

## 2. Custom Software Development Project

Context: This project involves developing a well-defined software solution with a small, co-located team. The primary constraints are a short timeline (<6 months) and a need for high adaptability to minor requirement changes from the client.

Objective: To design a lightweight, flexible process optimized for speed, continuous feedback, and incremental value delivery, minimizing overhead.

### 2.1 Proposed Process

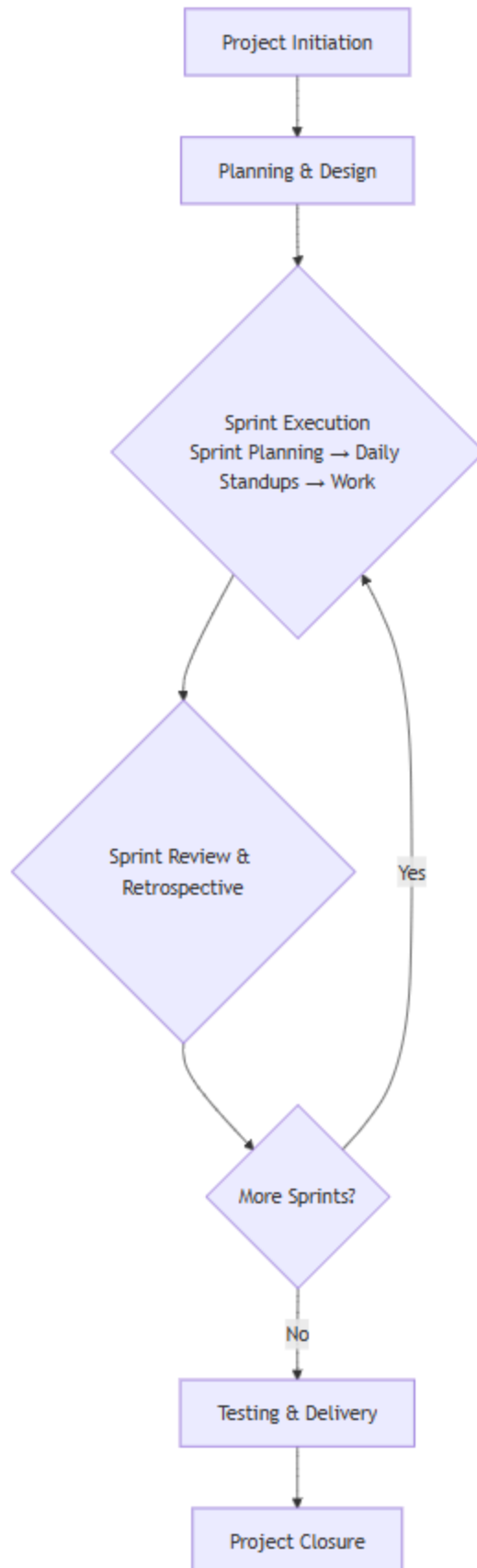
Referenced Standards:

#### 2.1 Referenced Standards & Tailoring Justification

Standard	Specific References
PMBOK 7	Principles 4 (Focus on Value), 7 (Tailor Based on Context), 10 (Optimize Risk Responses)
PRINCE2	Plans & Progress themes
ISO 21502	§7.2 (Establishing objectives), §7.13 (Controlling performance)

- PMBOK 7: Principles 4 (Focus on Value), 7 (Tailor Based on Context), and 10 (Optimize Risk Responses). The emphasis is on delivering valuable increments and adapting the process to the agile context.
- PRINCE2: The Plans and Progress themes are simplified. Plans are maintained at a high-level (Project Plan) and a detailed, rolling-wave level (Sprint Plans). Progress is tracked empirically via burn-down charts and demo-based reviews.
- ISO 21502:2020: Clauses §7.2 (Establishing project objectives and constraints) and §7.13 (Controlling performance) are applied. Performance control is achieved through agile metrics like velocity and burndown charts rather than traditional earned value management.

Phases & Workflow:



The process follows a streamlined, iterative lifecycle with embedded governance checkpoints.

Detailed Breakdown:

Element	Description
Phases	Initiation → Planning & Design → Execution (Sprints) → Testing & Delivery → Closure
Key Activities	<ul style="list-style-type: none"><li>- Initiation: Define project vision, high-level scope, and secure kick-off approval.</li><li>- Planning &amp; Design: Create prioritized product backlog, define release plan.</li><li>- Execution: Conduct sprint planning, daily stand-ups, sprint development, and continuous integration.</li><li>- Testing &amp; Delivery: Execute QA within each sprint, conduct user acceptance testing (UAT), and deploy to production.</li><li>- Closure: Conduct project retrospective, archive materials, and release team.</li></ul>

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## Roles

- Project Manager: Manages stakeholder communication and project constraints.
- Scrum Master: Facilitates the Scrum process and removes impediments.
- Developers: Design, build, and test the software.
- QA Lead: Ensures quality standards and oversees testing.
- Client Representative: Provides requirements and feedback, accepts deliverables.

