

Digital Transformation Strategy

A. GENERAL INFORMATION

The Panama Canal has undergone many changes, during its construction, from its opening until this day. These changes, of varying magnitude, have been transforming the Canal for more than 105 years, such as its geography, natural resources, maritime operations, its service offer to its customers, as well as workforce. Currently, the Panama Canal Authority (ACP) is a large corporate ecosystem, and each of its business units generate and uses information to operate correctly. The information systems implemented in the Panama Canal are the main information providers, however in order manage data integration in a fluid manner, the challenge for the ACP is to be able to analyze the data comprehensively, from computer systems as well as from industrial equipment, and have a complete overview of the reality or situation in the short, medium and long term.

With the Canal's reversal in 1999 to Panamanian hands and the successful transition of its operations, the Canal's transformation is expected to be more strategic and with a long-term outlook of the maritime business and the use of the organization's capacities to generate income. That is why the ACP establishes among its strategic objectives, goals and initiatives, and focuses primarily on the Canal's profitability.

In over 20 years of Panamanian administration, the Panama Canal has established itself as a world-class organization and as a leader in the maritime and logistics sectors. Today, not only does it operate an expanded Canal, but it has significant technological challenges to transform key areas of the organization such as its business model, user experience (integration of all channels) and process transformation (how to prepare all its personnel and its capabilities), which have generated a digital strategy that works to position us as an agile and flexible organization capable of thriving in a disruptive and changing environment. Basic maritime transit operations and related services are supported by marine traffic and locks machinery control systems, positioning systems and telecommunications services. Some of these systems are commercial off-the-shelf (COTS), while others are developed in-house or outsourced based on different types of technologies. There is a need for these systems to share information through different mediums, but as new business requirements evolve, this has become more difficult to maintain. In order to achieve drive the business while reliably supporting its current operation, ACP is taking an Enterprise Architecture approach for its Business / IT alignment. The ACP seeks

technological flexibility to modernize the way its systems are designed and built and also to leverage new technologies to enhance data science capabilities, such as IoT, Artificial Intelligence, Big Data / Analytics and IT / OT data convergence. It is important that the ACP improve its technological capabilities in terms of agility, flexibility and resistance to respond in a timely manner by enabling new capabilities, developing new products and services, and other innovations. This new way of doing IT must also be efficient, operational and maintainable for information systems to achieve higher levels of integration and interoperability. In addition, support for web services and mobile technologies, security, cross-platform environments and point-to-point integration will play a key role in this digital transformation.

As a first initiative, the ACP completed a diagnosis of the digital divide and a digital architecture roadmap with a strategic vision for 2022-2030. For a better understanding of the current and future situation, it is desired to review the defined digital strategy and architecture and, consequently, obtain an accompaniment service for the implementation of changes in the IT operating model, which allow the implementation of the IT strategy. Digital transformation of the company in a sustainable and scalable manner.

B. CONFIDENCIALITY

All data, written/verbal/audiovisual or other information, together with analyzes and reports that the proponent prepares and delivers to the ACP, or that the ACP delivers to the proponent, constitute the exclusive property of the ACP, and will be confidential and may not be disclosed or in some way used by the proponent for matters other than the execution of this market study. The proponent may not commercialize or dispose, under any circumstances, of this data, information, analysis, or reports, without the prior written authorization of the ACP.

C. ALREADY DEVELOPED ACTIVITIES IN THE DIGITAL TRANSFORMATION PROGRAM

- I. Phase I: Evaluation of the Environment, Performance, Digital Divide and Digital Maturity of the Organization.
 1. Reorganization of the Vice Presidency of Digital Transformation, as of July 4, 2021.
 2. Definition of Teams and Roles of the Process Digitization Division made up of:
 - a. Architecture and Research.
 - b. Agile Solutions
 - c. Strategic Demand Management and Compliance
 - d. Analytical capabilities
 - e. Design and User Experience
 3. SWOT

4. Assessment of the Current Digital Maturity Level

- a. Silo-based structure
- b. High levels of dependency and low levels of collaboration
- c. Poor time-to-market and high TCO
- d. People committed to a deadline, and not to the results and added value of the project

5. Digital Gap Analysis

II Step II: Define and Communicate the Digital Transformation Strategy and Plan

6. Desired Maturity Level

- a. Structure based on high performance self-managed teams
- b. High levels of collaboration and cohesion
- c. Incremental deliveries at the end of each sprint allow for early feedback from users and deliver software running in production
- d. People committed to results and value
- e. The Digital Transformation must comply with the Principles of Enterprise Architecture according to Togaf 9.2.
- f. The business is part of the team. UX Roles and Scrum Facilitator are key.

