



PUNJAB PROVINCIAL CLOUD FIRST POLICY

Formulated by PITB



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PUNJAB INFORMATION TECHNOLOGY BOARD

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1. Introduction & Background

The manifold advantages of integrating cloud technology into the public sector have prompted governments worldwide to embrace cloud computing. In February 2022, the Government of Pakistan sanctioned its inaugural Pakistan Cloud First Policy (PCFP), delineating the extent and execution of cloud computing within the country's public sector.

Cloud computing offers a wide variety of potential benefits and opportunities: reduced costs, improved responsiveness to citizens' needs, increased transparency, environmental benefits & reduced carbon footprint, efficient management, optimization of resources and enhanced public service delivery however full advantage of the potential and benefits of cloud computing materialize by achieving the economies of scale through a collective demand for cloud services nationwide, encompassing both central and provincial domains. Presently, ICT infrastructure is concentrated in fragmented clusters across Punjab. The absence of a cloud-first policy has compelled public sector entities to operate independently for their ICT requirements, resulting in inefficient resource utilization and suboptimal data security. The reliance on on-premises hardware hinders the delivery of citizen-centric services and internal operations.

Contrastingly, cloud computing offers an agile approach to procurement, development, deployment, and operations. A collaborative effort between provinces and the federal government is crucial for achieving efficiency, optimization, and generating collective demand in the public sector. This collaboration will also contribute to reducing the overall cost of ICT expenditures for both federal and provincial governments.

The Province of Punjab has fully embraced the Cloud-First approach in its digital strategies. This alignment across provinces and the federation underscores their shared objective of leveraging cloud computing to unlock its full potential and benefits in the public sector. Recognizing the myriad advantages of a Cloud-First strategy, the Province of Punjab issues this Punjab Cloud First Policy as a seamless continuation of the federally approved Pakistan Cloud First Policy.

The salient features & takeaways of cloud computing are:

- a.** Efficient (cost of) governance
- b.** Resource optimization
- c.** Swift public service delivery

- d. Collaboration between Provinces and Federal Government
- e. Information Security
- f. Data privacy
- g. Transparency and accountability
- h. Innovation in public sector delivery
- i. Environmental Benefits & Compliance to SDG's.

2. Vision

This policy envisions digital transformation of Punjab in alignment with MoITT Cloud First Policy by optimized ICT spending, efficient utilization of latest cloud-based technologies, swift delivery of citizen services, better governance, increased collaboration among the government organs and enhanced transparency & accountability.

3. Scope and Adoption

The Punjab Cloud-First Policy incorporates and extends the Federal Government's (MOITT) Pakistan Cloud-First Policy 2022. It applies to all Public Sector Entities (PSE) under the Punjab Government in Punjab Province intending to make new ICT investments. The policy will additionally function as invaluable counsel, applicable for all administrative and affiliated departments, regulated sectors, and private sector entities as they persist in the pursuit of digital transformation along with guidance to private sector organizations as they continue to undertake digital transformation.

4. Coherent Cloud First Approach

A coherent approach needs to be adopted concerning the Cloud First Policy to create synchronization in the provision of cloud services among the federation and the provinces. The focused approach of Cloud First Policy is mentioned below:

4.1 Economies of scale

With the aggregate demand for cloud computing throughout Punjab, CSP will be able to achieve economies of scale. This will bring down the cost of ICT expenditure and attract investment.

4.2 Collaboration between provinces

A coherent approach to cloud computing throughout the public sector of Pakistan will provide increased opportunities for collaboration among provinces on

their ICT initiatives. Extension of already developed solutions deployed on cloud can easily be replicated among the provinces.

4.3 Standardization

The development of a cloud ecosystem with inherent interoperability capabilities will result in adoption of standardized mechanisms for the development of citizen centric solutions.

4.4 Adoption of emerging tools and technologies

Cloud adoption across the country/provinces will facilitate the adoption of latest tools and technologies for implementation of ICT initiatives. The traditional approach to software development by injecting billions of rupees in ICT infrastructure development will be replaced by the latest cloud native methodologies. This will also result in the development of a cloud enabled workforce particularly in Punjab and generally across Pakistan.

