



Government of Puerto Rico

Puerto Rico Innovation and Technology Service

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PUERTO RICO INNOVATION AND TECHNOLOGY SERVICE BUDGET REQUEST FOR 2020-2021



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OVERVIEW

The Puerto Rico Innovation and Technology Service (PRITS) was established as a new government organization in January 2017 by Executive Order 015-2017 and on July 25, 2019 by statutory Law 75-2019, ascribed to the Office of the Governor. Therefore, PRITS is currently implementing Law 75-2019 and also of Law 122-2019 (Open Data Law), which assigns additional responsibilities related to data policies and governance to PRITS.

PRITS has a strong and clear mandate to centralize and standardize the management of the information technologies and innovation areas of government entities, from strategy to daily operations, that will result in effective use of public funds and in the modernization of service delivery to our citizens and entrepreneurs.

On the short term, this statutory mandate will be driven by:

- 1) establishing consistent policies governing the management of technology and data,
- 2) a modern, resilient and consolidated technology infrastructure,
- 3) a significant optimization of key government processes,
- 4) the effective management of critical technology projects undertaken by the government, and
- 5) centralization of government technology budget for priority areas

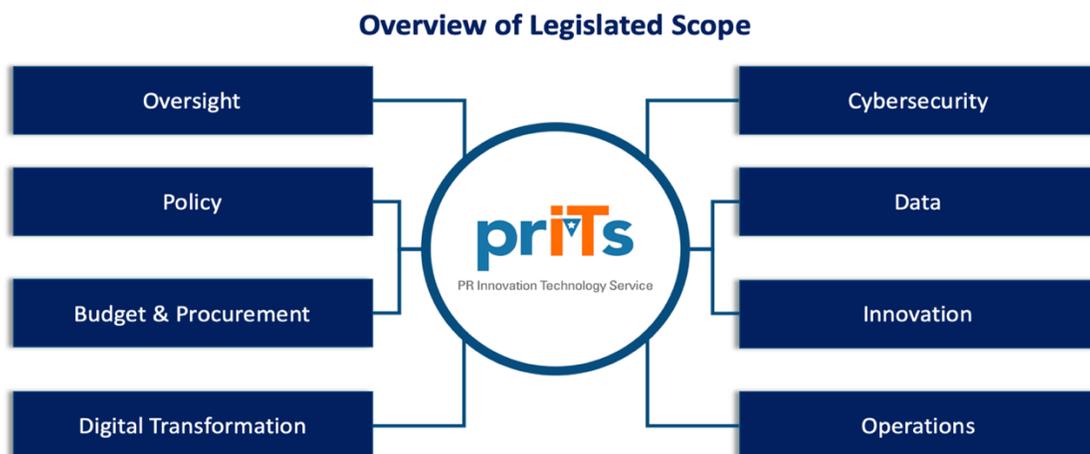
The mission of PRITS is to set in motion and enable the long-term transformation of Puerto Rico that will result in new knowledge and real impact through innovation, technology and a collaborative hands-on approach to our challenges. PRITS has the vision of Puerto Rico being a smart, innovative island where citizens experience and engage with a world-class innovation ecosystem that optimizes the development of human capital and results in sustainable economic growth.

This is the first budget request of the PRITS as a separate legal government entity. It is of high significance to receive the necessary support from the Fiscal Oversight and Management Board (FOMB) and the Executive Branch of the Government of Puerto Rico, particularly the OMB, to guarantee public policy implementation and compliance with the law. It is absolutely clear that the effective implementation of these laws is in direct benefit of our citizens and entrepreneurs who are yet to see the positive impact that well-managed technology, data, and innovation can bring to their interactions with the government and other aspects of their lives.

On a public hearing conducted by the Government Commission of the House of Representatives on January 28, 2020, members of the Commission endorsed amendments to the PRITS Law to make sure that centralization of government technology budget is required and in the best interest of all.

