

## TERMS OF REFERENCE

### **Service for the design and implementation of an informatic optimization platform for the formulation of products and fertilization plans**

- a) Project: Optimization of the carbon footprint and efficiency of BioCNPk in Abonos Vivos S.A.
- b) Executing Entity: Abonos Vivos SAC
- c) Type of service: Third-party service

**Service for the design and implementation of an informatic optimization platform for the  
formulation of products and fertilization plans**

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## 1 TITLE OF THE SERVICE

Service for the design and implementation of an informatic optimization platform for the formulation of products and fertilization plans

## 2 BACKGROUND

In 2018, Grupo Alimenta founded Abonos Vivos SAC, a company dedicated to the design, production and marketing of organomineral fertilizers. Abonos Vivos SAC is presented today under the trademark Vida al Suelo, offering Peruvian producers its BioCNPk line, an efficient and sustainable alternative to traditional mineral fertilizers, with which they can maintain their productivity and improve the management of their productive soils.

Vida al Suelo applied to the "Business Innovation – Climate Change" innovation call offered by ProInnovate; an obtained the approval for the co-funding of the project "Optimization of the carbon footprint and efficiency of BioCNPk in ABONOS VIVOS S.A.C." in 2023, which will enable the development of a software based on technical evidence with which the company can offer fertilization plans that serve both to nourish the soil and to be used as a decarbonization tool for agriculture.

Therefore, it is necessary to contract an entity with proven experience in full stack software development and UX, to execute the design and development of software for the formulation and optimization of fertilization plans.

## 3 SERVICE DESCRIPTION

The project requires expanding the current capabilities of the software developed so far, developing a database, an API, and designing and developing specific interfaces to make its functionalities available to relevant users (WhatsApp, responsive front end web interfaces). Company users will use the interfaces to input historical fertilizer field assay data, fertilization recommendations, agricultural inputs, soil information data, and other relevant information, and ultimately technical staff will use the software to design resource-efficient fertilization plans based on the information in the database, to improve the competitiveness and sustainability of agricultural production.

#### 4 GENERAL AND SPECIFIC OBJECTIVES OF THE SERVICE

General objective	Final results
<b>Programming and implementing a digital platform in mobile and web version that integrates 2 modules: 1 – Formulation and 2 – fertilization plans</b>	A system has been developed that generates proposals for cost-efficient fertilization formulas and plans for the commercial team.

Specific objectives	Intermediate results
<b>1. Designing and Building the Database: Platform Inputs</b>	A database of crop fertilization plans, raw materials, soil and harvest information has been built.
<b>2. Develop the workflows that integrate the platform</b>	Process maps and information management protocols have been developed to allow the platform to operate and exploit the information collected. Work plan to obtain inputs and second a process flowchart
<b>3. Build the necessary interfaces for the use of the platform</b>	The user interfaces and the APIs necessary for the system to function properly have been prototyped and validated.
<b>4. Validating the software with users</b>	The system has been tested and demonstrated in its entirety with all relevant users.

#### 5 METHODOLOGY AND VALUE PROPOSITION

Bidders must propose the methodology they would use for project management and the value added they offer. Added value will receive an additional score, as detailed in the Evaluation Table. Value as features and scope above and beyond these TOR will receive additional bonification points. Bidders must present a detailed description of the activities and the expected results, detailing at least their interdependence, timeframe and resource allocation per activity. The proposed methodology will be evaluated in the application and will serve as an input for the development of the first product called "Workplan", which will be reviewed, improved - if applicable - and approved by the user area.

The contracted entity will transfer the source code, a user manual for the teams in charge of developing resource efficient and low carbon footprint fertilization plans.

#### 6 REQUIREMENTS AND APPLICATION PROCESS

##### 6.1 Minimum Requirements

##### 6.1.1 Overall Experience

The bidder must present proof of at least 5 projects successfully completed within the last 3 years, demonstrating solid experience in software development lifecycle (SDLC), including requirements gathering, design, development, testing, deployment, and maintenance. Strong communication and collaboration skills with clients, especially in remote environments should be evident. Experience in the development of applications and information management systems for agriculture is desired but not required.

### 6.1.2 Specific expertise

The bidder must provide proof of experience in the following:

- Developing applications using Python and/or Deepnote, as well as expertise in optimizing existing scripts.
- At least three projects involving database design and implementation, and data migration.
- Building APIs in Python, and integration with messaging platforms such as WhatsApp.
- Development of at least three responsive web interfaces.
- Deploying applications on cloud platforms (AWS, GCP, Azure) and familiarity with containerization tools.

### 6.1.3 Minimum work team

Bidder may present the team size they deems relevant for the successful development of the project, considering its full-stack nature and the need for UX development. Coordination and reporting activities will be held in Lima and field performance validations may require occasional day trips to Huancayo or Ayacucho.

## 6.2 Application Process

The tender is open to both individuals and legal entities. The bidding entity must submit the following documentation:

### 6.2.1 Dossier

- Detailed information of the individual or legal entity
- Overall Experience
- Specific Experience
- Team CV
- Document with Methodological Proposal: This must include at least what is established in this TOR.
- Document with Value Added Proposals

## 6.3 Application Submission

Bidders must present their application including all the documents mentioned above to [proyectos@vidaalsuelo.com](mailto:proyectos@vidaalsuelo.com) from October 24<sup>th</sup> to November 7<sup>th</sup>, 2024 at 23:59 GMT-05. Applications received past the deadline will not be considered for evaluation.

## 7 EVALUATION CRITERIA

The evaluation process begins a day after the submission deadline, it is carried out in two stages:

### 7.1 Administrative stage

An initial evaluation will be conducted to verify that bidders meet the minimum requirements in General Experience, Specific Experience, Team Profile, Methodological Approach, and Added Value. Those that meet the minimum requirements will be evaluated according to the criteria detailed in Table 1.

