

National Data Management Guidelines

Data Monetization



Table of Contents

1. Data Monetization Domain Introduction

- 1.1 Disclaimer
- 1.2 Domain Overview
- 1.3 Target Audience
- 1.4 Abbreviations and Glossary
- 1.5 Readability Guide
- 1.6 Stakeholders Involved
- 1.7 Key Success Factors
- 1.8 Compliance with National Data Standards
- 1.9 Domain Level Process Map

2. Data Monetization Assessment & Planning

- Overview
- 2.1 Data Monetization Vision
- 2.2 Data Monetization Capability Assessment
- 2.3 Data Products Identification & Prioritization
- 2.4 Data Monetization Delivery Model
- 2.5 Data Monetization Pricing Model
- 2.6 Go-To-Market Strategy
- 2.7 Data Monetization Roadmap

3. Data Monetization Design

- Overview
- 3.1 Data Products Proof of Concept
- 3.2. Data Products Architecture
- 3.3. Data Contracts

4. Data Monetization Implementation

- Overview
- 4.1 Data Monetization Function Activation
- 4.2. Data Product Development & Deployment

5. Data Monetization Performance Management

Overview

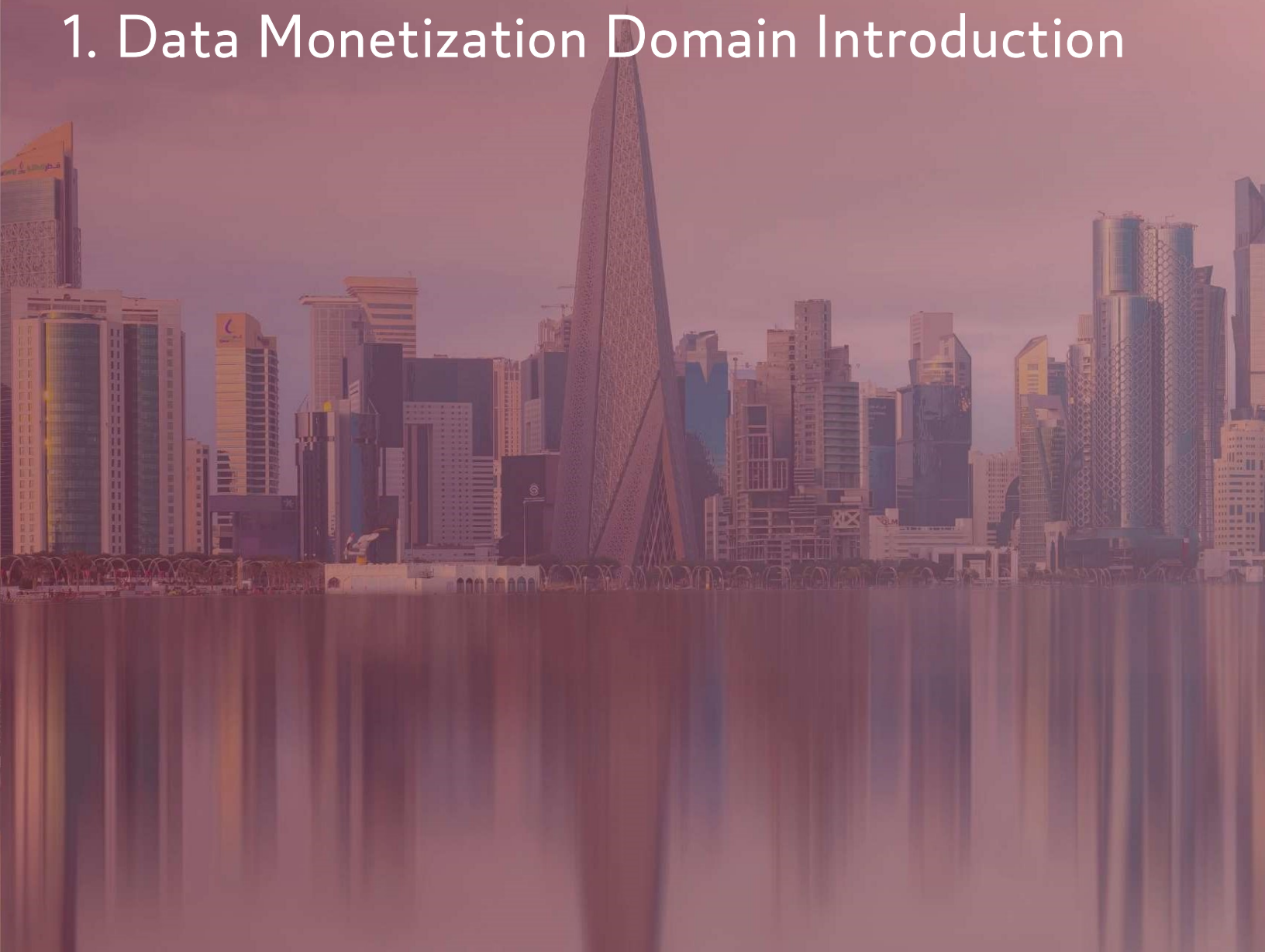
5.1 Data Products Monitoring & Maintenance

5.2 QDTI

6. Appendix

6.1 Templates and Frameworks

1. Data Monetization Domain Introduction



1.1 Disclaimer

This document presents the concept of Data Monetization from an academic and conceptual perspective. It does not include or endorse any specific frameworks, methodologies, or tools. Unlike other QDKCs, which may provide implementation-oriented guidance, this document is intended solely for awareness and foundational understanding.

The National Planning Council (NPC) will develop and deliver all frameworks, methodologies, and tools related to Data Monetization as part of the National Data Monetization Strategy. Once developed, these will be shared with all relevant government entities for adoption and implementation.

1.2 Domain Overview

The Data Monetization domain focuses on transforming data into a strategic economic and societal asset, unlocking new revenue streams, enhancing service delivery, and driving national innovation.

Through structured planning, design, execution, and continuous optimization, entities can responsibly monetize data while maintaining compliance with Qatar National Data Standards and safeguarding public trust.

This domain empowers entities to move beyond traditional data management by actively generating value through the development of data products, APIs, marketplaces, and insight services — creating tangible economic impact while enabling digital transformation.

Organized across four phases — Assessment & Planning, Design, Implementation, and Performance Management — the Data Monetization domain provides a holistic framework to evaluate, develop, launch, and sustain monetized data initiatives at scale.

By adhering to this framework, entities ensure their monetization efforts are not only strategically aligned and economically viable, but also sustainable, compliant, user-centric, and adaptable to evolving national priorities and regulatory landscapes.

