

REQUEST FOR EXPRESSIONS OF INTEREST **CONSULTING SERVICES**

Selection #: RG-T4098 -P001

Selection Method: Simplified Competitive Selection

Country: Regional

Sector: Energy (ENE)

Funding – TC #: ATN/OC-19374-RG

Project #: RG- T4098

TC name: InfraDigital - Promoting Digital Transformation for Infrastructure and Energy Sectors in LAC

Description of Services: Roadmap for the Digital Transformation of Latin America and the Caribbean's Energy Sector

Link to TC document: <https://www.iadb.org/en/project/RG-T4098>

The Inter-American Development Bank (IDB) is executing the above mentioned operation. For this operation, the IDB intends to contract consulting services described in this Request for Expressions of Interest. Expressions of interest must be delivered using the IDB Portal for Bank Executed Operations (<http://beo-procurement.iadb.org/home>) by: **March 10th, 2023, 5:00 P.M.** (Washington D.C. Time).

The consulting services ("the Services") include to assess the state of digital transformation in the energy sector in LAC. The specific objectives of this consultancy are (i) to identify global best practices on digital transformation in the energy sector; (ii) to carry out an assessment of digital transformation in the energy sector in LAC countries; and (iii) to provide recommendations for strengthening public-private cooperation to accelerate digital transformation in the sector.

Eligible consulting firms will be selected in accordance with the procedures set out in the Inter-American Development Bank: [Policy for the Selection and Contracting of Consulting firms for Bank-executed Operational Work](#) - GN-2765-4. All eligible consulting firms, as defined in the Policy may express an interest. If the Consulting Firm is presented in a Consortium, it will designate one of them as a representative, and the latter will be responsible for the communications, the registration in the portal and for submitting the corresponding documents.

The IDB now invites eligible consulting firms to indicate their interest in providing the services described above in the [draft summary](#) of the intended Terms of Reference for the assignment. Interested consulting firms must provide information establishing that they are qualified to perform the Services (brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, etc.). Eligible consulting firms may associate in a form of a Joint Venture or a sub-consultancy agreement to enhance their qualifications. Such association or Joint Venture shall appoint one of the firms as the representative.

Interested eligible consulting firms may obtain further information during office hours, 09:00 AM to 05:00 PM, (Washington D.C. Time) by sending an email to: joseluisi@iadb.org and eboeckdaza@iadb.org

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TERMS OF REFERENCE

Roadmap for the Digital Transformation of Latin America and the Caribbean's Energy Sector

Country: Regional

Number of Technical Cooperation: RG-T4098

Name of the Technical Cooperation: InfraDigital - Promoting Digital Transformation for Infrastructure and Energy Sectors in LAC

Number of the operation: ATN/OC-19374-RG

Link to the operation: <https://www.iadb.org/en/project/RG-T4098>

1. Background and Justification

- 1.1. At the IDB, we're devoted to improving lives in Latin America and the Caribbean (LAC). Since 1959, we've been a leading source of long-term financing for economic, social, and institutional development in LAC. We do more than lending though. We partner with our 48-member countries to provide Latin America and the Caribbean with cutting-edge research about relevant development issues, policy advice to inform their decisions, and technical assistance to improve on the planning and execution of projects. For this, we need people who not only have the right skills, but also are passionate about improving lives.
- 1.2. The Infrastructure and Energy Sector (INE) conceptualizes, prepares, supports the execution, and supervises the IDB's operations related to energy, transport, and water and sanitation. Its functions include preparing the Bank sector policies, strategies, operational guidelines and programs in infrastructure and environment; conducting relevant research and analytical work, best practices and case studies on this area; and providing specialized technical support in borrowing member countries. The Energy Division (INE/ENE) is a functional division in IDB's Infrastructure and Energy Sector, under the Vice Presidency for Sectors and Knowledge. INE/ENE is responsible for developing the technical analysis and the identification, preparation, and supervision of programs, TCs and studies in the energy sector.
- 1.3. Digitalization and technological innovation can increase and improve the provision of energy services, helping improve the quality of life of the region's citizens, the productivity of its businesses and the reduction of greenhouse gas emissions. In this context, INE/ENE seeks a consulting firm with experience in digital transformation of the energy sector to assess the state of digital transformation in LAC countries and provide recommendations to accelerate this process.

2. Objectives

- 2.1. The general objective of this consultancy is to assess the state of digital transformation in the energy sector in LAC. The specific objectives of this consultancy are (i) to identify global best practices on digital transformation in the energy sector; (ii) to carry out an assessment of digital transformation in the energy sector in LAC countries; and (iii) to provide recommendations for strengthening public-private cooperation to accelerate digital transformation in the sector.