7. Meaning of Digital Transformation for ACP.

8. Digital Transformation in the Panama Canal.

9. Enterprise Architecture in Context: From a strategic perspective, digital transformation implies the fusion of all architectural knowledge and, consequently, a homogeneous representation of the contexts (data), the processes with their support systems (information), and the strategic objectives (knowledge).

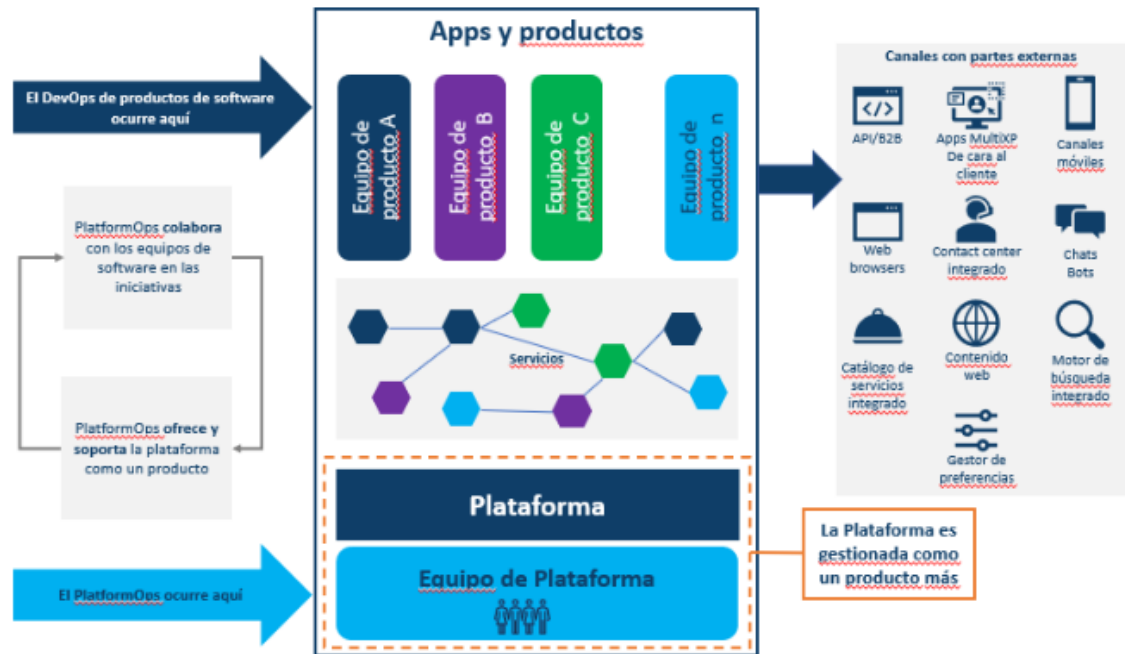
10. Digital Architecture in Context: The digital architecture is defined by 9 first-level components, which are defined as:

- a. Channels of Interaction with External Parties,
- b. Security, Identity, Access and Profile Management,
- c. Agile Infrastructure, Applications and Specific Digital Tools,
- d. Business Collaboration Management,
- e. Data Integration
- f. Business Operational Systems,
- g. Agile digital solution management, delivery frameworks and tools,
- h. Systems development, deployment and management.

These 8 components are broken down into 71 architectural subcomponents that will define what we will know from now on as the Digital Platform. An exhaustive prioritization work was carried out to be able to define this implementation in delivery

trains from 2022 to 2030. It should be noted that this may change depending on the corporate digital strategy.

11. Reference Digital Architecture: The Platform must be managed as one more product of the Service Catalog.



12. El Canal's strategic motivation:

POLITICAL CONSTITUTION OF PANAMA TITLE XIV

ARTICLE 316. An autonomous legal person of Public Law is created, which will be called the Panama Canal Authority, to which the administration, operation, conservation, maintenance and modernization of the Panama Canal and its related activities will correspond exclusively, in accordance with the Constitutional and legal norms in force, in order for it to function safely, continuously, efficiently and profitably.

13. Digital Transformation Strategy

- a. Technology Capabilities Current Situation...
- b. Technology Capabilities and Resources Map - Plan As Is...
- c. Technology Capabilities and Resources Map - Plan To Be...