Key Components of the Data Monetization Domain

2. Data Monetization Assessment & Planning

This phase establishes the strategic foundation for monetization by defining vision, evaluating capabilities, identifying high-value opportunities, and planning delivery pathways. It ensures that monetization efforts are aligned with national priorities, technically feasible, financially sustainable, and positioned to maximize the economic and societal value of the Entity's data assets.

- **Data Monetization Vision:** Defines the strategic intent for monetizing data, aligning with Entity goals and national development priorities.
- **Data Monetization Capability Assessment:** Assesses the Entity's current capabilities and identifies gaps across governance, infrastructure, quality, and integration readiness.
- **Data Products Identification & Prioritization:** Identifies, prioritizes, and plans monetizable data products based on value potential and strategic alignment.
- **Data Monetization Delivery Model:** Defines how data products will be delivered, whether through raw data access, APIs, dashboards, or marketplaces.
- **Data Monetization Pricing Model:** Establishes sustainable and scalable pricing models balancing value capture and accessibility.
- **Go-To-Market Strategy:** Plans user engagement, marketing, onboarding, and adoption campaigns to drive product usage and monetization.
- **Data Monetization Roadmap:** Outlines the structured implementation plan for delivering prioritized data products over time.

3. Data Monetization Design

This phase translates strategic intent into actionable designs and frameworks that ensure data products are scalable, interoperable, secure, and compliant. Through technical architecture development, trust validation (POCs), and contractual governance, the Entity creates the operational blueprint for sustainable and trustworthy data commercialization.

- **Data Products Proof of Concept:** Validates the technical feasibility, trustworthiness, and user value of data products prior to full investment.
- **Data Products Architecture:** Designs scalable, secure, and interoperable technical foundations for data product delivery and management.
- **Data Contracts:** Establishes formal, standardized agreements governing data access, exchange, security, privacy, and lifecycle terms.

4. Data Monetization Implementation

This phase operationalizes the strategy by building the necessary organizational, technical, and operational capabilities to launch and manage monetized data products. It ensures that products move from blueprint to production through a controlled process of technical development, quality validation (QDTI), secure deployment, and activation of ongoing monetization workflows.

- **Data Monetization Function Activation:** Establishes enabling systems (e.g., CRM, billing, licensing) and mobilizes teams to operate monetization programs.
- **Data Product Development & Deployment:** Develops, tests (including QDTI trust validation), and deploys data products into live production environments, ensuring technical excellence and governance compliance.

5. Data Monetization Performance Management

This phase focuses on sustaining, optimizing, and enhancing the performance of monetization initiatives through continuous monitoring, feedback, and improvement. It ensures that monetized products deliver ongoing value, maintain trust and compliance standards, and adapt over time to user needs, market changes, and regulatory evolution, enabling long-term value realization.

- **Data Products Monitoring & Maintenance:** Ongoing oversight of data products to ensure performance, security, and compliance with monetization agreements.
- **QDTI:** Evaluating the Entity's adherence to the National Data Monetization Standards as part of the broader QDTI framework.

1.3 Target Audience

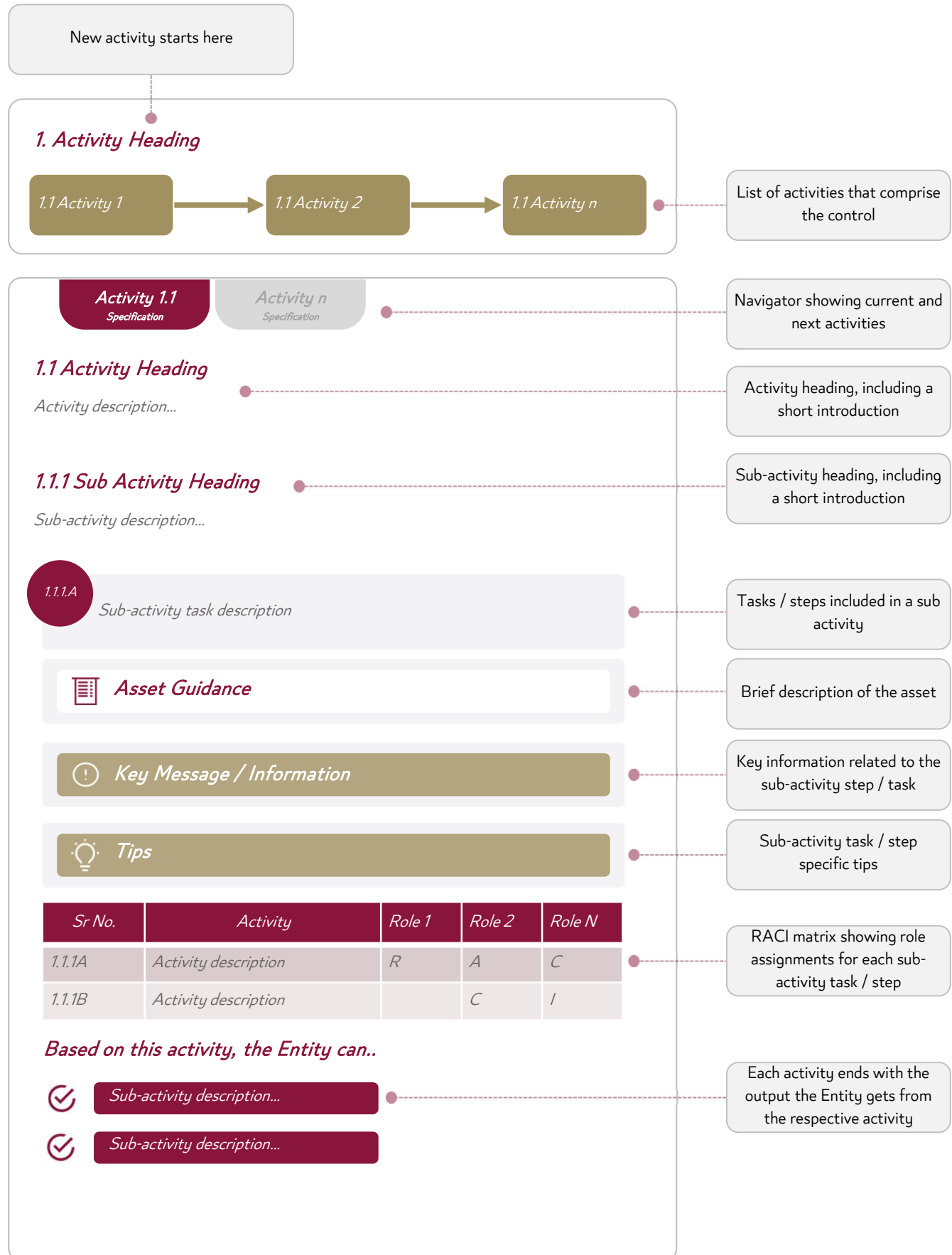
This handbook is intended for the Data Management and Security Director. It is also suitable for team leads and other individuals deemed responsible for data monetization. The handbook serves as a resource, offering practical guidance to help establish the essential components of the Entity's data management program, setting the foundation for its data management journey.