3. Scope of Services

- 3.1. The scope of the services of this consultancy will be:
 - a) Carry out a bibliographic review of world best practices in the energy sector, public and private, on digital transformation, considering technical, economic, regulatory, and institutional aspects.
 - b) The work needs to be structured around 3 main areas of the energy sector: (i) user- centered

digitalization, (ii) system flexibility to incorporate renewable energy, and (iii) resilience to natural disasters and cyberattacks.

- c) Assess the current scenario of digital transformation and disruptive technologies in LAC countries considering the bibliographical review and the 3 areas of focus.
- d) Carry out a survey with the leading players in the region on the topic of digital transformation.
- e) Develop recommendations for strengthening public-private cooperation to accelerate digital transformation in the energy sector in LAC.
- f) Present the recommendations in a workshop, discuss the conclusions, and prepare a technical note.

4. Key Activities

4.1. Work plan with schedule and detail of activities

4.2. Global best practices in digital transformation in the energy sector

- a) The goal is to identify global best practices and outline the lessons learned with potential for replicability in LAC countries. In this process, the consultant will identify the main technologies advancing digital transformation of the energy sector (e.g. Internet of Things, artificial intelligence, automation,) and where and how are those technologies been used.
- b) Carry out a bibliographic review of world best practices on digital transformation in the energy sector, public and private, considering technical, economic, regulatory, and institutional aspects.
- c) The work needs to be structured around three main areas of the energy sector: Carry out a bibliographic review of best practices in digitization in the energy sector, a summary including IDB publications, considering three main areas in the energy sector:
 - 4.2.c.1. User-centered digitalization. This includes payment methods (internet, banks, apps, cellphone), electric vehicle charging apps, IoT, blockchain, machine learning, among others.
 - 4.2.c.2. System flexibility to incorporate renewable energy. This should consider how the main actors in the sub-sectors of generation, transmission, distribution, system operators and regulators are using digitalization to incorporate these new energy sources. For example: the level of innovation and automation in these processes that the actors have implemented to-date, the digitalization of the models of the transmission and distribution networks (such as with digital twins), if these systems are publicly available for use in studying interconnection capacity and distributed generation.
 - 4.2.c.3. Resilience. This includes preparedness and continuity of services against natural disasters and cyberattacks. This should also consider whether digitalization or artificial intelligence are being used (e.g. for forecasting demand and renewable energy generation in the short term).
- d) Propose how to organize the mapping of technologies and actors into the 3 areas mentioned above.
- e) The bibliographical review will be carried for 6 non-LAC countries, which will proposed by the consulting firm and agreed with the IDB.
- f) Define the key elements for the success of these countries in digital transformation considering several aspects, such as human resources, investments, regulation, and governance. Discuss the feasibility and trade-offs of these different aspects.
- g) In addition, identify and interview 15 key stakeholders from both the public and private sector (e.g. national agencies, international organizations, academia, private sector associations, and energy companies) with the aim to identify best practices and outline the lessons learned with potential for replicability in LAC countries. The stakeholders to be interviewed will be proposed by the consulting firm and agreed with the IDB.
- h) Based on this research, define the main elements that must be part of a digital transformation plan for the energy sector in the public and private sectors, identifying key technological trends

impacting the sector in the medium (2030) and long term (2050).

4.3. Assessment of Digital Transformation in LAC Countries

4.3.1 Analysis

- a) Considering the conclusions of the previous item, assess the current stage of LAC countries in digital transformation in the three main areas in the energy sector mentioned.
- b) Include an identification of the roles that the private and public sectors should play in a plan for digital transformation in the energy sector in LAC.

4.3.2 Survey

- c) Propose the methodology for conducting the survey.
- d) Identify the main actors in the energy sector in LAC, considering the public and private sector, and map them according to which of the 3 area(s) they are involved in.
- e) Propose the list of recipients of the survey. The list should represent at least 20 of the 26 IDB borrowing member countries, at least two representatives from country, and a balance between private and public sector actors.
- f) The methodology and the list will be agreed with the IDB
- g) Conduct the survey, which consists of 18 questions defined in advance by the IDB (see annex A) in the language of each country selected.
- h) Consolidate and analyze the answers to the survey, prepare a database and present the main results and conclusions in graphs and tables.

4.4. Draft Technical Note with Recommendations

- a) From the above activities, develop recommendations for strengthening public-private cooperation to accelerate digital transformation in the energy sector in LAC countries.
- b) Prepare a draft Technical Note with the main results of activities 4.2 and 4.3 and the recommendations.
- c) Prepare a PowerPoint Presentation, in English or Spanish, to present the Technical Note with Recommendations.
- d) Present the Technical Note with Recommendations in a workshop with the key energy sector actors from LAC and receive feedback.
- e) The workshop will be conducted in English or Spanish with simultaneous interpretation into English/Spanish/Portuguese.

