

MODERNISATION PLAYBOOK

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1. Overview

This playbook provides a **systematic approach** to modernise outdated products using the **IMPACT framework**.

1.1 What are outdated products?

Outdated products are not just “old” products due to age. **Products become outdated when they are not fit for purpose in three key dimensions:**

- **Business Fitness:** Products must solve real user problems and adapt to changing needs.
- **Technical Fitness:** Products must remain secure and reliable.
- **Cost Fitness:** Products must maintain reasonable development and maintenance costs.

Without addressing outdated products, agencies face significant challenges including slow policy implementation, unreliable and insecure products, and rising costs.

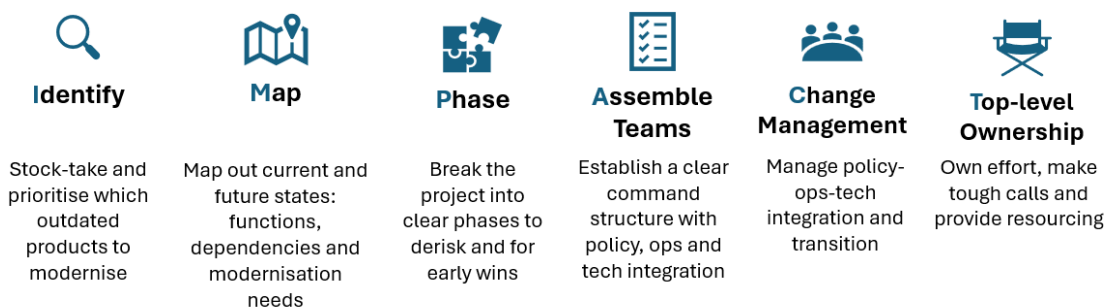
1.2 What is IMPACT?

The IMPACT framework consists of 6 modules - Identify, Map, Phase, Assemble Teams, Change Management, and Top-level Ownership. The framework helps agencies achieve desired modernisation outcomes by identifying outdated products and modernising them better.

The Smart Nation Group – Digital Government (SNDG) has developed IMPACT as a modernisation framework by adapting insights from agency modernisation projects and research through industry engagements.

1.3 How to use IMPACT?

Agencies have the flexibility to adapt the IMPACT modules and the steps within to their specific contexts, as this playbook offers guidance rather than prescriptive implementation instructions.



2. I – Identify

2.1 Purpose

To systematically identify and prioritise outdated products for modernisation, ensuring decisions are based on the agency's priorities and products' outdatedness, rather than just age.

2.2 Key Principles

- **Comprehensive visibility:** Catalogue all agency products to prevent unintentional disruption of upstream and downstream products during modernisation.
- **Fitness-based evaluation:** Assess products based on whether they are fit for purpose rather than by age.
- **Strategic prioritisation of products:** Prioritise which outdated products should be modernised first based on mission criticality and fitness gaps across business, technical and cost dimensions.

2.3 Steps

1. Stock-take all products

- a. Compile a list of your agency's products by getting the business owners to list the products they use.

Outputs: List of agency's products.

2. Evaluate how outdated each product is

- a. Assess how outdated each product is using the fitness Assessment (FA). Apply the FA to each product to get a score across all the listed dimensions. Products with low FA scores are outdated.
- b. Refer to [Annex A](#) for the Fitness Assessment (FA).

Outputs: FA score for each product in the list of agency's products.

3. Prioritise the products for modernisation

- a. Prioritise products based on (i) how outdated they are (i.e., products with low FA scores are more outdated), and (ii) how mission critical they are. See diagrammatic representation below.

More outdated		Prioritise products here for modernisation
Less outdated		
	Less mission-critical	More mission-critical

Outputs: Prioritised list of products to be modernised.

3. M – Map

3.1 Purpose

To build stakeholder alignment on modernisation needs by mapping where the product is today, where it needs to be, and establishing how to get there.

3.2 Key Principles

- **Evidence-based discovery:** Conduct thorough research with users and IT teams to understand the product's current state before designing the future state.
- **Early Policy-Ops-Tech integration:** Bring Policy, Operations, and Technology teams together early to co-create, shape and align outcomes. The solutions should be validated through iterative testing and proofs-of-concept.
- **Dependency awareness:** Map data, process, and stakeholder dependencies to avoid unexpected upstream and downstream disruptions.