1.4 Abbreviations and Glossary

Abbreviation/Term	Definition / Long Name
Application Programming Interface (API)	A set of protocols and tools that allows different software applications to communicate and share data.
Pricing Model	A framework that defines how a data product or service is priced, such as subscription, pay-per-use, etc.
Delivery Model	Describes the method or mechanism through which a data product or service is delivered to users.
Go-To-Market (GTM)	A comprehensive strategy used to launch a data product or service in the market.
SME	Subject Matter Expert
QDKC	Qatar Data Knowledge Case
Data Domain	A data domain is a distinct, well-defined subset of an Entity's data that shares common characteristics, such as its nature or the systems that store it. Data domains play a crucial role in effective data management by enabling organizations to define data ownership, establish governance policies, and implement data quality controls tailored to each domain.
DGO	National Data Governance Office
Data Organization	Data organization refers to a data sector in the case of a large-scale data management program and a data office for small and medium scale data management programs
Proof of Concept (POC)	A small-scale experiment to validate the feasibility of a data product or idea.
Data as a Service (DaaS)	A cloud-based service model that provides data on-demand to users.
Mobility-as-a-Service (MaaS)	A transportation service model offering users integrated, on-demand access to transportation services.
Service-Level Agreements (SLAs)	Contracts that define the level of service expected from a service provider.
Return on Investment (ROI)	A performance measure used to evaluate the profitability of investments.
Product Effort-Value Matrix	A tool for evaluating the value and effort required for the development and deployment of data products.
Insight-as-a-Service	A service model that provides business insights on-demand through data analytics.
Rough Order of Magnitude (ROM)	An estimate of the potential cost or effort required for a project, usually within a broad range.
MVP (Minimum Viable Product)	A product version with just enough features to satisfy early adopters and gather feedback.

Abbreviation/Term	Definition / Long Name
Secure File Transfer Protocol (SFTP)	A standard network protocol used to transfer files from one host to another.
Business Intelligence (BI)	Technologies, processes, and tools that help analyze and visualize business data.
Freemium, Subscription, Pay-Per-Use	Different pricing models where products are provided for free with limited features, on a subscription basis, or based on usage.
Non-Governmental Organizations (NGOs)	Non-profit groups that operate independently of government.
SMART (Specific, Measurable, Achievable, Relevant, Time-bound)	A framework for setting clear, actionable goals with defined metrics and timelines.
UTM-tagged	A method of tracking the source of website traffic via unique parameters in URLs (Urchin Tracking Module).
ETL/ELT	Extract, Transform, Load (ETL) and Extract, Load, Transform (ELT) - Data integration methods for preparing data for analysis.
High-Level Design (HLD)	The high-level, abstract design of a system, focusing on the system's architecture and major components.
Low-Level Design (LLD)	A detailed design that defines the system components, data structures, and individual functionalities.
Personally Identifiable Information (PII)	Any information that can be used to identify an individual, such as name, address, or social security number.
OAuth-based Authentication	A secure authorization framework that allows third-party applications to access user data without exposing user credentials.
Data Product Owner	The person responsible for the overall success of a data product. They oversee the product's development, ensure alignment with business objectives, and manage stakeholder engagement and feedback throughout the product lifecycle.
Cost Recovery	Cost Recovery refers to the practice of charging fees to offset the costs incurred in producing, managing, and delivering a data product or service. It ensures that operational, infrastructure, and maintenance expenses are sustainably covered without necessarily generating profit.

1.5 Readability Guide



Note: Should an activity only contain one sub activity, this sub activity will be in the format of "1.1.A" instead of "1.1.1.A"

1.6 Stakeholders Involved

Below are the stakeholders and actors who contribute to the different processes outlined in the upcoming chapters.

Stakeholder	Role Description
Data Governance Office (DGO)	A Data Governance Office (DGO) is the centralized national body in the National Planning Council responsible for facilitating and coordinating data governance efforts within all associated government entities. It serves as the principal body overseeing the management of data as a strategic asset, ensuring that data-related processes align with the national objectives and comply with relevant policies and regulations.
Data Management & Security Director	The Data Management and Security Director is responsible for leading and overseeing the development and implementation of the data agenda within the government entity, ensuring alignment with strategic objectives and compliance with security regulations. This role promotes best practices in data management while ensuring robust security measures are in place to safeguard the Entity's data assets. The director bridges business and IT to support data-driven decision-making, elevate data as a strategic asset, and ensure data is managed and secured across its lifecycle. Additionally, the director fosters a culture of data security and literacy within the entity, supervises the value realization agenda for data, and ensures alignment with national security policies and standards, as well as the vision of executive leadership.
Data Management and Governance Section Head	The Data Management and Governance Section Head is responsible for leading, managing, and overseeing both data management and governance initiatives within the government entity. This role focuses on establishing and implementing best practices to ensure data governance and management align with the Entity's business requirements, strategic objectives, and compliance with national data standards. The Section Head collaborates with various teams across the Entity to develop and operationalize frameworks, policies, and processes for data governance and management. This includes improving data quality, accessibility, and protection, while also ensuring data lifecycle management practices are in place. The Section Head fosters a data-driven culture and ensures that data is treated as a strategic asset to drive decision-making and operational excellence.