4.5. Final Technical Note, database and final presentation

- a) Prepare a Final Technical Note in Microsoft Word, in English, Spanish and Portuguese.
- b) Prepare a database in Microsoft Excel, in English or Spanish, with the main information collected and the results of the survey.
- c) Prepare a final PowerPoint Presentation, in English, Spanish and Portuguese, and present the results to the IDB.

5. Deliverables

- 5.1.** Work plan with schedule and details of activities (activity 4.1).
- 5.2.** Global best practices in digital transformation in the energy sector (activity 4.2).
- 5.3.** Assessment of LAC countries and survey (activity 4.3).
- 5.4.** Draft Technical Note with Recommendations, presented in a workshop (activity 4.4).
- 5.5.** Final Technical Note, database, and final presentation (activity 4.5).

6. Project Schedule and Milestones

	Month 1	Month 2	Month 3	Month 4	Month 5
Deliverable 1: Work plan					
Deliverable 2: Global best practices					
Deliverable 3: Assessment of digital transformation in LAC countries					
Deliverable 4: Draft technical note with recommendations					
Deliverable 5: Final Technical Note, database, and final presentation					

7. Reporting Requirements

- 7.1. All documents must be submitted in Microsoft Word, in an editable file, including a 2-page Executive Summary, annexes, spreadsheets in Microsoft Excel, and other relevant material, in the languages specified in section 4.
- 7.2. The presentations must be submitted in Microsoft PowerPoint.
- 7.3. All deliverables will be accompanied by an internal presentation to the IDB, in English or Spanish.

8. Acceptance Criteria

- 8.1. The deliverables will be accepted for payment once they have the written approval of the IDB team.
- 8.2. Partial deliverables, or deliverables that are not accepted, will not be paid.

9. Other Requirements

- 9.1. Work Team: The consultancy must present a minimum work team in its proposal, considering the following specialties:
- Project Manager.** Degree in engineering, economics, or related areas, with specialization, master's, or doctorate in related areas. At least 15 years of general experience, ten (10) years of experience in project management for the energy sector, with fluency in Spanish. Experience in Latin America and the Caribbean is desirable.
 - Specialist in the energy sector:** Degree in engineering or related areas, with a master's or doctorate in energy planning, energy economics, or related subjects. With the specific experience of at least ten (10) years in structuring and evaluating projects in the energy sector with an emphasis on new technologies. Fluency in the Spanish is desirable.

- c) **Specialist in digitalization:** Degree in engineering or related areas, with a master's or doctorate in energy, Information Technology, or related subjects. With the specific experience of at least ten (10) years in digitalization in the energy sector with an emphasis on new technologies. Fluency in the Spanish is desirable.

9.2. Confidentiality: All information shared with the consultancy will be considered confidential. The consultancy may not disclose to third parties any product of this consultancy, without the express consent of the IDB, in writing.

10. Supervision and Reporting

10.1. The consulting firm will work under the supervision of Jose Luis Irigoyen, Operation Lead Specialist (INE/ENE), and Eric Daza, Consultant (INE/ENE).

11. Schedule of Payments

11.1. Payments will be made through the approval of the products listed in section 5, according to the conditions mentioned in section 8.

Payment Schedule	
<i>Deliverable</i>	<i>%</i>
Deliverable 1: Work plan	10%
Deliverable 2: Global best practices	20%
Deliverable 3: Assessment of digital transformation in LAC countries	20%
Deliverable 4: Draft technical note with recommendations	30%
Deliverable 5: Final Technical Note, database, and final presentation	20%
TOTAL	100%

Annex A – Survey Questions

1. Which type is your organization?

- ☐ Public
- ☐ Private

2. In which area(s) of the energy sector is your organization active?

- ☐ User-oriented
- ☐ Flexibility of system to incorporate renewable energy (e.g. generation, transmission, distribution, operators)
- ☐ Resilience (including natural disasters and climate change)

3. How many employees does your organization have?

- ☐ 1-50
- ☐ 51-500
- ☐ 501-1,000
- ☐ Over 1,000

4. What is your role in the organization?

- ☐ President
- ☐ Vice-President
- ☐ Chief Information Officer (CIO) / Chief Technology Officer (CTO)
- ☐ Manager
- ☐ Division chief
- ☐ Other. Which one?

5. To date, how much do you think your organization has made progress in digital transformation?

- ☐ Nothing
- ☐ Awareness is being raised
- ☐ The first pilots have already been developed
- ☐ We are in the process of implementation with an established plan
- ☐ It has an advanced adoption

6. Does your organization have a digital transformation strategy?

- ☐ Yes
- ☐ No

7. In what areas has your organization been applying digital transformation? Check all that apply.

- ☐ Administrative/Finance
- ☐ Commercial/Marketing
- ☐ Legal
- ☐ Operational/Production
- ☐ Human resources
- ☐ Supply chain/Logistics
- ☐ Other. Which one?