5. Data Sovereignty and Data Flows

This policy acknowledges the capabilities and economies of scale obtained when there are no data residency requirements in place, however regulatory requirements of provincial and federal government do apply to the PSE's under Punjab Government, regarding the restriction of cross border data flow. CSP are hyper-scale providers and have data centers around the world. The clients usually have the option to restrict their data to a particular geographic region. With no data residency requirement in place, the data belonging to GOP may be stored outside the boundaries of Pakistan and there is a possibility that GOP may lose access to its data or the data may be subject to the laws of other countries. However, whenever there are legitimate use-cases requiring cross-border flows, then the relevant stakeholders may consult with the provincial cloud office to get NOC to ensure that requirement is legitimate and appropriate security standards and controls are in place for such data flows.

6. Policy Deliverables

6.1 Nomination of a Representative for National Cloud Board

As per directions of the published policy PCFP by Federal Government MoITT, On the approval of this policy The Provincial Government of Punjab will nominate a representative for the National Cloud Board as outlined in PCFP. The province's

representative will not only represent the province on the federal cloud board but will also be helpful in staying abreast of the cloud adoption across Pakistan.

6.2 Provincial Cloud Acquisition Office

A Cloud Acquisition Office (CAO) will be established in the Punjab Province jurisdiction to support PSE in their transition to the cloud in Punjab Province. CAO will facilitate PSE in selecting a CSP through competition, designing, architecting, procuring, building, migrating, and managing their workloads and applications on the cloud.

Only CSP accredited by the National Cloud Office or Provincial Cloud Acquisition Office will be eligible to take part in the competition. CSP with the most advantageous offering will be selected. SLA will be signed between the CSP and PSE accordingly as per guidelines issued by Provincial CAO from time to time. Any breach of the SLA between PSE and CSP will be reported to CAO by the PSE. CAO will report continued serious non-compliance of SLA by CSP to Federal Cloud Office.

The CAO will have a close liaison with the Federal Cloud Office to communicate the cloud needs of Punjab Provincial PSE. To reduce operational overhead, cohesion of policies to benefit from the advantages of aggregate demand, only CSP accredited by the National cloud office or Provincial CAO will be considered for the needs of PSE. The CAO will work together with the provisional procurement regulator to develop and adopt a procurement methodology that best fits the cloud eco system.

6.3 Restrictions on Investments for Fragmented ICT Infrastructure

After the approval of this policy, the Government of Punjab will require all public sector entities (PSE) to review any projects which involve setting up a datacenter/ICT infrastructure/Server Room and will prioritize cloud-based solutions for any future ICT investments as per guidelines of Provincial CAO. The existing infrastructure of any PSE will be evaluated by the Provincial CAO and further course of action will be decided by the Provincial CAO. Same provisions will apply on any projects in the Punjab public sector implemented via a third party or donor agency. The Provincial CAO is mandated to spearhead the ICT infrastructure in the province by working together with PSEs and relevant stakeholders to ensure no proposed project

with requirement for fragmented ICT infrastructure is approved unless an NOC is provided by Federal Cloud Office or Provincial CAO.

After **01/01/2024**, all new ICT investment should adhere to the directions of the CAO/Federal Cloud Board.

6.4 Procurement

Government procurement is an important component of cloud adoption. Public Sector Entities (PSE) under Punjab Government must consider cloud services for all their new ICT procurement decisions. Any new ICT procurement decision to select services except cloud must have approval by the Provincial CAO. Moreover, PSE will also seek approval from Provincial CAO to host data on private cloud and will have to demonstrate the need for hosting on private cloud. Similarly, an organization intending to establish its own private cloud must have approval of the Provincial CAO.

Upon the approval of this policy, the selection of cloud based ICT will be prioritized in new ICT procurement. This will apply to infrastructure, hardware, software, information security, licensing, storage, and provision of data, as well as services like security, deployment, virtualization, database, or any kind of technology where a cloud based offer is essentially equivalent to or better than other kinds of technological solutions. Any decision to not use cloud solutions first must be substantiated by a business case and a clear evidence of the value of such a decision. In this regard, the PSE must establish that the non-cloud based ICT deployment strategy has a lower total cost of ownership (TCO) with at least the same level of security that a cloud deployment offers or it meets special requirements of the PSE that are not offered by a cloud deployment.