Stakeholder	Role Description
Data Architecture and Analytics Section Head	The Data Architecture and Analytics Section Head oversees the data architecture and analytics agenda/initiatives within the government entity, ensuring alignment with strategic objectives and national data management standards. This role is responsible for designing and maintaining a secure, scalable data infrastructure that supports data integration, management, and accessibility, as well as Overseeing data modeling, database design, and system integration, developing advanced analytics, data visualization, and reporting solutions to enable informed decision-making. The Section Head collaborates with departments to identify key performance indicators (KPIs), analyze trends, and provide actionable insights that optimize processes, enhance service delivery, and support policy-making. By combining expertise in data architecture and analytics, this role drives a culture of data-driven innovation and operational excellence across the Entity.
Data Governance Specialist	The Data Governance Specialist oversees the frameworks, policies, and procedures of governance and ensures their implementation to guarantee the effective management and utilization of data and resources within the Entity. This role includes developing and maintaining governance structures, leading compliance initiatives, and fostering a culture of accountability and transparency.
Data Quality Specialist	The Data Quality Specialist is responsible for overseeing data quality management processes within the entity. This role involves implementing data quality standards, monitoring data quality, and ensuring data consistency and effective usage across the Entity. The Data Quality Specialist collaborates with various teams to address data issues and enhance overall data quality.
Data Strategy Expert	The Data Strategy Expert is tasked with developing and promoting a data management and analytics strategy to achieve broad acceptance across the government entity. The expert identifies innovative ways to utilize data to achieve strategic objectives and enhance effective decision-making. Additionally, they introduce frameworks and practices to deliver accurate, reliable, and actionable data insights.
Data Owners	Data Owners are responsible for their department's (or sub-department's) data and its quality throughout its lifecycle across systems and ownership boundaries. They are accountable for supporting, guiding, reviewing, correcting, and/or approving the work of the data stewards managing their data to ensure their datasets are maintained to the highest possible standards.
Data Stewards	Data Stewards are responsible for identifying datasets related to relevant subdomains for inventory purposes and monitoring data quality metrics within and across entities. They are nominated as a business representative with a deep understanding of a specific data subdomain and can identify functional data requirements and needs.

Stakeholder	Role Description
Metadata Specialist	The Metadata Specialist is responsible for managing the Entity's data catalog and metadata assets to enhance data visibility, accessibility, and governance. This role focuses on developing and maintaining metadata standards, ensuring metadata quality, and supporting integration with the data catalog. The specialist plays a key role in enabling data discovery, supporting data-driven initiatives, and ensuring alignment with the Entity's data governance and management strategies.
Data Compliance Specialist	The Data Compliance Specialist ensures the Entity's data practices comply with national regulations, organizational policies, and international standards. This role manages data privacy, security, and governance compliance, conducts audits, mitigates non-compliance risks, and promotes awareness of regulatory requirements. The specialist works with stakeholders to embed compliance controls into data processes, ensuring adherence to legal and ethical standards.
Data Architect	The Data Architect is responsible for designing and implementing the Entity's overall data architecture, including logical and physical data models. This involves creating secure, scalable data structures that align with business needs, security requirements, and national and international data management and governance standards. The Architect ensures proper data integration, quality, and accessibility across systems, working with teams to maintain consistency and accuracy, and support data-driven decision-making to optimize data as a strategic asset.
Data Visualization Officer	The Data Visualization Officer is responsible for building dashboards and visual reports based on data, which are used to provide insights to leadership for decision-making.
Data Engineer	The Data Engineer transforms data into a format that can be easily analyzed and utilized. The Data Engineer works closely with other stakeholders to ensure data quality is maintained and implemented systems adhere to the highest possible standards.
Business Data Analyst	The Business Data Analyst is responsible for analyzing data from multiple sources to provide actionable insights that drive strategic and operational decisions within the Entity. This role involves designing reports and dashboards to effectively communicate findings, collaborating with cross-functional teams to ensure data accuracy and relevance, and aligning analytics with business objectives. The Analyst plays a key role in enabling data-driven decision-making and identifying opportunities to improve processes and outcomes.

1.7 Key Success Factors

Strategic Alignment and Executive Support: Ensure that data monetization initiatives are integrated with the organization's overarching strategy and have the backing of top leadership. This alignment facilitates resource allocation and reinforces the importance of data-driven value creation.

Advanced Technological Infrastructure: Invest in scalable and secure technological solutions, including cloud computing and advanced analytics platforms. Such infrastructure supports efficient data processing, storage, and analysis, enabling the transformation of raw data into valuable insights.

Ethical and Regulatory Compliance: Develop and enforce policies that ensure data monetization practices adhere to ethical standards and comply with evolving regulations. This commitment safeguards the organization's reputation and fosters trust among stakeholders.

Market Awareness and Customer-Centric Approach: Stay attuned to market trends and customer needs to identify opportunities where data-driven products or services can offer significant value. A customer-centric approach ensures that monetization efforts resonate with the target audience and meet genuine demands.

Innovative Business Models: Explore and adopt diverse monetization strategies, such as data-as-a-service or insights-as-a-service. Flexibility in business models allows the organization to capitalize on various revenue streams and adapt to market dynamics.

Collaborative Ecosystem Engagement: Foster partnerships with other organizations, technology providers, and stakeholders to enhance data value through shared insights and resources. Collaborative ecosystems can lead to innovative solutions and expanded market reach.

Continuous Performance Monitoring and Adaptation: Establish metrics to regularly assess the effectiveness of data monetization initiatives. Continuous monitoring and a willingness to adapt strategies based on performance data ensure sustained success and relevance in the market.

The following chapters will provide detailed guidance in each of these areas, offering actionable steps to establish robust data monetization practices and drive data consistency, accuracy, and operational efficiency within the Entity.

1.8 Compliance with National Data Standards

National Data Standards		QDKC
Control	Specification	Activity
DM.1.1 Data Monetization Assessment & Planning	DM.1.1.1 Data Monetization Vision F	2.1 Data Monetization Vision
	DM.1.1.2 Data Monetization Capability Assessment F	2.2 Data Monetization Capability Assessment
	DM.1.1.3 Data Products Identification & Prioritization F	2.3 Data Products Identification & Prioritization
	DM.1.1.4 Data Monetization Delivery Model A	2.4 Data Monetization Delivery Model
	DM.1.1.5 Data Monetization Pricing Model A	2.5 Data Monetization Pricing Model
	DM.1.1.6 Go-To-Market Strategy A	2.6 Go-To-Market Strategy
	DM.1.1.7 Data Monetization Roadmap A	2.7 Data Monetization Roadmap
DM.2.1 Data Monetization Design	DM.2.1.1 Data Products Proof of Concept A	3.1 Data Products Proof of Concept
	DM.2.1.2 Data Product Architecture A	3.2 Data Product Architecture
	DM.2.1.3 Data Contracts A	3.3 Data Contracts
DM.2.2 Data Monetization Implementation	DM.2.2.1 Data Monetization Function Activation VA	4.1 Data Monetization Function Activation
	DM.2.2.2 Data Product Development & Deployment VA	4.2 Data Product Development & Deployment
DM.3.1 Data Monetization Performance Management	DM.3.1.1 Data Products Monitoring & Maintenance VA	5.1 Data Products Monitoring & Maintenance