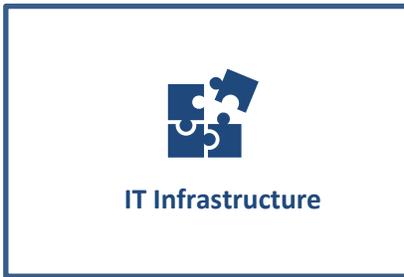
LEGISLATED SCOPE

The legislated scope of PRITS covers eight broad areas, as shown in the following diagram. The scope and strength of the legal mandate goes beyond the functions previously under OMB’s Information Technology Area (ATI), that were transferred to PRITS by Law 75-2019.



Therefore, PRITS budget request is aligned to the legislated scope, and to guarantee execution, PRITS combined its strategic imperatives in three key groups. These will be discussed throughout this document.

STRATEGIC IMPERATIVES



These strategic priorities are aligned with the *Top 10 2020 Priorities* for USA State CIOs, as reported by the National Association of State CIOs (NASCIO). These priorities include cybersecurity and risk management, digital government, innovation, data management, IT budget management, and key IT infrastructure optimization topics that include connectivity, cloud services, data center consolidation and legacy modernization. The complete NASCIO report can be found here:

http://www.nascio.org/wp-content/uploads/2020/01/NASCIO_CIOpTenPriorities.pdf

FOMB ALIGNMENT

The legislated scope and strategic mandates of PRITS are in alignment with the 2019 Fiscal Plan certified by the FOMB, specially from the perspective of achieving agency efficiencies to deliver better government services for substantially lower cost. Additionally, PRITS can support the Ease of Doing Business Reform through the integration, digitalization and streamlining of business services.

On September 30, 2019, the Executive Director of the FOMB sent a letter to the Government of Puerto Rico's CFO expressing the need to execute and show progress on a set of digital initiatives, which include, but are not limited to: Enterprise Resource Planning (ERP), Grants Management, Time and Attendance, Human Resources Management, and Sourcing and Procurement. The FOMB requested the immediate establishment of the Digital Working Group and recommended PRITS as the central manager of this group. In the letter, the FOMB was clear on the expectation of PRITS to oversee, coordinate efforts, improve execution, monitor progress and inform.

Since PRITS has no in-house resources, on October 29, 2019 a formal request was made to the CFO to help identify funds for resources. Agency liaisons were assigned, but as of today, funds for dedicated, specialized resources have not been identified.

According to this letter, the FOMB also expects PRITS to lead the development of technology budgets for future fiscal years and develop plans to track effective usage of funds across the government. This is a critical aspect of the successful implementation of the statutory mandate as will be evident through this document.

IT LANDSCAPE

The following discussion on IT-related statistics shows that IT spending in Puerto Rico's government is not inadequate. However, it is poorly managed and not focused on results. It is imperative that PRITS is enabled to execute its statutory mandate to break the long-standing deficient management of government technology.

Public Sector: USA State-Level

From the 53 jurisdictions (states and territories) that report data to NASCIO, Puerto Rico sits at #31 in terms of population. Altogether, the average yearly budget for CIO offices is \$209M. The CIO offices for the 30 most populous states, with population from 3.2M to 39M, on average have a yearly budget of \$292M. The rest of the jurisdictions (the bottom 23, according to population) average \$63M.

The average budget for all jurisdictions of the CIO office per citizen is \$30. In the case of Puerto Rico, with an estimated population of 3.195M, the equivalent budget that should be assigned to the CIO office (PRITS) to equally serve its citizens is around \$96M. Currently, PRITS is managing only \$3M that was recently transferred from the OMB, primarily assigned for cybersecurity functions.

This document will go deeper into suggested IT cost management models, but it is relevant to point out that most states have a chargeback model. This means that the budget directly assigned to the CIO office through the general fund or special fund, in most cases, is to cover overhead costs that benefit the collective government organization. Therefore, the total budget managed by CIO offices could be significantly higher if cost recovery fees are taken into consideration or if a more centralized business model is preferred.