8. How do you perceive your organization's progress in digital transformation issues compared to the average for your sector in Latin America and the Caribbean?

- ☐ Far behind
- ☐ Behind
- ☐ In the average
- ☐ Ahead
- ☐ Way ahead

9. How do you perceive your organization's progress in digital transformation issues with respect to leading countries worldwide?

- ☐ Far behind
- ☐ Behind
- ☐ In the average
- ☐ Ahead
- ☐ Way ahead

10. What are the investment objectives for digital transformation in your organization? Check all that you consider.

- ☐ Automate processes
- ☐ Reduce costs
- ☐ Increase online presence
- ☐ Get into other industries
- ☐ Achieve additional sources of income
- ☐ Increase brand power
- ☐ Contribute to environmental goals
- ☐ Improve security/safety
- ☐ Other. Which one?

11. Which of the following technologies have you been using in your organization? Check all that you consider.

- ☐ Omnichannel
- ☐ Cloud computing / Cyber Security
- ☐ Data analytics/Big data
- ☐ Machine learning
- ☐ Internet of things/Sensors / AMI
- ☐ Applied artificial intelligence
- ☐ Robotic Process Automation (RPA)
- ☐ Drone
- ☐ Building Information Modeling (BIM)
- ☐ Augmented reality / Virtual reality
- ☐ Blockchain
- ☐ 3D / 4D printing
- ☐ Autonomous vehicles
- ☐ Electric vehicles
- ☐ Edge computing
- ☐ Smart grid / Smart buildings
- ☐ Digital twins
- ☐ Other. Which one?

12. Considering a horizon of up to three (3) years, the digital transformation should be implemented mainly in which areas of your organization? Check all that you consider.

- ☐ Internal processes of the organization
- ☐ Innovation in products and services
- ☐ Relationships with customers
- ☐ New business models and revenue stream
- ☐ New distribution channels
- ☐ Talent management and human resources
- ☐ Collaboration between companies/third parties
- ☐ Protection and security/safety
- ☐ All of the above
- ☐ Other. Which one?

13. Considering a horizon of up to three (3) years, which of the following technologies do you believe should be implemented in your organization? Check all that you consider.

- ☐ Omnichannel
- ☐ Cloud computing / Cyber Security

- ☐ Data analytics/Big data
- ☐ Machine learning
- ☐ Internet of things/Sensors / AMI
- ☐ Applied artificial intelligence
- ☐ Robotic Process Automation (RPA)
- ☐ Drone
- ☐ Building Information Modeling (BIM)
- ☐ Augmented reality / Virtual reality
- ☐ Blockchain
- ☐ 3D / 4D printing
- ☐ Autonomous vehicles
- ☐ Electric vehicles
- ☐ Edge computing
- ☐ Smart grid / Smart buildings
- ☐ Digital twins
- ☐ Other. Which one?

14. What have been the aspects that have most positively contributed to your organization's advancement in digital transformation? Check all that you consider.

- ☐ COVID-19
- ☐ Top management leadership
- ☐ Cultural change
- ☐ Changes in customers
- ☐ Changes in the sector
- ☐ The competition
- ☐ Attendance at webinars
- ☐ Margin reduction
- ☐ External advisors / consultants
- ☐ Other. Which one?

15. Have you quantified the impact of the investments your organization has made in digital transformation?

- ☐ Yes
- ☐ No

16. If yes, what indicators have you used to measure the impact of these investments? Check all that you consider.

- ☐ Increase or decrease in income and costs
- ☐ Process efficiency
- ☐ ROI (Return on Investment)
- ☐ Project projections
- ☐ Online sales volume
- ☐ Number of transactions and / or digital processes
- ☐ CAPEX, OPEX or EBITDA
- ☐ Measurement of customer satisfaction
- ☐ Contribution margin
- ☐ Business value
- ☐ IRR (Internal Rate of Return)
- ☐ Market penetration
- ☐ Other. Which one?

17. What restrictions/limitations have you encountered to advance the digital transformation of your organization? Check all that you consider.

- ☐ Implementation costs
- ☐ Lack of digital culture
- ☐ Unawareness
- ☐ Lack of financial capacity for investment
- ☐ Lack of a clear business model

- ☐ Lack of talent with adequate training
- ☐ Inadequate regulation
- ☐ Resistance to change
- ☐ Weak technological infrastructure
- ☐ Other. Which one?

18. Do you have any further comments? [optional]