Legend: Capability Level



Foundational

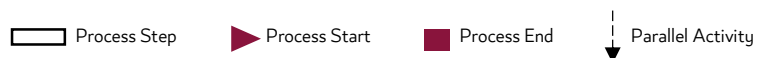
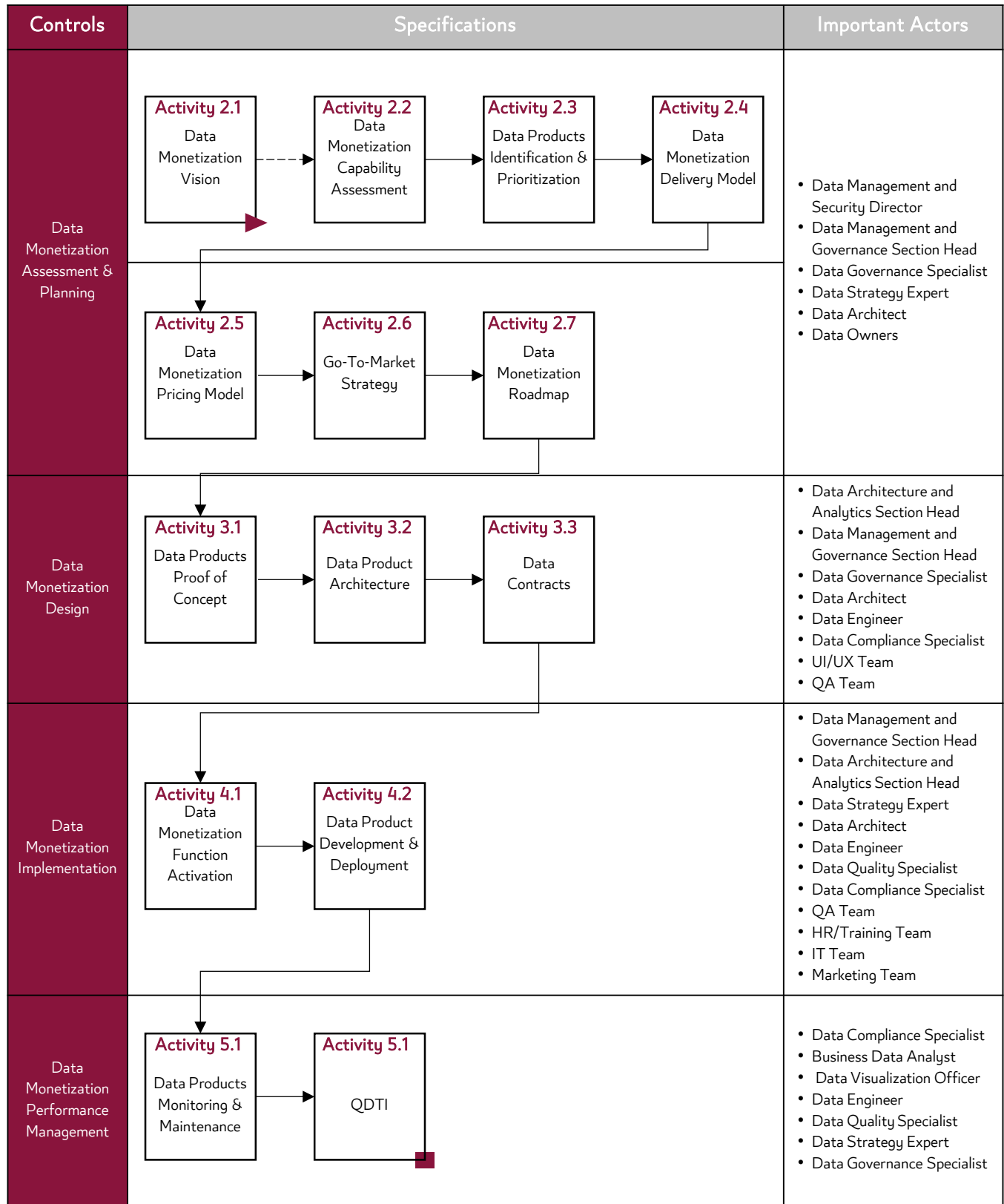


Advanced



Very Advanced

1.9 Domain Level Process Map



2. Data Monetization Assessment & Planning



2. Data Monetization Assessment & Planning Overview

What is Data Monetization Assessment & Planning and why does the Entity need it?

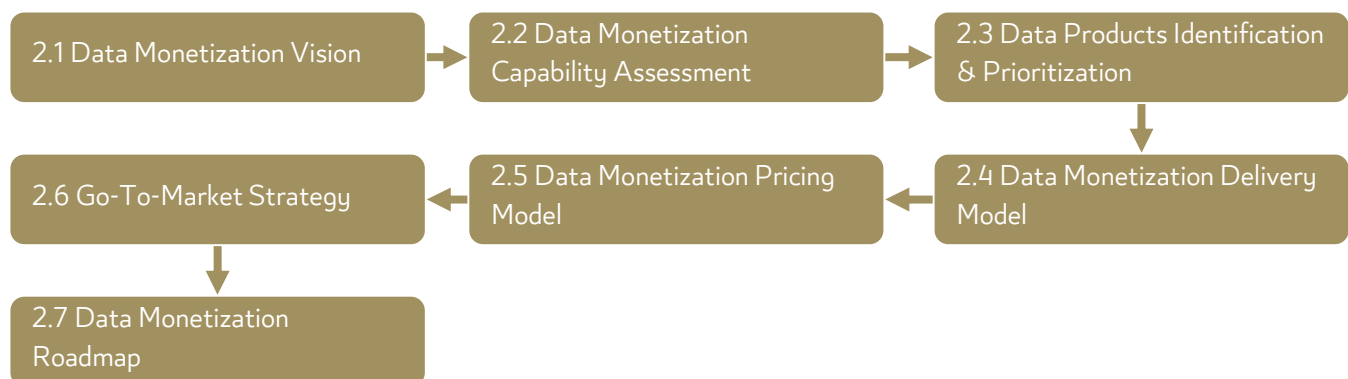
The Data Monetization Assessment and Planning section provides the structured foundation for identifying, evaluating, prioritizing, and preparing data products for monetization. It ensures that all data monetization activities are strategically aligned, operationally feasible, legally compliant, and sequenced for sustainable execution.

This section guides the Entity through defining a monetization vision, assessing capabilities, identifying and prioritizing data products, selecting delivery and pricing models, developing a go-to-market strategy, and building a comprehensive monetization roadmap. Each activity is designed to ensure that decisions are evidence-based, stakeholder-driven, and linked to broader strategic objectives.