3.3 Steps

1. Understand the current product

- a. Map the current service journey to understand who your product's users (e.g. citizens, Policy, Operations, and Technology teams) are, how, and why they interact with your product. A service journey is the end-to-end user experience with the product.
- b. Engage these users (through interviews, surveys, and observation sessions) and relevant policy/operations teams to find out what problems they face while using the product. If there are multiple users involved (e.g. both citizens and public officers), engage all the users.
- c. Engage technical stakeholders to gather requirements and constraints to be part of the technical architecture design. The technical dependencies that should minimally be mapped are the stakeholder, process, and data dependencies.

Stakeholder dependencies: Identify the teams responsible for the prioritised product and the related business processes

Process dependencies: List the business processes and other products that interact with the prioritised product

Data dependencies: Document data flows and products providing and consuming these data for the prioritised product

Outputs: Current service journey map, data, process, and stakeholder dependency map, current architectural diagram.

2. Envision the future product

- a. Identify the key problems based on the findings from step '1'.

- b. Co-create potential solutions to the problem statements with the product's users.
These solutions may be technical solutions, policy simplifications, or a mix of both.
- c. Develop a functional prototype to test and validate the solutions with the users.
- d. Keep co-creating and prototyping until a viable solution has been identified.

Outputs: Future service journey map, future architectural diagram and prototype.

3. Plan

- a. Establish a roadmap for the implementation to get from the current product to the future product.
- b. Using the roadmap, establish the high-level resource plan that includes requirements covering time, cost and manpower.
- c. Using the resource plan, determine which parts of the modernisation project should be built internally and which parts to be bought.

Build: Strategic capabilities in products and tech should not be outsourced.

Buy: Standard and central products (e.g. SGTS, Postman, FormSG).

Outputs: Implementation roadmap, high-level resource plan, build-buy plan.

4. P – Phase

4.1 Purpose

To break down modernisation into manageable phases that reduce risk and deliver value incrementally. This approach prevents risky "big bang" deployments. Refer to [Annex B](#) for a more detailed write-up on this.

4.2 Key Principles

- **Phase implementation:** Break large modernisation efforts into smaller phases to derisk large modernisation projects and deliver quick wins.
- **Plan with stakeholders in mind:** Plan phases around user workflows and business priorities to minimise disruption to users.
- **Iterative learning and adaptation:** Evaluate each phase's outcomes and incorporate the lessons learnt to refine the subsequent phases.

4.3 Steps

1. Identify key stakeholders and group features into phases

- a. Identify key user groups and their critical workflows, then understand business priorities and operational dependencies to inform phasing decisions.
- b. Group all services, features and modules into phases based on dependencies, user impact and stakeholder priorities. Prioritise common components (e.g. login, registration, common workflows) in initial phases to enable reuse across subsequent phases.
- c. Order phases to deliver early wins for users whilst modernising the whole product.
- d. Refer to [Annex C](#) for an example of how modernisation projects could be phased.

Outputs: Feature inventory and dependency map, phasing strategy (sequence of deployments), high-level roadmap.

2. Plan each phase

- a. For each planned phase, define its objectives, scope, and timelines to ensure team alignment.

Outputs: Plan for each phase.

3. Review and adapt after each phase

- a. After each phase deployment, evaluate outcomes against objectives, gather stakeholder feedback and capture lessons learnt.

- b.** Refine the roadmap and adjust subsequent phase plans based on lessons learnt, user feedback, and evolving requirements.

Outputs: Revised phase plans, Updated roadmap.

5. A – Assemble Teams

5.1 Purpose

To set up a clear command structure with **policy, operations and technology integration (POTI)**. This helps make better, faster decisions and achieve better modernisation results.

5.2 Key Principles

- **Single-threaded accountability:** Choose one person who is accountable for delivering modernisation results and has authority to make decisions.
- **Cross-functional integration:** Create a team to support this person with the necessary policy, operations and technology expertise and levers, with clearly defined roles and responsibilities.
- **Empowered execution:** Empower the team to solve the problem by moving policy, operations, and/or technology levers.

5.3 Steps

1. Set up leadership and overall team structure

- a. Appoint a single accountable Business Owner (BO) to lead the modernisation team, with ownership of the problem and with policy/operations and technology levers. This applies even when the modernisation effort involves multiple agencies.
- b. Appoint an Executive Team to support the BO. This team should include a Product Lead, Tech Lead, and Design Lead who hold levers over the product, engineering, and design aspects of the product respectively. It should also include relevant Policy/Operations Lead(s) who hold policy/operations levers required to move the problem.
- c. Set up regular and efficient decision-making mechanisms, e.g. monthly executive team meetings.
- d. Refer to [Guide on Product Team Structure](#) for an example of how a modernisation team structure should be organised.