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## Artifacts/Deliverables

- Charter: Authorizes the project.
  - Product Backlog: Prioritized list of all desired features.
  - Sprint Plan & Burndown Chart: Tracks progress within a sprint.
  - Increment: Potentially shippable product functionality after each sprint.
  - Test Reports & Deployment Checklist: Ensures quality and smooth release.
  - Closure Report.
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## Decision Gates

1. Kick-off Approval: Project is viable and authorized to start.
  2. Sprint Review (Each Sprint): Stakeholders accept the increment and guide next steps.
  3. User Acceptance (UAT): Client formally accepts the final product.
  4. Project Sign-off: Final closure and financials are settled.
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### Tailoring Justification:

An adaptive (Agile) approach was selected to accommodate the well-defined but potentially evolving requirements and the need for rapid delivery. PRINCE2's governance was simplified by embedding it within the sprint review cycle, avoiding the overhead of full stage-boundary documentation. ISO 21502's performance monitoring was aligned with agile metrics (e.g., burndown charts, velocity) instead of traditional metrics, providing transparency and control in a lightweight manner. Comprehensive planning phases were omitted in favor of just-in-time sprint planning to maintain flexibility.

## 3. Innovative Product Development Project

**Context:** This project is Research & Development (R&D) heavy, with high uncertainty in both the technological feasibility and the final market needs. The duration is approximately one year.

**Objective:** To design a hybrid-adaptive process that provides structure for governance and investment decisions while allowing maximum freedom for experimentation, iteration, and discovery within each stage.

### 3.1 Proposed Process

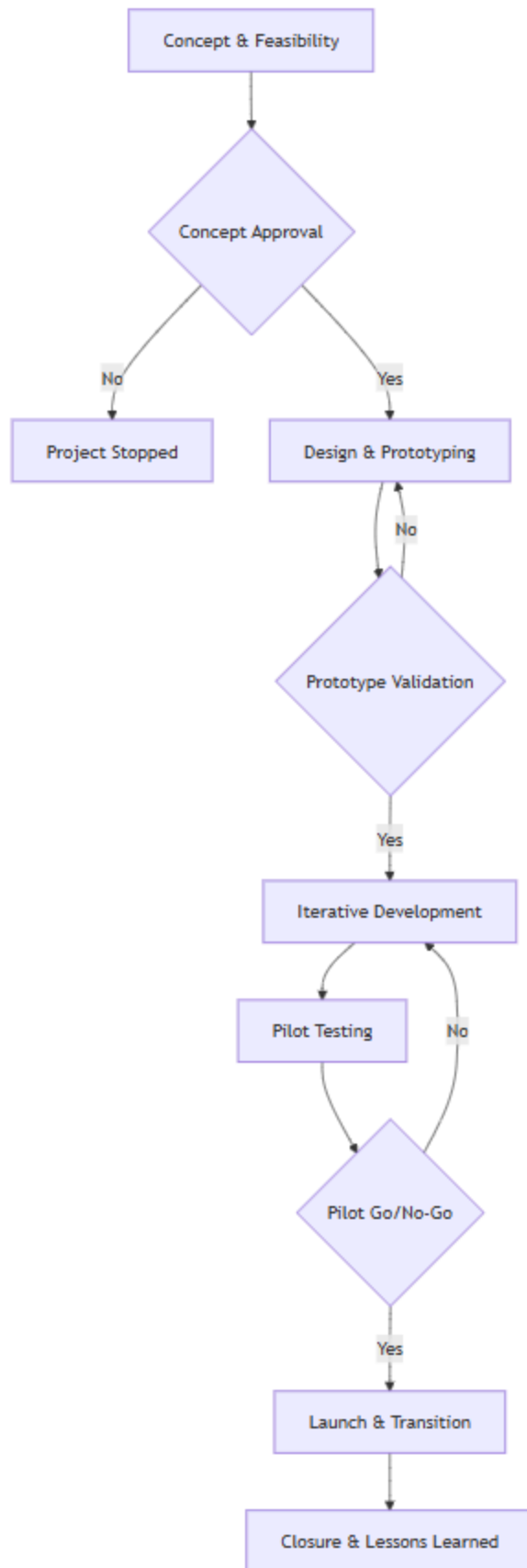
## Referenced Standards:

Standard	Specific References
PMBOK 7	Principles 2 (Collaborative Team), 4 (Focus on Value), 8 (Navigate Complexity), 12 (Adapt Thrively)
PRINCE2	Starting Up a Project, Managing by Stages
ISO 21502	§7.3 (Developing life cycle), §7.6 (Managing risk)