In terms of workforce, most of the jurisdictions with less population than Puerto Rico have at least 100 employees assigned exclusively to the CIO office, with various having between 100-300 employees, in addition to IT personnel assigned to other agencies plus contractors. The 30 most populous jurisdictions have over 300 employees in the CIO office, plus other agencies IT personnel which sums up to 1,000-2,000 employees for most states. PRITS is currently in the process of officially transferring a portion of the total OMB IT roles. If Puerto Rico were to target the minimum benchmark of 100 employees assigned to the CIO office, the 20 people transferred from OMB plus the special assignments that we have from other government entities, would represent 75% less employees than that minimum benchmark.

Public Sector: Puerto Rico

OMB confirmed that they have no overall visibility on IT spending, therefore, we analyzed data sets from the Office of the Comptroller. For the past 7 fiscal years, corresponding to the current and the previous administration, the data shows over 14,000 technology related contracts for all government branches that total over \$2,000M in spending. Historically, there has been little control and oversight of the approval process of these contracts in terms of need and alignment with a cohesive government-wide strategy. There are no metrics on the effectiveness and results of these contracted services and on the compliance levels of contract agreements. Last fiscal year alone, IT-related contracts for the executive branch totaled around \$317M. The Treasury Department, the Health Department and the Education Department are the biggest IT spenders.

The lack of accounting standards and controls make it difficult to quantify certain contracts that are managed on a transaction fee basis. In most cases, these types of contracts support immediate implementation and results of technology solutions by alleviating the risk and financial pressure of the traditional upfront costs and investments in software and infrastructure projects. Therefore, PRITS fully supports solutions that can be acquired through transactional business models. However, these contracts are registered with a minimal amount (\$1, in most cases) and each contract dictates how the fees are managed between the contractor and the government agency. Most times, the contractor serves as payment collector, deducts the government processing fee, and then passes the remaining funds to the government entity. The State Department and the Health Department are some of the agencies with these types of transactional contracts. The fees that corresponds to these contracts are not accounted for in the IT-spending totals reported above.

Also, there are multi-disciplinary service contracts that might include IT-related functions but are not classified as technology contracts in the Comptroller's records. Moreover, as of today, there is no centralized visibility on IT payroll expense. Therefore, the total Executive Branch IT spending is higher than the current best approximation of \$317M/year.

Private Sector

According to Gartner IT Key Metrics Report for 2019, the average IT spending across industries was 4.7% of the operating expense, including personnel related costs. Average personnel costs account for the largest percentage of IT budgets at 36%. The total of \$317M annual government spending in IT contracts (not including payroll) for the Executive Branch represents approximately 3.5% of the total of the approximate \$9,000M from the General Funds for the expenses of the Government of Puerto Rico.

Another interesting comparison, in this case with the local private sector, is that of the largest financial institution in Puerto Rico. With over 1M customers, the institution has operating expenses over \$300M in technology services and equipment (not including payroll) across all their business lines, representing more than 20% of their operating expense.

In conclusion, IT spending in Puerto Rico's government is not inadequate, but it is urgent for technology budget to be managed effectively. In the future, budget allocation should aim for a shift from stabilization and optimization of the core systems, data, and infrastructure to sustained transformation and innovation in government services.

IT COST MANAGEMENT

According to NASCIO's 2019 State CIO Survey, most state CIO offices operate as internal providers of IT services to state agencies and other public organizations. Agencies consume data centers, network, email, voice and security services, among others, under rates calculated by the CIO office. Chargeback rates are calculated through traditional accounting methods or through new frameworks such as Technology Business Management (TBM).

TBM provides visibility on the business value and true cost of IT service delivery, creating a much-needed culture of accountability. Recently, PRITS has witness ineffective use of cloud services and software licenses due to poor policies, control and accountability. These situations present a set of complex budget and legal issues that must be promptly and permanently solved to avoid operational impact on critical IT services.