16. Digital Transformation Objective: Achieve a model-driven architecture.

17. Definition of the Platform that supports and enables the Digital Architecture
 - a. Interaction channels with external parties,
 - b. Security, Identity, Access and Profile Management,
 - c. Agile Architecture
 - d. Agile Infrastructure, Applications and Specific Digital Tools,
 - e. Business Collaboration Management,
 - f. Data Integration
 - g. Business Operational Systems,
 - h. Agile digital solution management, delivery frameworks and tools,
 - i. Systems development, deployment and management.
18. Tactical View of the Digital Architecture Platform (Scope FY 2022 - 2023):
 - a. Prioritization order - importance vs. complexity.
 - b. Strategic alignment state
19. Definition of the Canal's macro-processes and capacities
20. Definition of the Cultural Change Plan
21. Definition and Development of Six Use Cases of the Human Capital Department to apply Digital Transformation during Fiscal Year 2022 - 2023.
22. Definition of a Corporate Communication Plan for Digital Transformation
23. Value Proposition for Digital Culture; which is based on three elements:
 - a. BE AGILE: Generate value continuously, rapid adaptation, collaboration and continuous improvement.
 - b. BE DIGITAL: Have a mindset to conceive and develop new business models leveraged on technology.
 - c. BE DISRUPTIVE: Adopt technologies as a means to solve the problems and needs of the people and the efficiency of the company.
24. Cloud Adoption Strategy: a classification of the systems has been made to identify which can be directly migrated, those that need redesign or restructuring and those that must be maintained in our facilities.

D. MARKET RESEARCH OBJECTIVES

The Panama Canal Authority wishes to gather information regarding available offers for business advice for the definition of the digital transformation strategy and architecture, the objectives, priority areas for implementation and the roadmap to implement the solutions based on the Panama Canal strategic initiatives.

The ACP requires the support and expertise of a consulting firm, with experience and track record in implementing digital transformation. The main objectives of the consultancy are, but are not limited to:

1. Enterprise Architecture

a. Define and/or validate Enterprise Architecture and Sub-Architectures Management and Practice:

- i. Digital architecture
- ii. Business Architecture
- iii. Security Architecture
- iv. Data Architecture
- v. Information Systems Architecture
- vi. Integrations Architecture
- vii. Solutions Architecture
- viii. Technological Architecture

b. Said definition and/or validation must adhere to the Enterprise Architecture Principles according to TOGAF 9.2 in its four classifications:

- i. Business Principles
- ii. Information Principles
- iii. Application Principles
- iv. Technology Principles

2. Digital Architecture and Digital Transformation:

a. Improvements to the proposed Digital Architecture Roadmap and Digital Transformation Strategy must be evaluated and proposed, allowing the company to adopt the culture, processes and technologies necessary for data-driven decision making. As a priority, it is required to achieve greater agility in the availability of data and tools for advanced analytics and development of new applications.

b. Analytics, (Big Data)

- i. Support must be provided to define the strategy for the implementation of advanced analytics. Includes: roles, technologies, processes, culture, standards, methodologies, security and governance.

- c. Citizen Development:
 - i. Support must be provided to define the strategy for the implementation of the citizen developer practice.
 - d. Industry 4.0.
 - i. The current level of preparation to join the Roadmap to Industry 4.0 (OT / IT convergence, sensors, Cybersecurity, Artificial Intelligence, etc.) of all the Operational, Industrial and technology management areas of the entire organization of the Panama Canal.
 - ii. IT-OT convergence: Support must be provided to define the strategy to achieve IT-OT convergence. It includes: roles, technologies, processes, culture, standards, methodologies, security and governance.
 - e. Cybersecurity
 - i. The security scheme must be evaluated within the Digital Transformation continuous process.
 - f. Agile tables and/or cells:
 - i. Support must be provided for the organization and the implementation of agile tables for the implementation of Digital Transformation initiatives.
3. Expert professional profile definition:
- a. Support must be provided to define the technical specifications for the contracting of consulting services for the roles that are required for the execution of the Digital Transformation Strategy.
 - b. TDD Division Organization: Support must be provided to organize the different areas within the Process Digitization Division (TDD), based Digital Transformation best practices. Includes: roles, processes, methodologies, dependencies with other IT areas, etc.
4. Application of Digital Transformation in one of the Human Capital use cases for FY-2022:
- a. Lead together with ACP staff the analysis, design, solution architecture, test strategy, implementation and start-up of the solution. The development will be carried out by ACP with internal or external personnel. Throughout the process, the concepts, roles, technologies, processes, culture, standards, methodologies, security and governance of Digital Transformation must be applied, as a way to validate the strategies and defined roadmaps.