Section 2 is comprised of seven key activities:

- **2.1 Data Monetization Vision:** Define the strategic objectives and value drivers for data monetization.
- **2.2 Data Monetization Capability Assessment:** Assess organizational, technical, and infrastructure readiness to support monetization efforts.
- **2.3 Data Products Identification and Prioritization:** Identify high-value datasets and prioritize them based on monetization potential and feasibility.
- **2.4 Data Monetization Delivery Model:** Select appropriate mechanisms for delivering data products to users based on product type and user needs.
- **2.5 Data Monetization Pricing Model:** Define pricing strategies that support revenue generation, cost recovery, public value, and innovation enablement.
- **2.6 Go-To-Market Strategy:** Develop outreach and engagement plans to onboard users and drive adoption of data products.
- **2.7 Data Monetization Roadmap:** Sequence and plan all monetization initiatives, balancing quick wins with strategic enablers to ensure sustainable growth.

By completing this section, the Entity ensures that its data monetization efforts are cohesive, strategic, actionable, and positioned for successful operationalization.



Guiding Principles for Data Monetization Assessment & Planning

1. **Data as a Strategic Asset:** Treat data as a valuable economic resource, ensuring its monetization aligns with the Entity's long-term vision and national data policies.
2. **Holistic Assessment:** Conduct a comprehensive, connected assessment of data value, readiness, usability, and impact potential — from maturity and delivery to user engagement and pricing.
3. **Audience Driven Design:** Build monetization strategies around real user needs and use cases. Prioritize accessibility, ease of onboarding, and clarity of value for public, private, and academic stakeholders.
4. **Standardized Evaluation Framework:** Use consistent and objective criteria to assess the feasibility, value, and prioritization of data products for monetization.
5. **Compliance and Ethics by Design:** Embed compliance with data protection, licensing, and ethical data sharing principles across every stage of monetization, especially in delivery and pricing.
6. **Sustainable and Inclusive Models:** Develop delivery and pricing models that enable both revenue generation and broad access — balancing financial sustainability with public benefit and ecosystem enablement.
7. **Collaboration and Ecosystem Thinking:** View monetization as a platform for enabling cross-agency, public-private, and civic collaboration. Identify partnership opportunities to amplify adoption and innovation.
8. **Iterative Improvement:** Continuously refine monetization strategies using performance metrics, user feedback, and regulatory developments to ensure ongoing relevance and effectiveness.

2.1 Data Monetization Vision

The Data Monetization Vision defines the Entity's strategic intent for transforming data into a sustainable economic and innovation asset. It establishes a unified direction for how data monetization will contribute to the Entity's broader mission, business goals, and Qatar's national development objectives, while ensuring adherence to regulatory, ethical, and public trust requirements.

This activity provides the strategic anchor for all subsequent monetization efforts, ensuring that objectives are clear, aligned with national priorities, practically feasible, and framed within a responsible and value-driven approach to data use. A strong vision ensures that future assessments, product designs, delivery strategies, and operational plans are consistently aligned and purpose-driven.

At a minimum, this activity includes defining monetization objectives, aligning with strategic and regulatory frameworks, confirming feasibility through preliminary assessment, formalizing the vision statement, and preparing for communication and institutional adoption.

Process – Data Monetization Vision

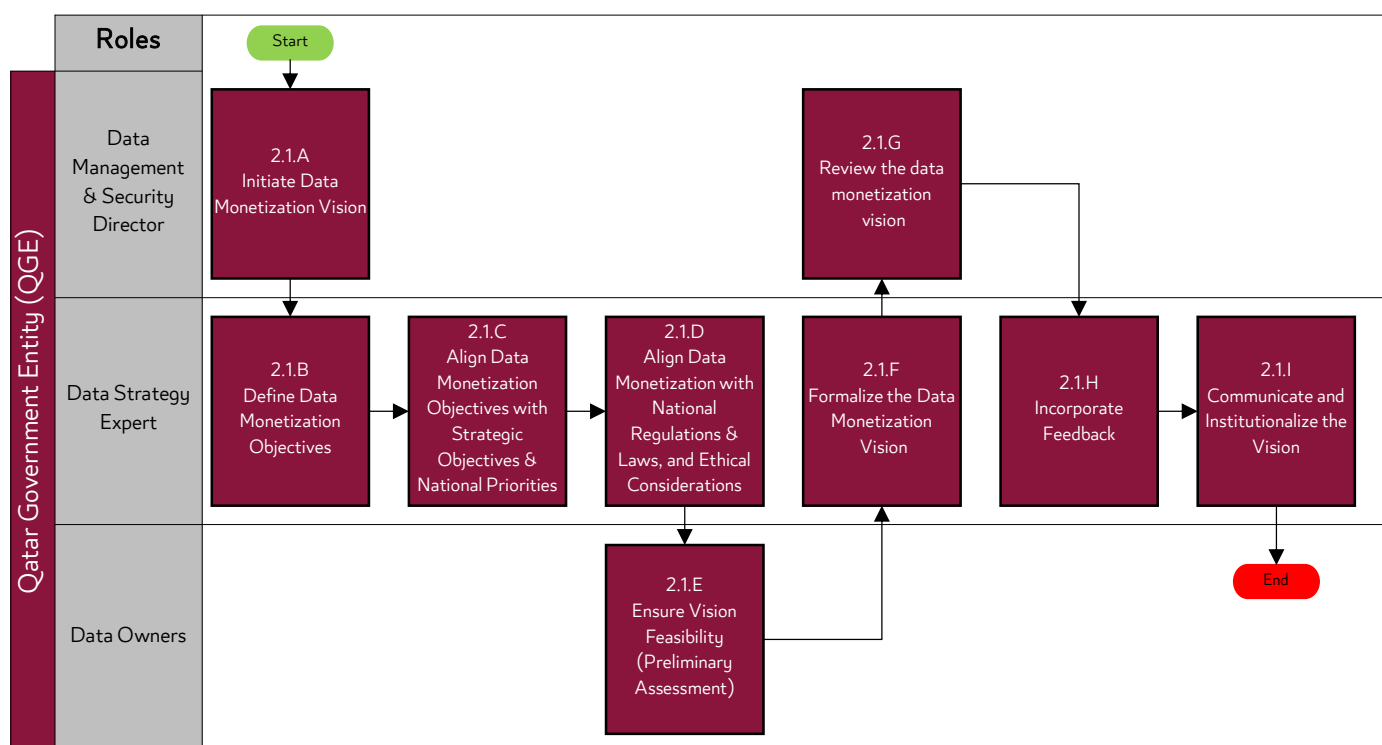


Figure 1: Data Monetization Vision Process Map

Legend: Process Step (Maroon box), Decision (Maroon diamond), Process Start (Green oval), Process End (Red oval), Document (White box with border), Off-Page Reference (Maroon box with border)

2.1.A

Initiate Data Monetization Vision: The Data Management & Security Director initiates the development of the data monetization vision by defining its scope, objectives, and expected outcomes in alignment with the entity's data strategy. A Data Strategy Expert is assigned to coordinate this activity, ensuring alignment with the national data standards. The Expert develops a high-level plan to guide the process, ensuring the vision is comprehensive, actionable, structured, and efficient. The plan also ensures alignment with the entity's broader mission and economic goals, while thoughtfully addressing ethical considerations.

