	31/12/2025	
Actual delivery date:	10/12/2025	
Deliverable leader:	UBITEL	
Contributing partners:	UPatras, RWG, LAMORO, EDIA S.A., JuntaAndalucia, DOTSOFT, INFO	
Dissemination Level:	EX	EX = External;
		IN = Internal

This project has received funding from the European Interreg Euro-MED programme under Subsidy Contract (V1.mars.2022)- Project n°Euro-MED0200878

Document information and history

Deliverable description (from AF)
The Innovation Procurement platform offers procurers and suppliers a set of services aiming at simplifying recognition of outcomes of innovation such as technologies and NBS specifically addressing the needs and functional requirements of a specific territory at risk of drought. Procurers are allowed to share their functional and territorial needs, based on data-driven drought indices retrieved by the Drought risk prediction, the outcomes of vulnerability assessment made by specialized stakeholders, experiences on Technology and NBS solutions implemented in other Regions and monitored with comparable indicators. Suppliers are then allowed to better assess the needs and propose innovative solutions matching the functional and territorial requirements.

Version N.	Date	Author [Person and Organisation]	Reviewer [Person and Organisation]	Notes
V0.1	10/12/2025	Matteo Colombo , UBITEL		
V0.2	15/01/2026	Matteo Colombo , UBITEL		
V0.3	15/02/2026	Matteo Colombo , UBITEL		
V1	28/02/2026	Matteo Colombo, UBITEL	Panagiota Saranti, University of Patras	

Table of Contents

1 Executive Summary

The Deliverable **D1.6.1 – Joint Developed Innovation Procurement Platform for Technologies and NBS** presents the open-source digital platform developed within the GERM OF LIFE project to support innovation procurement in the field of drought management and nature-based solutions (NBS). The platform connects public administrations with suppliers, enabling solution discovery, on-demand procurement, and automated environmental risk assessment across multiple Mediterranean countries.
The document describes the platform's architecture, core functionalities, technology stack, and deployment approach, providing partners and external stakeholders with a comprehensive overview of how the system operates and how it can be adopted or extended.

1.1 Role of deliverable

This deliverable defines, documents, and consolidates the **jointly developed Innovation Procurement Platform (IPP)** that serves as the digital backbone for procurement-related activities in GERM OF LIFE. It provides the technical description, configuration guidelines, and operational structure required for partners to deploy, test, and integrate the platform into project workflows

1.2 Relationship to other GERM OF LIFE deliverables

The Deliverable D1.6.1 is a technical document reporting the outcome of the work done in Task 1.6 and have relationships with the OUTPU 1.3 , the operational manual of the Joint developed Innovation procurement platform for technologies and NBS

1.3 Structure of the document

The document is organized to guide the reader from high-level context to technical implementation:

- Section 1 – Executive Summary introduces the purpose and positioning of the deliverable.
- Section 2 – Germ of Life Innovation Procurement Platform describes the scope, architecture, technologies, and development workflow.
- Section 3 – Key Features outlines the main functional components, including user management, procurement workflows, and data management.
- Section 4 – Configuration details database settings, query systems, and environment variables.

- Section 5 – Docker Deployment provides instructions for containerized execution.
- Section 6 – API Documentation lists available endpoints.
- Section 7 – Technology Stack summarizes frontend and backend dependencies.
- Section 8 – License and Project Folder provides licensing information.
- Section 9 – Reporting Issues and Contribution explains how to submit issues or contribute to the open-source repository.

2 Germ of Life Innovation Procurement Platform (Open Source Solution)

2.1 Scope

GermOfLife Innovation Procurement Platform (IPP) aims at connects public administrations with suppliers offering nature-based solutions (NBS) for drought management and environmental monitoring across multiple European countries (Greece, Spain, Portugal, Italy).

2.2 Project Overview

The platform facilitates procurement processes for nature-based solutions, enabling:

- Procurers (public administrations) to discover existing solutions or submit custom solution requests
- Suppliers to showcase their NBS offerings and respond to procurement requests
- NBS technology assessment workflow
- Multi-country support with localized content and region-specific procurement processes

2.3 Architecture

2.3.1 Full-Stack Application

1. **Backend**: ASP.NET Core 8.0 Web API with MySQL database
2. **Frontend**: Angular 19 SPA with Material Design and FluxHub component library
3. **Infrastructure**: Docker containerization with docker-compose orchestration
4. **Database**: MySQL 8.0 with automated schema initialization

2.3.2 Key Technologies

1. **Backend**: C# .NET 8, JWT authentication, Serilog logging, MySqlConnector
2. **Frontend**: Angular 19, Angular Material, AG-Grid Enterprise, Syncfusion components, FluxHub library

3. **Data**: MySQL with configuration-driven SQL queries stored in .ini files
4. **Deployment**: Docker containers with Nginx reverse proxy