The selection of the appropriate cloud deployment and service model will be based on an assessment of each application, incorporating cost-benefit analysis and achieving value for money over the life of the investment. Procurement practices should reflect purchasing practices and contract terms that allow cloud platform to be scalable, cost effective and innovative. Provincial CAO will facilitate PSE in their selection of the appropriate cloud service and deployment model, architecting, procuring, building, migrating, and managing their workloads and applications on the cloud. CAO will also hold competition/Call off for the selection of accredited CSP.

The following aspects will be considered when procuring cloud services:

- a) Value for money-to fulfil the intended purpose of the service;
- b) Transitioning from capital budgets to operational expenditure;
- c) Short, medium, and long terms impact on finances, governance, technology, relevance, suitability;
- d) The suitability of Service Level Agreements in relation to PSE needs; and
- e) Information on data security guidelines and compliance with national legislation and international standards on data privacy and cybersecurity;

In general, cloud services are provisioned on a "Pay as You Use" basis. The organizations requiring ICT services do not have to purchase equipment to obtain services. This is a shift from the traditional way of procuring ICT in public sector in Pakistan which is based on purchasing equipment and incurring a capital expenditure. In order to achieve the goals of PCFP, GOPP, a new perspective for publishing and operating ICT will be considered. The "Pay as You Use" and "Self Service" approach permits scaling of services and is useful as the data and compute needs of an agency fluctuate.

After the approval of this policy, Punjab IT board (PITB) together with the provincial procurement regulator (PPRA) and other relevant authorities, shall devise mechanisms to move away from the conservative theme of capital expenditure to operational expenditure, which is more relevant for the cloud service provisioning. Furthermore, guidance will be provided by Provincial CAO to PSE on the aforementioned aspect concerning procurement of cloud services.

The true benefits of cloud computing can be realized with the centralized entity providing facilitation to PSE for their cloud procurement needs. This provides convenience, efficiency, reduced costs and a simplified ordering process. Aggregate demand for common cloud technologies by PSE results in the best possible offerings from CSP. It also aligns different PSE over a common set of terms and conditions rather than different ones for each organization. CAO will be the centralized office for ICT procurements of all PSE's under the Punjab Government. CAO will have the visibility of the aggregated demand of PSE's which will result in better cost and service offering by CSP.

7. Date of Application and Validity

This policy becomes effective by the date it is provided legislature approval. The policy is subject to a holistic review as and when required.

8. Annex-1 (Definitions and Abbreviations)

Definitions:

- **Cloud Computing:** Cloud computing is the on-demand delivery of Information Technology resources such as compute, storage, databases, software, networking over the internet, often referred to as the "cloud". Typically, enterprises only pay for cloud services they use, helping them lower operating costs, run infrastructure more efficiently, and scale as their business needs change.
- **Cloud Service Provider (CSP):** A Cloud Service Provider (CSP) is a third-party company that offers components of cloud computing such as infrastructure, software, storage, application, etc. security and compliance in a cloud environment is a shared responsibility between the CSP and its customers. The share of responsibility depends on the cloud service model in use.
- **Publish Sector Entities (PSE):** The Government of Punjab (GOPP) including all its Ministries, Department, Agencies, Dependencies, and Institutions at the Provincial levels; and corporations fully or partially owned by the Punjab Provincial Government.
- **Government data:** Data collected, generated, processed and/or managed by Public Sector Entities.
- **Interoperability:** The ability of computer systems, platforms, software, database or different computerized products or systems or their components to exchange and use information seamlessly between each other.
- **New ICT Investment:** Procurement of new ICT hardware and software as well as renewal of hardware and renewal of software licenses.

- **Service Level Agreement (SLA):** An agreement between a customer and a service provider that lists the services required and the expected level /quality/grade of service.

Abbreviations:

Abbreviations	Meaning
PCFP	Pakistan Cloud First Policy
CAO	Cloud Acquisition Office
CSP	Cloud Service Provider
GOP	Government Of Pakistan
IaaS	Infrastructure as a Service
ICT	Information and Communication Technology
IT	Information Technology
MoITT	Ministry of Information Technology and Telecommunication
PaaS	Platform as a Service
PII	Personally Identifiable Information
PPRA	Public Procurement Regulatory Authority
PSE	Public Sector Entities
SaaS	Software as a Service
SLA	Service Level Agreement
SDG	Sustainable Development Goals