As previously stated, on average, states have a budget of \$30/citizen to support the operation of the CIO office. This is required to cover functions that are not tied to specific services but those that represent benefits for the collective organization. For example, it can cover core administrative expenses, cybersecurity, enterprise architecture, policy, procurement, and project oversight. Additionally, it is necessary for IT modernization, the evolution of services portfolio, and for innovation.

PRITS recommends an IT cost management framework that combines centrally funded functions and a chargeback model. This will require PRITS to be competitive and effective in their management of IT as it represents a significant and necessary shift in the way technology budgets have historically been managed in the Government of Puerto Rico.

STRATEGIC IMPERATIVES

This section contains a deep dive into the three strategic areas of PRITS for fiscal year 2020-2021: IT Strategy and Management, IT Infrastructure, and Innovation.

IT Infrastructure

A solid, resilient, modern and secure technology and data infrastructure is the core and foundation of the service and operational continuity of the Government of Puerto Rico. Although advances have been made through the years, from a broad perspective, the current technology infrastructure of the government is in most cases fragile, obsolete, and fragmented. There is no centralized visibility of the state of our infrastructure and data. Critical government systems and citizen data are stored in data centers that are at real and constant risk of being impacted by natural disasters, cyber-attacks, or other types of threats.

Loosing or putting at risk critical citizen and government data should never be consciously allowed due to budget constraints. It must be an absolute priority of our Government to identify the necessary resources to mitigate risk and provide a solid, secure, redundant, resilient technology and data infrastructure. We owe it to our citizens that trust their sensitive information to our institutions to maintain the integrity of their data and the continuity of our services amid risks.

Requirements regarding IT infrastructure, business continuity, and cybersecurity must also be followed by government service providers that currently host critical systems and data. In most cases, visibility into the infrastructure and data management of these providers is poor and could represent a huge risk if not managed adequately and in accordance to government policy.

These are the priority initiatives from the IT Infrastructure perspective:



1) Cybersecurity and Identity Management

Governments face an increasingly complex threat with regard to cybersecurity in an ever-changing IT environment. Development of a comprehensive, integrated policy and framework to mitigate risk, prevent attack and manage incidents is imperative to protecting the operational integrity of the Government's technology infrastructure and data. During the past 3 years, systems from key agencies, such as the Treasury Department,

the Child Support Administration (ASUME) and the General Services Administration (ASG) have been seriously compromised by ransomware and other threats.

Identity and access management is also a key focus area that is poorly implemented and represents a risk from the perspective of employee and contractor access to government systems and assets. Most importantly, our citizens and entrepreneurs suffer from lack of standardization in terms of the way they validate their identity with government entities during service delivery. This last point, although it is a security issue, it is central to a solid digital transformation strategy.

Starting in February 2020, the recently transferred budget will be used for highly specialized professional services and solutions. Efforts will primarily focus on cyber risk assessment and vulnerability management for 250,000 government assets for 10 entities, through a cyber exposure platform from Tenable, the leader in The Forrester Wave for Q4 2019. A portion of the budget will be used to contract specialized project management and cybersecurity capabilities.

According to a study by IBM, the global average cost of a data breach is now \$3.92M. The study also points out that an organization should ideally spend around 13.7% of their IT budget on cybersecurity. In the ideal scenario, that could represent over \$40M in cybersecurity spending in the Government of Puerto Rico. PRITS is recommending half of that amount to be allocated to cybersecurity strategies. For this, we request help to identify funds that are currently used for cybersecurity functions and projects in other agencies, such as the Treasury Department and OMB, to be centralized at PRITS. We are requesting \$20M for centralized cybersecurity strategy and operations.

2) Data Center Modernization and Consolidation:

For the government to achieve an effective management of data centers, there are numerous factors to take into consideration including the full cost of operations and maintenance of the equipment, software, utilities, personnel, contractors, rent, other physical plant costs, and administrative overhead associated with managing data centers. A successful consolidation strategy can bring significant savings.