Outputs: Organisation chart, Meeting cadence.

2. Set up the squad(s)

- a. The modernisation team consists of 1 or more squads which perform Product, Engineering and Design functions.
- b. Squads may be staffed by in-house officers and/or vendors.

Outputs: Organisation chart.

3. Define roles and responsibility

- a. Define and assign roles and responsibilities for the modernisation team. Refer to [Guide on Product Team Structure](#) for examples of role descriptions and responsibility matrices.

Outputs: Terms of Reference (TOR), Responsibility Assignment Matrix (RACI chart).

4. Secure resources

- a. Plan and request for resource allocation to ensure sufficient resources for team and supporting squad(s).
- b. Get resource approval for modernisation team, including in-house officers and/or vendors.
- c. Deploy resources based on approved resource allocation.

Outputs: Resource plan.

6. C – Change Management

6.1 Purpose

To manage policy, operations, and technology changes throughout modernisation. This ensures effective transitions and sustained adoption.

6.2 Key Principles

- **Focus on outcomes, not feature parity:** Avoid simply replicating existing features. Design solutions that deliver better results. Modernisation means rethinking how we work, not just digitising current methods. Refer to [Annex D](#) for an example.
- **Engage stakeholders early:** Involve policy, operations, technical teams, and end users from the start. Learn what they need and get their support.
- **Capture knowledge in a systematic way:** Document how things work so the business operations can keep running and knowledge stays safe. This also helps us rethink processes.
- **Build capabilities across teams:** Build shared skills across teams through joint training, sharing practices, and structured vendor knowledge transfer.
- **Communicate openly and often:** Keep everyone informed and aligned to build trust and encourage adoption.

6.3 Steps

Change management can follow various approaches depending on what your organisation knows and prefers. One possible way is: **Prepare** (establish foundation and engage stakeholders), **Manage** (implement changes and build capabilities), and **Sustain** (reinforce adoption and continuous improvement). Refer to [Annex E](#) for details of this way.

PREPARE

1. Establish knowledge management

- a. Document current business requirements, outcomes, and institutional knowledge (not just features) to create a baseline of what to keep versus what to change.
- b. Capture expertise from current staff to check and improve the baseline.
- c. Consolidate the knowledge in a central repository to support design, training, and future development.

Outputs: Product documentation, central repository.

2. Identify and engage the 4 key user groups using knowledge you captured

- a. Policy teams: Use documented knowledge to simplify policies and avoid replicating unnecessary features.

- b. Operations teams: Learn new processes and enable self-service where possible.
- c. Technical teams: Involve early in design and transition to maintaining new product where possible.
- d. End-users: Give clear instructions, manage expectations, gather feedback.

Outputs: Stakeholder engagement plan, training materials, feedback logs.

MANAGE

3. Create a step-by-step communication plan

- a. Before deployment: Build awareness about modernisation benefits, explain how new approaches achieve the same outcomes better, and help stakeholders tell the difference between essential continuity and unnecessary feature replication.
- b. During deployment: Share success stories, highlight improvements over outdated features, and address pain points.
- c. Post-deployment: Monitor adoption, gather feedback, and publish enhancement plans.

Outputs: Communications plan, FAQs, feedback reports, adoption data.

4. Build integrated skills and capabilities

- a. Conduct joint training for policy, operations, and technology teams to develop shared understanding and ways of working together.
- b. For product teams that will change as the product is deployed, ensure knowledge transfer so the next team can manage the product.
- c. Keep updating the central repository so it remains as the main source of truth for ongoing development and knowledge sharing.

Outputs: Skills matrix, training curriculum, knowledge transfer records.

SUSTAIN

5. Reinforce and support continuous improvement

- a. Track how end users use the product how satisfied they are to find areas for improvement.
- b. Update Standard Operating Procedures (SOPs) and embed best practices in daily work.
- c. Maintain continuous improvement cycles to keep product relevant.

Outputs: Adoption dashboard, updated SOPs, continuous improvement plan.

7. T – Top-Level Ownership

7.1 Purpose

Modernisation involves organisation-level changes in capabilities and complex trade-offs. Therefore, modernisation is a command responsibility that agency leaders need to adopt, so that their agency can continue to deliver their agency's priorities.