2.1.B

Define Data Monetization Objectives: The Entity must define clear economic, operational, and public value objectives that data monetization will support. These monetization objectives must align with the Entity's long-term goals, mission, and national policies. The objectives guide downstream decisions on product design, pricing, delivery, and engagement.

i. Set Monetization Objectives:

- The Data Strategy Expert, in consultation with executive stakeholders, must define the overarching objectives for data monetization. These should reflect how data monetization will contribute to the Entity's strategic vision, and may include:
 - **Revenue Generation:** Creating new income streams through commercialized data products or services.
 - **Operational Efficiency:** Using data to streamline processes, improve decision-making, and reduce costs.
 - **Innovation and Growth:** Enabling new business models, partnerships, and data-driven services.
 - **Public Value Creation:** Enhancing transparency, policy impact, and stakeholder engagement through open or shared data.

ii. Define Monetization Strategy Types:

- The Entity should determine whether its monetization approach will be:
 - **Direct:** Generating revenue through data products, APIs, or paid access.
 - **Indirect:** Driving economic or public value through improved services, operational savings, or ecosystem enablement.

iii. Identify and Categorize Monetization Levers:

- Categorize the types of value the Entity aims to unlock through data monetization into two domains:
 - **Internal Levers:** Focused on internal performance, such as cost reduction, improved resource utilization, and informed decision-making.
 - **External Levers:** Focused on creating value for external stakeholders, such as monetizable APIs, partnerships with the private sector, or data-sharing for research and innovation.

2.1.C
(1/2)

Align Data Monetization Objectives with Strategic Objectives & National Priorities: The Data Strategy Expert must ensure the monetization objectives defined in 2.1.B are aligned with the Entity's internal strategic objectives and national development priorities. This alignment ensures that monetization is not treated as an isolated initiative, but as a mechanism for achieving the Entity's broader impact goals.

i. Align with Strategic Objectives:

- To operationalize alignment, the Data Strategy Expert can:
 - **Embed Monetization in the Core Mission:** Support priorities such as customer experience, service efficiency, and innovation.
 - **Leverage Data for Decision-Making:** Use monetized data to enhance efficiency, reduce costs, and identify new opportunities.

2.1.C
Cont.
(2/2)

- **Ensure Scalable & Sustainable Revenue:** Design revenue models that are recurring, impactful, and compliant.
- **Drive Cross-Functional Integration:** Foster collaboration between business units through shared data goals and products.

ii. **Align with National Priorities:**

- To ensure national alignment, the Data Strategy Expert should ensure the data monetization vision is consistent with the objectives of, but not limited to:
 - Qatar National Vision 2030
 - Qatar Digital Agenda
 - The Third National Development Strategy
 - Any relevant sectoral strategies specific to the Entity's domain

2.1.D

Align Data Monetization with National Regulations & Laws, and Ethical Considerations: The Data Strategy Expert must ensure the monetization vision complies with regulatory requirements and reflects ethical data use principles.

i. **Regulatory Compliance:**

- Align with Qatar's National Data Policy, Data Standards, and Data Protection Laws.
- Ensure adherence to:
 - Data privacy and consent
 - Security protocols.
 - Controlled data sharing and licensing
 - Cross-border data access (if applicable)

ii. **Ethical Monetization:**

- Safeguard against misuse or exploitation of sensitive data.
- Balance commercial opportunities with public interest and social responsibility.
- Promote transparency and fair use of public sector data.

iii. **Sustainable & Trustworthy Practices:**

- Ensure data sovereignty and local control over sensitive assets.
- Reinforce public trust through responsible data governance and stewardship.

2.1.E
(1/2)

Ensure Vision Feasibility (Preliminary Assessment): Before finalizing the vision, the Entity must conduct a preliminary review to ensure that the vision is directionally feasible based on existing knowledge of data and infrastructure maturity.

- The Data Strategy Expert should engage Data Owners, Data Architect and Data Compliance Specialist to gather high-level input on:
 - General data availability (e.g., do relevant datasets exist?)
 - Infrastructure enablers or constraints (e.g., API readiness, platforms)
 - Known legal, privacy, or governance barriers

2.1.E
Cont.
(2/2)

- This step is not a formal assessment, but rather a reality check to:
 - Flag any immediate risks or assumptions
 - Inform scope and ambition of the vision
 - Set expectations ahead of the structured assessments
- The insights gathered here should guide phrasing in the vision and inform the planning of assessments.

2.1.F

Formalize the Data Monetization Vision: The Data Strategy Expert must formalize a clear and actionable vision statement that reflects strategic, ethical, and operational considerations.

To craft a strong vision, the following guidelines should be followed:

- **Make it Concise and Inspiring:** Use simple, motivating language that communicates ambition and purpose.
- **Make it Forward-Looking:** Focus on long-term growth, innovation, and value creation.
- **Make it Realistic:** Ensure alignment with the preliminary assessment of current capabilities, maturity, and resources.
- **Ensure Strategic Alignment:** Embed national priorities and internal goals.
- **Highlight Stakeholder Value:** Show how data monetization creates benefits for both internal operations and external partners.

Once drafted, the vision should be circulated to key stakeholders (e.g., Data Management & Security Director, Executive Leadership) for review.

2.1.G

Review the Data Monetization Vision: The Data Management & Security Director must review the vision statement and provide feedback.

- Ensure alignment with the Entity's broader digital, financial, and operational goals.
- Validate that the vision is appropriately ambitious yet achievable.
- Confirm the vision adheres to regulatory, ethical, and national strategic considerations.
- Provide feedback for improvement where necessary.

2.1.H

Incorporate Feedback: The Data Strategy Expert must incorporate input received from the review process into the final version of the data monetization vision.

- Refine the vision based on stakeholder input.
- Reconfirm that the final version reflects cross-functional alignment.
- Validate that changes are traceable and transparent.

