Ministry of Education

BPP Summary

Version 1.0

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Information Security Classification : Low

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Introduction

This document provides a quick overview/summary of the *Business Program Planning (**BPP**)* of the Ministry, which caters to the IM/IT standards of the Ministry and has also links to Government standards. The BPP has templates, standards, and processes for development and maintenance of Applications of various types : Custom-built, Commercial Off The Shelf (COTS), Open-Source, Software as a Service (SaaS) etc. The BPP is currently hosted on Ministry ITMB Sharepoint site. A subset of the BPP is also published on the Government IM/IT standards site (public site) with the label "Education K-12 Sector IM/IT Standards" to serve as examples. NOTE : *This document is only a supplement to the BPP Sharepoint site and NOT a replacement or alternative*. To access the BPP on the ITMB Sharepoint site , click the Information Center link under the "Links to Sites of Interest" section located at the bottom right of the ITMB Sharepoint page. The BPP is owned by the Ministry Architecture Committee (MAC) which has representation from all areas (business/client lead, architecture, security, operations support, line of business etc).

System Development Life Cycle (SDLC)

The BPP covers the System Development Life Cycle (SDLC) end-to-end. W*aterfall* approach and *Iterative* approaches are supported by the BPP. *Agile* approaches are not currently supported in strict sense. Refer BPP's standards/directions on the SDLCs. The BPP's main page provides a clickable map to know about the templates, standards etc for each process box. Alternately, *to jumpstart with the BPP*, the BPP has *templates*, *standards* and *processes* sections catering to the following phases of BPP and SDLC.

- Define (Includes Pre-project phase and Feasibility Assessment and [1]Options Analysis Phases).
- Plan (Includes Project Planning and Project Management phases).
- Develop (Includes Phases like Business Analysis and Business Requirements, Technical Architecture, Data Architecture and Design, Application Architecture and Design, Build, Testing)
- Deploy (Application/System Implementation Phase)
- Maintain (Application/System Maintenance Phase)

Project Management, project monitoring and control happens throughout project lifecycle.

Quality Control and Team review process (QCIL process) is applicable to all the phases and all deliverables.

Mandatory security processes and deliverables such as *Privacy Impacts Assessment (PIA)*, *Security Threat and Risk Assessment (STRA)* must be completed early in the project for all projects/initiatives (regardless of project type/size, project budgets/costs and project schedules).

Work and Deliverables progression for projects and each of its iterations (for iterative projects) needs to be typically in the following sequence (for details, refer later sections of this document and also the BPP site) :

Pre-project phase approvals (Business case/Decision Note/Funding etc) → Feasibility Assessment and Options Analysis (if any) → Project Phase approvals (Project Charter, Master Project Plan (MPP), Project Work plan etc) → Business Requirements review by Clients and ITMB → Business Requirements signoff by Clients → Architecture/Design review and acceptance by ITMB → Deployment deliverables review and acceptance by ITMB → [2]Building/Coding/Customization/Implementation by Vendor/Service provider → Testing by testing teams → UAT and Production migration by Release management team → Lessons Learnt documentation by Project management team → Application Maintenance by Application Maintenance Services (AMS) provider (currently CGI)

[1] Solutions and Technical Options Analysis

[2] Building/Coding is applicable only to Custom-build (Custom-development) projects