7.2 Key Principles

- **Command responsibility:** The Head of Agency (i.e. the Permanent Secretary, Chief Executive or an officer of an equivalent seniority) is ultimately accountable for modernisation outcomes. The work can be delegated but the accountability cannot.
- **Make trade-offs:** Successful modernization will require difficult decisions about resource allocation, policy changes, and organisational redesign, which can only be made at the senior leadership level.
- **Longer-term decisions:** The Head of Agency should make long-term decisions about where the organisation will build capabilities.

7.3 Steps

1. Establish leadership command responsibility

- a. Take ownership of modernisation outcomes to show commitment and set expectations across the agency.
- b. Form a senior-level team (One possible way is a board consisting of Deputy Secretary and Agency Senior Leaders) to set modernisation direction and ensure the whole agency is aligned. Refer to [Guide on Product Team Structure](#) for guidance on an example of a leadership command structure.
- c. Set aside dedicated budget and manpower resources to support modernisation work.

Outputs: Organisation chart, modernisation plan, resource plan.

2. Lead strategic decisions

- a. Choose which products to modernise first based on how outdated they are and how critical they are to business.
- b. Define modernisation vision and scope based on the mapping done.
- c. Ensure phasing is done to derisk modernisation efforts.
- d. Decide what capabilities the agency needs and define build-buy strategy.
- e. Remove barriers and resolve conflicts between competing demands and constraints.
- f. Monitor progress and make corrections through regular reviews and actions.
- g. Refer to [Annex F](#) for examples of the critical decisions and trade-offs to be made.

Outputs: Modernisation plan, phase plans, capability development plan, build-buy plan, escalation protocols, decision records, progress dashboards.

Acknowledgements & Credits

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9. Annexes

[Annex A] MFDP Fitness Assessment Questions

Fitness Assessment Questions

Key Dimensions	Question
Business Relevance	Does the product meet current needs and support timely implementations of key business or policy changes expected in the next 2-3 years?
User Experience	Is the product easy to use?
Data	Does the product provide timely and accurate data to users (Citizens, Businesses or Officers)?
Resilience	Is your product able to meet the required uptime based on user needs? (e.g. able to meet the Service Availability Objective (SAO))?
Cost	Are the costs reasonable compared to the value delivered?

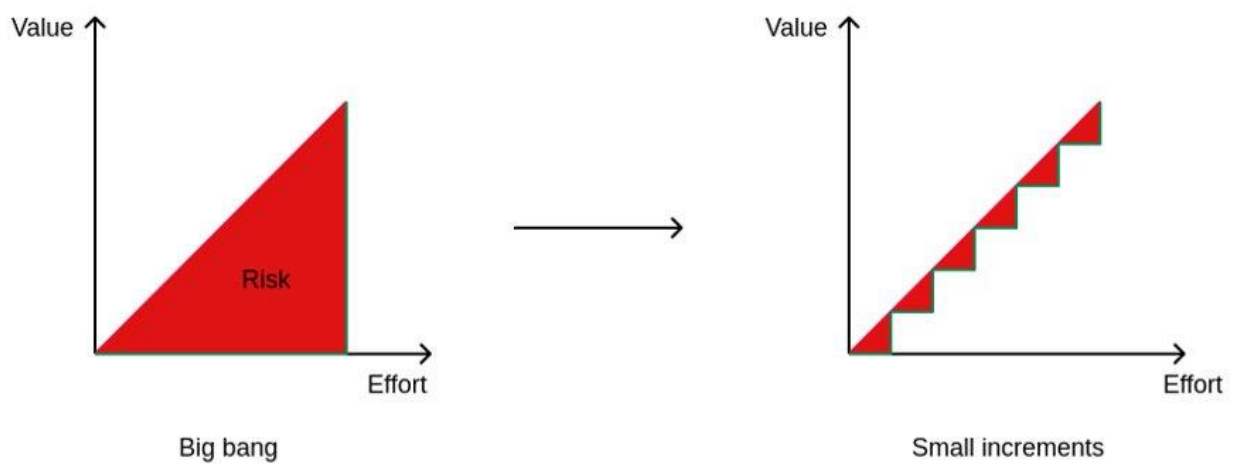
Rating Scale

Rating	1	2	3	4
Meaning	Poor – Product has significant gaps requiring immediate attention	Fair – Product has major gaps requiring attention	Good – Product meets needs with minor gaps to address	Excellent – Product fully meets expectations

[Annex B] Why Avoid a Big Bang Approach

Big bang modernisation approaches expose organisations to significant risks, as simultaneously replacing entire systems means that any failures affect all users and business functions at once, with no opportunity to isolate problems or implement rollbacks.