E. MINIMUM REQUIREMENTS FOR PROPONENTS

1. REQUIREMENTS FOR THE CONSULTING FIRM:

- a. The proponent must provide the years of international experience that the consulting firm has, in conducting consultancies on the issues of strategy, finance and profitability. In addition, the consulting firm must report the number of successful Comparable Projects in organizations with more than 2,000 employees, and that have been carried out in the last ten (10) years.
- b. The consulting firm must provide years of experience and reference list of clients in the following sectors: maritime, transportation, logistics, energy, engineering, telecommunications and technology.
- c. If the PROPONENT is a locally established company, a subsidiary of an international consulting firm, it may be leveraged from the experience of the international firm and it will be considered as part of the requirements of the local company. In this case, the proponent must include in his technical proposal the Solidarity Compliance Guarantee Contract form of the Mother company.
- d. The firm must have consultants with experience and studies related to strategy, digital transformation and Industry 4.0. The consultant who will lead the project must have the rank of senior consultant and eight (8) or more years of experience; in the same way, the assistant consultants must have five (5) years or more of experience providing consulting services.

2. METHODOLOGY AND WORK PLAN REQUIREMENTS

The proponent is expected to present a detailed and proven methodology that uses techniques, tools, and best market practices to ensure the success of the study and the contract. The methodology must include at least the following:

- The consulting firm must use interviews, meetings, workshops, surveys, analysis tools, presentations and the final report as part of its methodology, which will be carried out in Spanish.
- The methodology must include a diagnosis of the current situation, it must identify and analyze gaps based on the strategy based on the current vision and mission; identify the strengths and weaknesses of the organization.
- The methodology must analyze markets, customers, qualitative and quantitative information of the company. During the execution of the contract, the consultants must demonstrate mastery of the issues in question; use clear, simple and appropriate language, and maintain a level of professionalism and respect for the participants. Additionally, you must solve problems and doubts in a timely manner during the process.
- The ACP has the power to request the supplier to replace the consultant, based on complaints that have been received and duly documented, which indicate that the quality of the service it is offering does not meet the expected expectations.

F. RFI DELIVERABLES

As part of the execution of the contract, the proponent must submit the following information for approval by the ACP:

Deliverables
1. Reference price of this consultancy and support for one (1) year.
2. Terms and conditions of your service.
3. Methodology and frameworks used in consulting and support.
4. Minimum PROPONENT Requirements; Section E., point # 1.
5. Profiles of the consultants (seniors and assistants) and formation of the teams.
6. List of customer references.
7. Potential complementary services offered by the proponent.

The proponent must submit their proposal and any other information generated during the study that ACP explicitly requests in electronic format. All documents must be prepared and delivered in editable Microsoft Office and / or PDF formats.

All communication (meetings, interviews, workshops and reports) must be in Spanish and / or English.

G. INSTRUCTIONS TO PROPONENTS

This is a Request for Information (RFI), not a purchase order. No cost can be charged to the ACP for any reason.

This document shall not be construed as a request or authorization to carry out work on behalf of the ACP. Any work performed by a supplier will be at their own discretion and expense. This RFI does not represent a purchase or lease commitment. Submitting a response constitutes acknowledgment that the provider has read and agrees to be bound by these terms.

The ACP intends to submit a formal Request for Proposals (RFP) for the services described in this document before the end of September 30, 2021. There is no guarantee that the ACP will submit an RFP or, if an RFP is submitted, that it will occur within the time frame described in this RFI. If it is sent, the RFP will publish it through the official mechanisms of the Contract Office through a public tender and the proponents must comply with all the requirements for their respective proposals to be accepted and evaluated. The information in this RFI is accurate to the best of the author's knowledge, but is not guaranteed to be correct.

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2. Response Submittal

A response is due by September 17, 2021. Extensions to this date are not guaranteed.

Responses must be submitted complete and in writing. All requests for information in all sections of this document should be answered as concisely as possible while at the same time providing all the information necessary to understand the proposed outsourcing process. Any deviations from the requirements, or requirements that the supplier cannot satisfy, must be clearly identified.

Responses must include a statement that the supplier understands the RFI requirements and agrees to the terms and conditions under which the RFI was issued to the supplier. The original response must be signed under the corporate seal by an authorized official. The original, including all complementary literature, must be sent to the contact point identified in point # 1 of this Section in electronic format, such as one or more PDFs.

Any information of a confidential or proprietary nature contained in a provider's response must be clearly marked "PROPERTY" or "CONFIDENTIAL" per item or at the top of each page. Reasonable precautions will be taken to safeguard any part of the response identified by a provider as confidential or proprietary.

This RFI remains as ACP property at all times and must be returned by the provider upon request. Suppliers that do not submit a response should immediately return all printed, graphical and electronic documentation to the point of contact.

All responses, once delivered, become the property of the ACP.

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