Quality Control and Team Reviews

- The QCIL Team review process is important and helpful in obtaining feedback on deliverables from all teams and stakeholders in a collaborative manner (Sponsors/Stakeholders, Business/Program Areas/Clients, Client Leads, Business Analysts (BAs), Ministry Information Security Officer (MISO), Architects (Technology Architect, Data Architect, Application Architect, DBAs, MiddleTier / ReleaseManagement Teams, Line of Business (LOB) Teams etc). It also helps in the risks & impacts analysis in these areas.
- The BPP has the QCIL review process (Visio diagram) for quality control and team reviews (architecture reviews) of documents and deliverables. *Sharepoint* is used as a collaborative tool for team review of deliverables.
- As per the QCIL review process,
    - All deliverables are subject to QCIL review with the exception of very few.
    - Deliverables (and related artefacts) in their *formal versions* are to be first uploaded by the project to the Ministry authorized Project Sharepoint site.
    - The project then approaches the Ministry Project Delivery Office (EDUC PDO) requesting for QCIL review and feedback on the deliverables.
    - The PDO then initiates the QCIL review process of the deliverables (and related artefacts) and follows up with the Review Team Leads/Reviewers during review cycle. The Review Team Leads/Reviewers may internally coordinate among themselves during the review period.
    - Upon review completion, the PDO forwards the review outcome/feedback to the project for actioning.
    - PDO/project obtains the Client/Sponsor signoffs for the QCIL-accepted deliverables.
    - Signed-off deliverables are posted to authorized shared folders or sharepoint site (such as *Application Documentation Library*) by the PDO.

- QCIL Turnaround time : Typical turnaround time for a deliverable is 3-5 business days but there may be exceptions. Over-sized and/or complex deliverables may need more turnaround time.
- QCIL number of cycles : Typically there are 1 or 2 review cycles for a deliverable review but there may be exceptions.
- Informal reviews : Informal reviews of draft versions or partially completed deliverables are not done by the QCIL review team.
- Pre-QCIL reviews/overviews of deliverables by projects directly with the individual reviewers is not encouraged unless justified by project and prior approved by MAC/ITMB. If there are any specific questions/clarifications on BPP or deliverables prior to QCIL review phase, projects can contact the BPP team.

Application Testing

- Testing Strategy document is mandatory.
- Types of testing to be done in the Ministry environments (DEV, TEST, UAT) : Unit Testing (in DEV), System/Integration Testing (in TEST), User Acceptance Testing (in UAT) , Load/Stress/Performance Testing (in TBD environment) and any Regression Testing (TBD environment). Any testing done outside these Ministry environments (or outside Ministry Technical Architecture) will not be accepted for application migrations.

    - *Unit testing and System/Integration testing* is done by the service provider's/vendor's testing team. It is assumed that their testing team comprises of different resources than the development team.
    - *UAT testing* is done by the Ministry clients/program areas or designated UAT teams. Service provider's/Vendor's help may be needed for the UAT testing in the UAT testing process.

- Ministry Business Analyst (BA) is the interface between the Service provider/Vendor and the Ministry clients/program areas/UAT teams. UAT migration of application is subject to completion and confirmation of Unit testing and System/Integration testing.
- *Load/Stress/Performance Testing* and any *Regression Testing* is done by the AMS service provider (currently CGI) with monitoring/overseeing done by the Ministry technical architecture teams (MiddleTier team, DBA team etc). Ministry Technical Architect may be contacted on this.
- *Production migration* of application is subject to completion and confirmation of UAT testing and also completion and confirmation of Load/Stress/Performance Testing and any Regression Testing.

Compliance with BPP and Government-wide IM/IT Standards

- Compliance/alignment with the established IM/IT processes and standards of the Ministry (BPP) and Government (Government-wide IM/IT Standards) *is mandatory for* all projects and IM/IT changes (regardless of the project type, project size and project schedules/timelines). This is as per Government-wide directives (such as the Critical Systems Standards and the Office of Auditor General audit recommendations etc).
- The BPP templates, standards and processes help in ensuring consistency of deliverables across various projects of the Ministry.
- Deliverables need to be created using BPP templates and following the BPP standards where applicable.
- Deliverables received from projects in non-BPP format will be rejected, unless prior Ministry Architecture Committee (MAC) approval on BPP exemption is obtained by the projects.
- Note : Please always download and use the current blank templates from BPP site and do not reuse/repurpose the filled-in templates from past projects.

BPP familiarization and walkthrough

This document ("BPP Summary" document) should help you get started with the BPP. The Application Deliverable matrix on BPP Sharepoint site should be referenced to know about the master list of BPP deliverables, deliverable formats etc. A quick walkthrough of BPP can be provided by the BPP Team upon request, preferably at the project start (before project charter). BPP Team can be contacted during normal business hours for any questions/clarifications/directions on BPP.