Phased modernisation reduces these risks by limiting the scope of change at any given time, containing potential failures to specific areas, and providing multiple safe rollback points throughout the process, ensuring that problems can be addressed without jeopardising the entire modernisation effort.



[Annex C] Example of Phasing in Modernisation

One possible way to modernise products is the strangler-fig strategy.

The strangler-fig approach to modernisation is a gradual replacement strategy where new systems are built around existing outdated systems, slowly taking over their functions until the old system can be safely removed. This method involves creating new components that intercept and handle requests originally meant for the outdated system, progressively migrating functionality piece by piece.

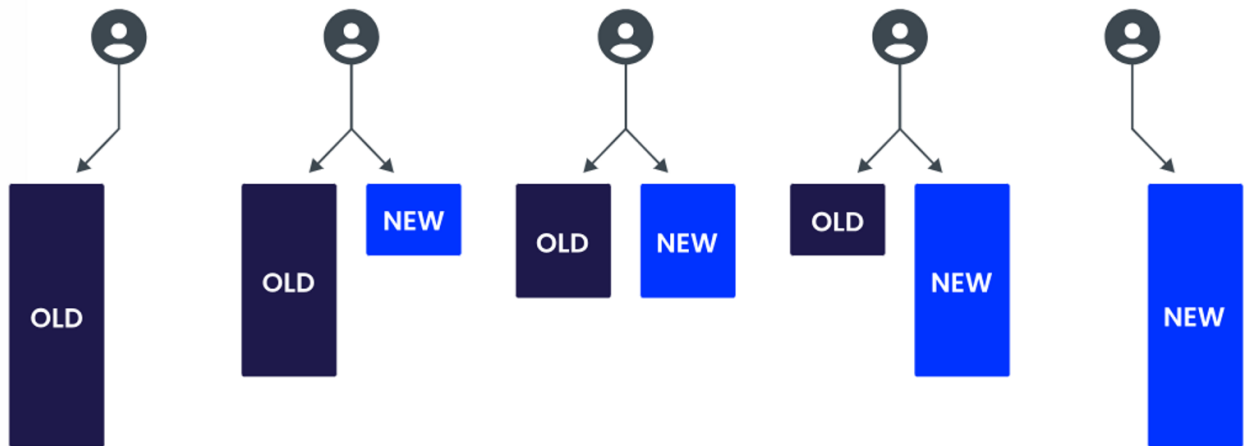


Figure 1: Example from [Strangler Fig Pattern - Switching the Switch](#)

This approach minimises risk and disruption compared to big-bang replacements, allowing organisations to maintain business continuity whilst systematically modernising their technology stack. The outdated system continues operating normally until the new system has proven itself capable of handling all required functions, at which point the old system is "strangled" and decommissioned.

[Annex D] Example of a Change Management Methodology

This methodology provides a **structured approach to Prepare, Manage, and Sustain changes across the product life cycle** — from concept to adoption. It ensures that modernisation is not only delivered but also adopted by people and embedded into agency culture.

When aligned with this methodology:

- **Prepare** (Scope, Stakeholder needs, Governance, Resources) builds *Awareness and Desire*.
- **Manage** (Communications, Training, Execution, Leadership intervention) strengthens *Knowledge and Ability*.
- **Sustain** (Reinforcement, Adoption tracking, Support structures) ensures *Reinforcement*.

Agencies can use this Change Management methodology to anticipate concerns, prepare the workforce, and secure real adoption — not just technical deployment.