- PMBOK 7: Principles 2 (Create a Collaborative Team Environment), 4 (Focus on Value), 8 (Navigate Complexity), and 12 (Adapt Thrively). This emphasizes teamwork in uncertain conditions and adapting based on learning.
- PRINCE2: The Starting Up a Project process and Managing by Stages principle are critical. Stages (e.g., Feasibility, Prototyping) provide natural "gates" for re-evaluating project viability.
- ISO 21502:2020: Clauses §7.3 (Developing a life cycle) and §7.6 (Managing risk) are central. A hybrid life cycle is developed, and risk management is a continuous, prominent activity due to the high uncertainty.

## Phases & Workflow:





This process uses a stage-gate model, where each stage is executed with adaptive, iterative methods.

#### Detailed Breakdown:

Element	Description
Phases	Concept & Feasibility → Design & Prototyping → Iterative Development → Pilot Testing → Launch & Transition → Closure & Lessons Learned
Key Activities	<ul style="list-style-type: none"><li>- Concept &amp; Feasibility: Exploratory research, market analysis, technical spike (proof-of-concept), feasibility study.</li><li>- Design &amp; Prototyping: Rapid prototyping, usability testing, technical specification.</li><li>- Iterative Development: Agile sprints to build a minimum viable product (MVP), continuous stakeholder feedback.</li><li>- Pilot Testing: Deploy MVP to a limited user group, collect usage data and feedback.</li><li>- Launch &amp; Transition: Full-scale marketing, sales, and operational handover.</li><li>- Closure &amp; Lessons: Document lessons learned, particularly on innovation process and risk management.</li></ul>

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## Roles

- Project Sponsor: Provides funding and makes major go/no-go decisions.
- R&D Lead: Drives the technical and exploratory work.
- Product Owner: Manages the product backlog and defines user needs.
- Developers & Test Engineers: Build and validate the product.
- Business Analyst: Bridges the gap between technical and business stakeholders.

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## Artifacts/Deliverables

- Feasibility Study & Business Case: Justifies project investment.
  - Prototypes & MVP: Tangible outputs for validation.
  - Stage Review Reports: Documents for gate decisions.
  - Risk Register & Benefit Register: Live documents tracking uncertainties and expected value.
  - Lessons Learned Report.
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## Decision Gates

1. Concept Approval: The idea is viable and worth investing in.
  2. Prototype Validation: The chosen technology/design is feasible and desirable.
  3. Pilot Go/No-Go: The MVP is successful enough to justify a full launch.
  4. Final Launch Approval: Authorize full market release.
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### Tailoring Justification:

A hybrid model was chosen to balance the need for R&D freedom with corporate governance. PMBOK and ISO 21502 provide the framework for managing complexity and risk in an R&D environment. PRINCE2's "Managing by Stages" principle is used to create structured governance checkpoints (gates) that control funding and strategic direction without micromanaging the iterative work within each stage. This allows the project to be stopped or redirected based on empirical evidence, protecting the organization's investment while fostering innovation.

## 4. Large Government Project

**Context:** A large-scale, public-sector project involving integrated civil, electrical, and IT components over a 2-year duration. It is subject to strict regulatory compliance, public accountability, and complex procurement.

**Objective:** To design a comprehensive, predictive process with strong emphasis on governance, compliance, procurement, risk management, and transparent reporting.