BPP exemption process

BPP Exemption Requests may be forwarded to the BPP Team , citing business reasons/justifications for the exemption. BPP Exemptions are considered by Ministry Architecture Committee (MAC) only in rare and justified cases. Projects need to forward BPP Exemption Requests well in advance to help MAC in having enough time to review and approve the exemption.

- Examples of situations where "Exemption request needed": major alterations to BPP templates, using a different (non-BPP) template, splitting a BPP template, using a different diagramming / notations, using a non-standard framework/tool/technology/technical architecture, Changing Work and Deliverables progression sequence, skipping an SDLC phase (normally not allowed), using a different SDLC approach other than Waterfall/Iterative ("Iterative" not to be confused with "Agile").

- Examples of situations where "Exemption request is not needed": Adding additional "content" to a deliverable (using BPP template), Adding more Appendices to deliverable (using BPP template), Oversized deliverables (say more than 75 pages).

- Usage of alternate BPP templates such as using Analysis, Design and Architecture (ADA) template instead of Application Architecture (AA) template : No exemption request is needed on this. However, projects need to consult Ministry BAs/Client Leads well in advance (typically prior to project charter approval) to help assess the reasons for ADA template usage.

BPP changes and enhancements

Changes and enhancements to BPP are done periodically and sometimes based on adhoc requests. Changes and enhancements to BPP may happen due to various reasons such as :

- Ministry/Government reorganization
- Technology (servers and software) migrations/upgrades/patches or Technology replacement
- To incorporate innovative/benefitting/compelling ideas
- To address any gaps in existing BPP that calls for changes/enhancements to BPP
- To incorporate any Audit report recommendations

All BPP changes are discussed, voted and approved at the Ministry Architecture Committee (MAC) meetings and then published and communicated across Ministry (including active projects, service providers and contractors).

Key points

Business Architecture

- Process and techniques for Requirements gathering and elicitation is not prescriptive by the BPP.
- Requirements documentation needs to be done using the Business Requirements Document (BRD) template.
- Conceptual data models used in BRD also need to be submitted in metadata format (in Sparx Enterprise Architect tool) as well is graphical/image formats (.jpg, .pdf etc).
- Business Architecture phase must be completed, QCIL-reviewed-and-accepted and signed off by the clients/program areas prior to initiating work in subsequent phases (architecture/design, build/code etc).

Data Architecture (DA)

- All data architecture deliverables and work products need to follow Data Architecture Standards.
- Data models/documentation are also required for COTS/OpenSource/Software as a Service (SaaS) implementations. Refer Data Architecture Standards for information on this.
- Data models need to be submitted in metadata format (in Sparx Enterprise Architect tool) as well is graphical/image formats (.jpg, .pdf etc). Refer Data Architecture Standards for information on this.
- Metadata and Data definitions (descriptions on entity/attributes and table/columns) are mandatory.
- Progression (evolution and generation) of data models needs to be in the following sequence :

Conceptual data models → Logical data models → Physical data models → Data Definition Language (DDL) scripts

- Data Architecture phase needs to be completed, QCIL-reviewed-and-accepted and approved by Data Architect prior to initiating work in subsequent phases (build/coding, test etc).

Application Architecture (AA)

- All application architecture needs to be documented using Application Architecture (AA) template.
- For low risk/small applications, the Analysis, Design and Architecture (ADA) template may be used subject to prior discussions with BPP team and MAC approvals. The ADA template consolidates the [3]BRD, AA, TA, Testing Strategy, Implementation Plan and Operations Support Guide templates into a single document for low risk/small applications.
- It is recommended to deliver the models/diagrams (such as Unified Modeling Language (UML) models) in metadata format too (in Sparx Enterprise Architect tool) in addition to graphical format (.jpg, .pdf etc).
- Application architecture documentation is required for COTS/OpenSource/SaaS implementations too.
- Application Architecture phase needs to be completed, QCIL-reviewed-and-accepted and approved by ITMB Architects prior to initiating work in subsequent phases (build, test, implementation etc).