2.4 Getting Started

2.4.1 Prerequisites

1. .NET 8 SDK
2. Node.js 18+ with npm
3. Docker and Docker Compose
4. MySQL 8.0 (if running without Docker)

2.4.2 First time set-up

1. Clone the repository
2. git clone https://github.com/Germ-of-Life/portal.git

   cd portal
3. Start all services with Docker Compose

docker-compose up

3. Access the application
   - Frontend: http://localhost:4200
   - Backend API: http://localhost:5000
   - Swagger docs: http://localhost:5000/swagger

2.5 Development

2.5.1 Frontend Development

```
cd frontend

# Install dependencies
npm install

# Development server (http://localhost:4200)
npm start

# Alternative port 4201
npm run start1

# Production build
npm run build

# Build for Docker deployment
npm run ngb

# Run tests
npm test

# Lint code
npm run lint

# Format code with Prettier
npm run prettier
```

2.5.2 Backend Development

```
cd backend

# Run development server
dotnet run

# Build project
dotnet build

# Publish for deployment
dotnet publish
```

2.6 Project Structure

```
├── backend/                  # ASP.NET Core API
│   ├── controllers/         # API endpoints
│   ├── models/              # Data models and DTOs
│   ├── common/              # Shared utilities
│   ├── query/               # SQL query files (.ini)
│   └── logs/                # Application logs
├── frontend/                # Angular 19 application
│   ├── src/
│   │   ├── app/
│   │   │   ├── register/  # User registration
│   │   │   ├── admin/     # Admin interface
│   │   │   ├── homepage/  # Main dashboard
│   │   │   └── shared/    # Shared components
│   │   ├── lib/           # FluxHub library (static)
│   │   └── assets/        # Static resources, i18n
│   └── package.json
├── db/                      # Database scripts
├── docker-compose.yml       # Container orchestration
└── README.md
```

3 Key Features

3.1 User Management

1. Dual registration paths for procurers and suppliers
2. Optional LDAP/Active Directory integration
3. Role-based access control

3.2 Procurement Platform

- **Solution Discovery**: Browse and filter existing NBS solutions
- **On-demand Procurement**: Submit custom solution requests with detailed specifications
- **Procurer Spec Assessment**: Obtain automatically up to dated environmental and drought risk indicators from the area of interest for the NBS application
- **Multi-country Support**: Localized content (IT, EN, PT, GR, ES) and region-specific use -cases (vineyards, temporary ponds et.)

3.3 Data Management

1. AG-Grid Enterprise integration for advanced data tables
2. Dynamic query execution with runtime SQL construction
3. File upload system with type validation
4. Multi-format data export (Excel, PDF, CSV)

4 Configuration

4.1 Database connection

Edit backend/appsettings.json to configure MySQL connection:

```
{
  "ConnectionStrings": {
    "DefaultConnection": "Server=localhost;Database=germoflife;User=germoflife;Password=***"
  }
}
```

4.2 Query System

SQL queries are stored in backend/query/*.ini files with parameterized syntax:

SELECT_USERS=SELECT * FROM users WHERE company_id=@COMPANY_ID

4.3 Environmental Variables

Key settings in appsettings.json:

- DEFAULT_COMPANY: Default company ID for multi-tenant data
- JWT_SECRET: Secret key for JWT token generation
- LDAP_AUTH: Enable/disable LDAP authentication
- SERVER_ROOT: Server file storage root path
- WEB_ROOT: Web-accessible file path

5 Docker Deployment

Build and run with Docker Compose:

```
# Build and start all services
docker-compose up --build

# Run in detached mode
docker-compose up -d

# Stop all services
docker-compose down

# View logs
docker-compose logs -f
```

6 API Documentation

Swagger documentation is available at http://localhost:5000/swagger when running the backend.

API end points:

- /login - Authentication
- /dogrid - Grid data operations
- /doquery - Dynamic SQL query execution
- /doupload - File upload handling
- /doworkflow - Workflow operations

7 Technology Stack

7.1 Frontend Dependencies

1. Angular 19.2.17
2. Angular Material 19.2.2
3. AG-Grid Enterprise 33.1.1
4. Syncfusion Components 28.2.x
5. FluxHub Component Library 19.0.86 (Angular CDK-based)
6. ngx-translate for i18n

7.2 Backend Dependencies

1. .NET 8.0
2. MySqlConnector
3. Serilog for logging
4. JWT Bearer authentication

8 License and project folder

Source code available at: https://github.com/Germ-of-Life

9 Reporting Issues and contribution

When reporting a problem or OS project contribution request, include:

- Your username
- Date and time of issue
- Description of the problem
- Steps to reproduce
- Any error messages displayed

Send a mail to jcharneco@ubitel.es