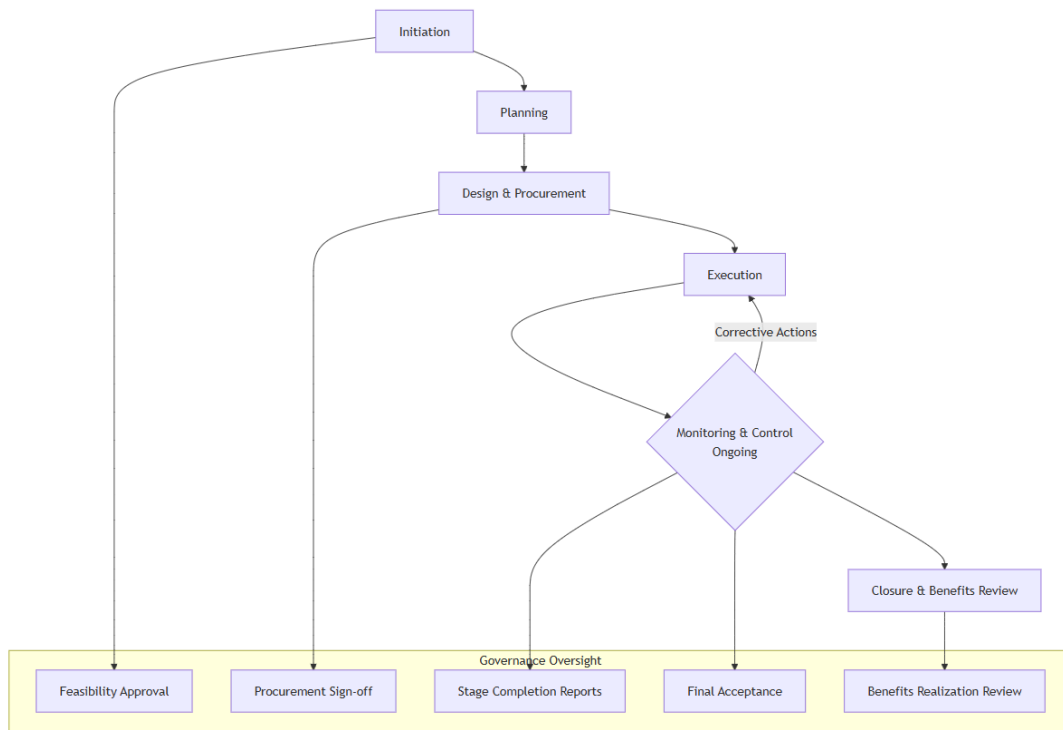
### 4.1 Proposed Process

## Referenced Standards:

Standard	Specific References
PMBOK 7	Governance & Quality domains, Stewardship principle
PRINCE2	Manage by Exception, Project Board, Quality Reviews
ISO 21502	§7.10 (Managing quality), §7.12 (Managing procurement)

- PMBOK 7: The Governance and Quality performance domains are paramount. The process ensures a controlled environment with clear decision rights and a focus on delivering to specification.
- PRINCE2: The Manage by Exception principle is key, empowering the Project Manager within defined tolerances. The Project Board structure provides clear accountability and governance.
- ISO 21502:2020: Clauses §7.10 (Managing quality) and §7.12 (Managing procurement) are extensively referenced to ensure the product meets requirements and that procurement is aligned with public sector policies.

## Phases & Workflow:



This process follows a predictive (plan-driven) lifecycle with strong monitoring and control mechanisms throughout.

## Detailed Breakdown:

Element	Description
Phases	Initiation → Planning → Design & Procurement → Execution → Monitoring & Control → Closure & Benefits Review

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## Key Activities

- Initiation: Develop detailed business case, stakeholder analysis, and secure funding.
- Planning: Create integrated project plan (scope, schedule, cost, quality, resources).
- Design & Procurement: Finalize technical designs, tender documents, and manage vendor selection.
- Execution: Coordinate contractors, civil works, system installation, and construction.
- Monitoring & Control: Performance tracking (EVM), quality assurance, configuration management, change control, and governance reporting.
- Closure: Final handover, contract close-out, post-project review, and benefits realization planning.

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## Roles

- Executive Sponsor: Ultimate accountability and champion.
  - Project Board (PRINCE2): Represents business, user, and supplier interests, providing senior governance.
  - Project Manager: Manages the project day-to-day.
  - Procurement Officer: Manages all vendor contracts and compliance.
  - Quality Manager: Ensures deliverables meet standards and regulations.
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	<ul style="list-style-type: none"> <li>- Contractors: Execute the specialized work packages.</li> </ul>
Artifacts/Deliverables	<ul style="list-style-type: none"> <li>- Business Case: Justifies the project's existence and investment.</li> <li>- Project Plan &amp; Baselines: The definitive guide for execution and control.</li> <li>- Risk Register &amp; Quality Reports: Key control documents.</li> <li>- Procurement Contracts &amp; Performance Dashboards: Formal agreements and status reports.</li> <li>- Closure &amp; Benefits Realization Report.</li> </ul>
Decision Gates	<ol style="list-style-type: none"> <li>1. Feasibility Approval: Project is publicly justified and funded.</li> <li>2. Procurement Sign-off: Major contracts are legally sound and awarded.</li> <li>3. Stage Completion Reports (Periodic): Project Board confirms progress and authorizes next stage.</li> <li>4. Final Acceptance: The asset is formally handed over to operations.</li> <li>5. Benefits Realization Review (Post-Project): Assess if the intended public value was achieved.</li> </ol>

#### Tailoring Justification:

A predictive life cycle was chosen for stability, predictability, and compliance, which are



critical in government spending. PRINCE2's governance model, with a dedicated Project Board, ensures clear accountability and manages by exception, which is efficient for large projects. ISO 21502's detailed guidance on procurement and quality was integrated to ensure strict alignment with public sector policies and audit requirements. The extensive documentation and formal gates are not considered overhead but essential mechanisms for ensuring public accountability and managing the high risks associated with large-scale, multi-disciplinary projects.