Technology Architecture (TA)

- All application projects (Custom development/COTS/OpenSource/Application maintenance projects etc) need to comply with and run in the Ministry Technical Architecture and its environments such as DEV, TEST, UAT, PROD, EFX etc without adverse impacts on the IT infrastructure and other co-existing applications.
- Configuration Management : Subversion is the Ministry standard tool and repository for configuration management of all applications. All application source code needs to be uploaded to Subversion for configuration management purposes.
- Release Management : Jenkins is the Ministry standard tool for release management of all applications (with the older tool Anthill being deprecated).
- Change Management : All application changes are to be routed through Ministry's Change Management process which is governed by the Ministry Change Advisory Board (CAB).
- Application Testing and Migration : All testing as summarized in the Application Testing section (Unit testing, System/Integration Testing, Regression Testing (if any), UAT Testing, Load/Performance/Stress Testing etc) must be completed prior to requesting Production migration of the application. QCIL review and acceptance of architectures and deliverables (such as BRD, Data architecture, Application architecture, Testing Strategy etc) must be completed prior to requesting Production migration of the application.
- Deployment deliverables phase : Deployment deliverables phase (Implementation Plan, Operations Support Guide, Training and Support strategy and Training materials if any) needs be completed, QCIL-reviewed-and-accepted and approved by ITMB prior to requesting production migration of the application.

Security Architecture

- All application projects (Custom development/COTS/OpenSource/SaaS/Application maintenance projects etc) must follow all the Security architecture standards & best practices, which includes (but not limited to) :

  Authentication (login) using IDIR/ BCeID/Single Sign-on etc, Authorization (access control) implementation, SiteMinder, Digital Certificates, Cryptography (encryption), Data encryption/masking/anonymizaiton of

[3] Business Requirements Document (BRD), Application Architecture (AA), Technical Architecture (TA), Testing Strategy, Implementation Plan and Operations Support Guide templates.

production data usage for non-production purposes, compliance with Information Security Policy (ISP), FOIPPA, Personal Information handling in accordance with Government/Ministry PI policies and standards.

- Mandatory security processes and deliverables such as *Privacy Impacts Assessment (PIA)*, *Security Threat and Risk Assessment (STRA)* must be completed early in the project for all projects/initiatives (regardless of project type and size, project budgets and costs, project schedules). Consult with Ministry Information Security Officer (MISO) on this.

- Access to production data and personal information there in must be done only with prior approvals from data custodians (even if you have access to the production data/production environment by virtue of your job role).

Pre-project

- Approvals/signoffs on pre-project phase deliverables Business Case, Decision Notes (and Feasibility and Options Analysis, Funding requirements analysis etc if applicable) are mandatory for all projects/initiatives prior to commencing work on the project. Please consult with the Project Sponsor/PDO/Client Lead for appropriate directions on this.

Project Management

- Approvals/signoffs on project deliverables such as business case, decision note, funding approval, project charter, master project plan etc are mandatory for all projects/initiatives prior to commencing actual work (business requirements/architecture/design/build/code etc) on the project. Please consult with the Project Sponsor/PDO/Client Lead for appropriate directions on this.

- Changes to the already approved/signed-off project plans and schedules are subject to Steering Committee/Project Sponsor approvals and it may also need re-baseline. Please consult with the Project Sponsor/PDO/Client Lead for appropriate directions on this.

- Project status reporting throughout the project life cycle is mandatory. Please consult with the Project Sponsor/PDO/Client Lead for appropriate directions on this.

Conducting corporate-requested reviews of Government IM-IT Standards

Conducting corporate-requested reviews (i.e. ASRB/DAAC/OCIO requested reviews) of government's IM/IT standards documents involves significant coordination and communications with a number of teams/stakeholders within the Ministry and also with the corporate teams. The Ministry internal process followed for conducting corporate-requested reviews is documented and published on BPP Sharepoint site (under BPP References section) : Process for conducting corporate-requested reviews of government's IM/IT standards documents.