Together with a business continuity and disaster recovery strategy, consolidation also reduces risk associated with dispersed data centers that are difficult to oversee. Due to the earthquakes, PRITS has learned there are critical government applications hosted in government data centers at high risk of being impacted by natural disasters or other types of threats. For this, we request help to identify funds that are currently related to data center functions in other agencies. This is in addition to the funds that should be assigned to PRITS in the coming fiscal year,

currently under OMB. We are requesting \$5M for centralized data center strategy and operations, and \$5M for new equipment.

3) Cloud Strategy and Services Optimization:

The Government of Puerto Rico has been adopting cloud services for the past few years. The first round of cloud adoption was successful for certain services such as email, office productivity software, collaboration tools, and business intelligence tools. However, other areas have not been as effective and needs to be revisited. This is not an exception to the experience in other jurisdictions, where cloud migration showed some regression because it proved more costly and complicated than expected.

The federal government release a Cloud First policy in 2011 and was recently revised as Cloud Smart to focus on security, procurement, and workforce for successful adoption. Cloud services should not be focused on a single provider. That is why multi-cloud environments are growing and it is necessary to revise procurement and contracting of cloud services. It is also necessary to have specialized resources for effective governance and manage of the cloud environments.

The government's cloud strategy must be done in conjunction with the data center strategy. However, it is important to point out that data centers and cloud should not be seen as binary choices. Each offers benefit as part of a large government wide strategy to mitigate risks and continue business operations under wide-ranging circumstances. In addition to storage, the cloud offers numerous benefits that range from

For this, we request help to identify funds that are currently related to cloud services in other agencies. We have learned that other agencies might have acquired or might be advocating for commercial cloud services for critical a wide variety of government systems. We are requesting \$3M for centralized cloud services, in addition to what is currently contracted with Microsoft.

4) Telecomm & Connectivity:

The Government of Puerto Rico approved Law 80-2017 to select telecom providers for centralized telecom offering for government agencies. For this, we request help to identify funds that are currently related to telecommunication services in other agencies. This is in addition to the funds that should be assigned to PRITS in the coming fiscal year, currently under OMB. We are requesting \$6M for centralized telecom implementation.

IT Strategy and Management

IT Strategy and Management covers a set of priorities to set into motion our mission and guarantee effective execution. Some of the key topics to be covered are:

- Information Technology Policy
- Risk Management
- Business Continuity
- IT Cost Management
- Program Management
- Customer Relationship Management
- Technology Procurement
- Technology Contract Management

For this, we are requesting \$1.5M, divided equally between legal services, technology advisors, and technology architecture specialists.

Innovation

The Innovation strategic imperative is the one that will change the rules of the game for citizens. It focuses on true government transformation to guarantee efficiency and transparency. Pursuit of new solutions and ideas through technology is critical for this long-term transformation. PRITS, through its legislated mandate, is the designated leader to create meaningful new solutions for the consumers of government services.

Digital Government Solutions: We must continue building digital solutions to provide modern, effective and integrated experiences to the citizens and entrepreneurs. Digital solutions focus on the reengineering and optimization of government processes.

Data Management and Analytics: Improved use of data and predictive analytics will promote proactive decision making, optimize government processes and enable greater transparency as required by Law 122-2019. PRITS has undertaken work in this space to deploy the TIM Platform, leveraging data from key agencies including DOE, DOH, DSP, ASES, DDEC. This initiative also deals with data governance, policies, architecture, roles, open data, document digitalization, among others.

For this, we are requesting \$5M for digital government solutions, and \$10M for data solutions. We request help to identify funds that are currently related to digitalization and data platforms in other agencies.

ORGANIZATIONAL STRUCTURE AND SPECIALIZED ROLES

The following organization structure was approved by OMB under PP2020-12819 on September 17, 2019. For PRITS to execute successfully on its legislated mandate, we need to have an internal team of highly specialized resources, from the administrative and legal areas to the wide range of IT roles. The total amount of payroll requested is \$6,007,811. This includes the resources that have been transferred from OGP.