The technical team of the Project "Optimization of the carbon footprint and efficiency of BioCNPk in ABONOS VIVOS S.A.C." will prepare a comparative chart with the proposals.

## 7.2 Technical stage

The user area will evaluate a shortlist of bidders with the three highest scores and ratify the winner. The user area may request an interview with the provider to learn more about their experience and methodological proposal. Expert consultation may be called in if deemed necessary prior to make a final decision.

The result of this process will be communicated to the participating entities once the evaluation process is completed. Abonos Vivos S.A.C. will begin the process of contracting the winning bidder.

*Table 1: Evaluation criteria*

Criteria	Minimum score	Maximum score
<b>1. Overall Experience</b>		
Have successfully executed at least five (05) projects in the last 3 years, demonstrating strong software development lifecycle (SDLC) expertise	5	10
<b>2. Specific Experience (Annex 03)</b>		
Have executed at least three (03) full-stack projects that involve everything from database design and implementation to the deployment of user interfaces designed to improve user experience.	5	10
<b>3. Team (Annex 04)</b>		
Personnel with the experience to meet the objectives and indicators of the project.	10	20
<b>4. Methodological proposal</b>		
Methodological proposal for the achievement of the products planned with the service.	20	40
<b>5. Added value</b>		
Added value of the proposal on scope, team and methodology. *	10	20
<b>Total</b>	<b>50</b>	<b>100</b>

\* Proposals that go above and beyond requirements will receive a bonification score.

- The evaluation will be given considering maximum criteria.
- Bidders that meet the minimum requested in each criterion will have the minimum score.
- Score calculation will be made by weighting the amount of each criterion with respect to the maximum and minimum score.
- The final score will be calculated using the following formula:

$$P_i = P_{min} + \frac{(C_{ev} - C_{min})}{(C_{max} - C_{min})} * (P_{max} - P_{min})$$

P<sub>i</sub>: Assigned score

C<sub>ev</sub>: Score the bidder has in the evaluated criterion

C<sub>max</sub>: The largest scores any bidder has in the specific criterion

C<sub>min</sub>: Minimum score to meet criterion (comes from the minimum requirements)

P<sub>max</sub>: Maximum Criterion Score

P<sub>min</sub>: Minimum Criterion Score

## 8 PROJECT COST

The proposed lump sum must be presented including general sales tax (IGV), income tax, social charges of the team of the contracted entity or income taxes on non-resident foreign personnel, duties, fees, levies, commissions, financial and exchange rate adjustments, costs for financial

transactions or others. The amounts or amounts referred to will be included in the cost of the service, therefore, no additional fees will be paid for by Abonos Vivos S.A.C. No refundable fees apply.

## 9 SERVICE RUNTIME

The maximum period of development of the service will be a maximum of four (04) months from the beginning of the contract. The bidder may propose a shorter development time if the requirements of the service and the value-added proposals are met.

## 10 DELIVERY AND PAYMENT SCHEDULE

The duration of each of the stages indicated in the deliverables and payment schedule (Table 2) is subject to updates based on the bidder proposal and the approval of the project lead team. This schedule may be modified as long as the project execution is met.

**Table 2: Products and payment schedule**

Stage	Products	Calendar days	Cumulative days	% of payment
1	01 Detailed work plan	10	10	10%
	01 Backend and API Development	50	60	30%
2	01 Frontend Development	30	90	30%
	01 Test and Deployment Report	30	120	30%
<b>Total</b>		<b>120</b>	<b>120</b>	<b>100%</b>

## 11 RESOURCES AND FACILITIES TO PROVIDE FOR THE EXECUTION OF THE SERVICE

### 11.1 Resources provided by the contracting entity

Vida al Suelo S.A.C. shall provide the information at its disposal and that can serve as a basis or input to present the products required in this project, will maintain constant and timely communication with the contracted bidder; and will grant availability of those responsible for the project for their support.

The contractor shall designate the project coordinator as a liaison who will act as supervisor of this service.

## 12 CONFIDENTIALITY OF INFORMATION/INTELLECTUAL PROPERTY

All the information handled by the contracted bidder is considered confidential, both the information provided and the products that are the subject of the work.

The contracted bidder, its staff and collaborators directly or indirectly related to the service undertake to maintain confidentiality and absolute reserve in the handling of the information and documentation to which it has access related to the service, not being able to be disclosed by any written means and shared with third parties during the provision of the service and subsequently under any cause other than a legal requirement. which must be timely communicated to Abonos Vivos SAC.

The contracted company must comply with all the policies and standards defined by the contracting party, in terms of information security, treatment of personal and third-party data,



intellectual property, among others in compliance with applicable regulation. This obligation includes the information that is delivered, as well as that which is generated during the execution of the activities during the project and the information produced through it.

All information, products and/or results achieved within the scope of the contract signed between the selected bidder and Abonos Vivos SAC will be the exclusive property of Abonos Vivos S.A.C, which will recognize the moral rights of the developers and maintain the economic rights of the products, processes and/or services generated within the scope of this project. Abonos Vivos S.A.C reserves the right to request the intellectual property registration or protection mechanisms it deems pertinent at the national and international level.

### 13 PENALTIES

The penalties for non-compliance in the delivery of the products defined in this document will be defined by the technical team of the project and the legal area of the executing entity of the project, which will be negotiated with the winning bidder during the signing of the contract.

### 14 INQUIRIES

For inquiries regarding the provisions of this TOR, please write to [proyectos@vidaalsuelo.com](mailto:proyectos@vidaalsuelo.com).