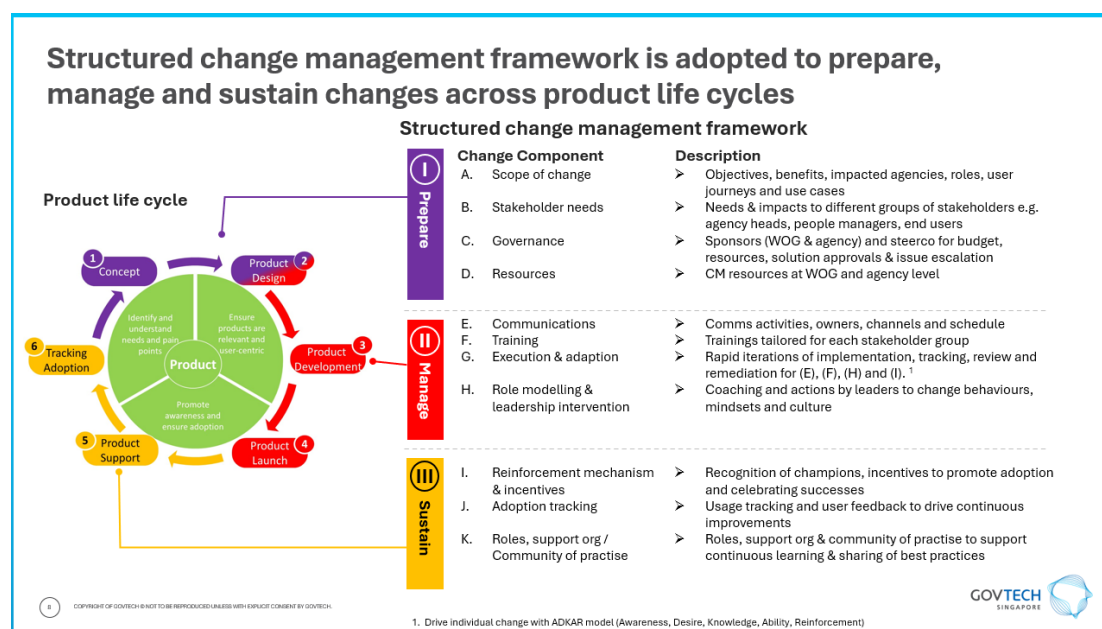
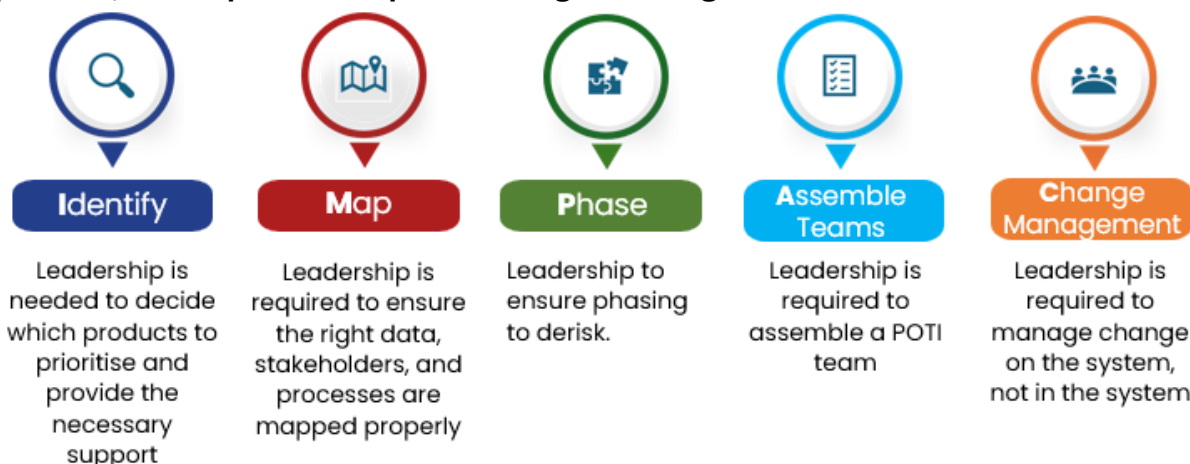


Figure 2: Structured Change Management methodology across the product life cycle by GovTech

[Annex E] Example of Top-Level Ownership Critical Decisions & Trade-Offs

Example of Top-Level Ownership decisions to be made throughout the IMPAC process, with top leadership facilitating each stage:



Example of Trade-Offs to be made:

- Priorities**
Are our products delivering on mission effectively and efficiently? What products we need to deprecate, what we do need to modernise first?
- Vision**
Do we do a tech refresh or take opportunity to streamline and simplify our policies and processes? What experience do we want to offer for our businesses and citizens?
- Product Outcomes**
Should we make the product function like the old product for familiarity or should we train our staff to do things better?
- Timing**
What outcomes do we need to achieve first? How do we sequence the modernisation to minimise disruption and maximise impact?
- Resourcing**
Do we allocate MMF to build an internal core tech team or continue to staff business operations?
- Capabilities**
What critical capabilities do we need to build? How do we transform the manpower we have?

g. Build-Buy

Which part of the product should we build or buy? To what extent do we in-source/co-source or continue to out-source?

h. Team Structure

How do we empower cross-functional team and maintain clear line of accountability?

Change Log

Version	Effective Date	Summary of Change	Updated By
1.0	6 Oct 2025	Creation of Document	Lisa Chin / TCD
1.1	6 Nov 2025	Document formatting improvements (page 23)	Charmaine Chia / TCD