2.1.I
(1/2)

Communicate and Institutionalize the Vision: Once finalized, the Data Monetization Vision must be socialized across the Entity and embedded into strategic and operational frameworks.

2.1.I
Cont.
(2/2)i. **Internal Communication Planning:**

- Disseminate the vision via internal channels (e.g., intranet, awareness campaigns, briefings).
- Promote understanding among key business, technical, and governance teams.

ii. **Governance and Strategy Integration:**

- Embed the vision within core frameworks such as:
 - The Entity's Data Strategy
 - Data Product Charters
 - The Data Monetization Roadmap
 - Data Governance and Funding Models

iii. **Executive Endorsement:**

- Secure formal approval or endorsement from the executive leadership to drive long-term alignment and organizational buy-in.

RACI Matrix – Data Monetization Vision*Indicative*

Sr No.	Activity	Data Management and Security Director	Data Management and Governance Section Head	Data Strategy Expert	Data Governance Specialist	Data Owner	Data Compliance Specialist	Data Architect
2.1.A	Initiate Data Monetization Vision	A/R	I	I	I	I	I	
2.1.B	Define Data Monetization Objectives	C	A	R				
2.1.C	Align Data Monetization Objectives with Strategic Objectives & National Priorities		A	R	C	C		
2.1.D	Align Data Monetization with National Regulations & Laws, and Ethical Considerations		A	R			C	
2.1.E	Ensure Vision Feasibility (Preliminary Assessment)	I	A	C	C	R	C	C
2.1.F	Formalize the Data Monetization Vision		A	R				
2.1.G	Review the data monetization vision	A/R	I	I				
2.1.H	Incorporate Feedback	I	A	R	C			
2.1.I	Communicate and Institutionalize the Vision	I	A	R	C			

RACI Matrix Legend: **R:** Responsible **A:** Accountable **C:** Consulted **I:** Informed

Based on this Activity, the Entity can



Develop Data Monetization Vision

2.2 Data Monetization Capability Assessment

The Entity shall conduct a Data Monetization Capability Assessment to evaluate its readiness to monetize data assets effectively and sustainably. This includes assessing the maturity of internal data management practices and reviewing the current-state data and analytics infrastructure that will support productization and delivery. The assessment identifies both enablers and barriers across people, processes, and platforms, and helps define what must be addressed to unlock monetization opportunities. This activity ensures that monetization efforts are compliant, strategic, and grounded in operational reality.

2.2.1 Data Management Maturity Report

This step guides the Entity to retrieve or refresh its latest data management maturity assessment report in line with the National Data Standards. This report forms the basis for evaluating the Entity's readiness to monetize data by identifying strengths, weaknesses, and gaps across all 12 data management domains.

Process – Data Management Maturity Assessment

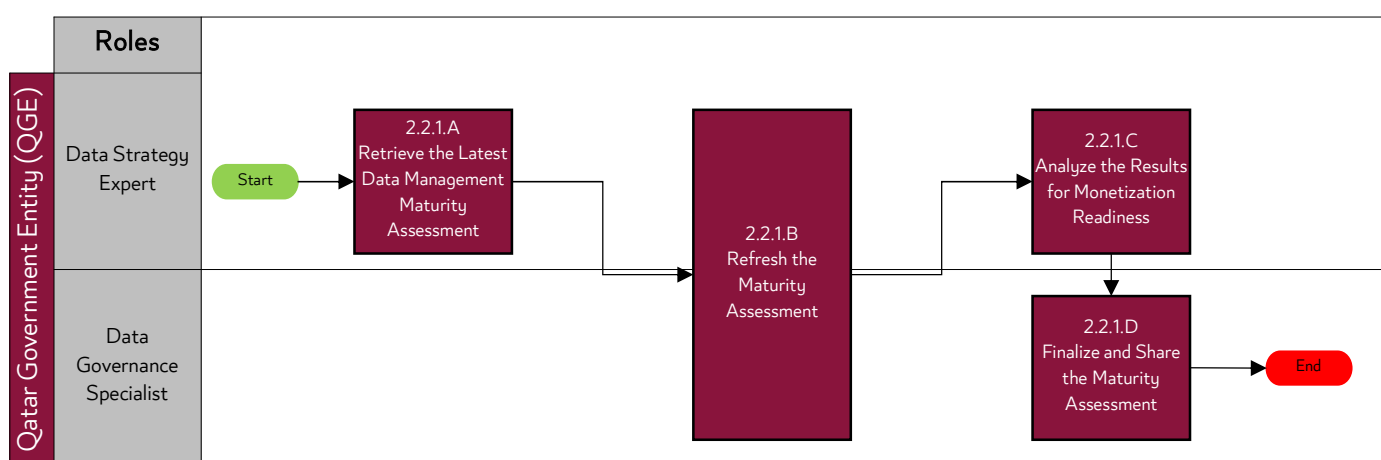


Figure 2: Data Monetization Capability Assessment Process Map

Legend: Process Step Decision Process Start Process End Document Off-Page Reference

2.2.1.A

Retrieve the Latest Data Management Maturity Assessment: The Data Strategy Expert must retrieve its most recent data maturity assessment report to establish a baseline understanding of current capabilities across the national data management domains.

i. Request Existing Assessment Report:

- Engage with the Data Governance Specialist, or equivalent function, to obtain the most recent maturity assessment report.
- Confirm the report covers all 12 domains outlined in the National Data Standards.

ii. Validate Currency of the Assessment:

- Confirm the report was conducted within the last 12 months and reflects the up-to-date current state of data maturity across people, process, and tools / technology.
- If the report is outdated or significant changes have occurred since its publication, a refresh is required.
- Review whether prior recommendations have been addressed or remain open for action.

2.2.1.B

Refresh the Maturity Assessment (If Required): If the existing maturity assessment is outdated or missing, the Entity must conduct a full reassessment using the **Data Management Current Maturity Assessment Framework**.

i. **Initiate the Refresh Process:**

- Trigger the refresh process if the existing data management current maturity report is older than 12 months or no longer relevant.

ii. **Reference the Data Management Strategy & Governance Domain Guidelines:**

- Follow the methodology outlined in Activity 2.2 – Current State Capabilities Maturity Assessment within the Data Management Strategy & Governance domain guidelines.
- This includes stakeholder orientation, performing the assessment and documenting the results.

2.2.1.C

Analyze the Results for Monetization Readiness: The Entity must review the assessment results to understand current strengths and gaps that will influence its ability to monetize data.

i. **Review Maturity Scores Across Domains:**

- Review results using the 1–5 maturity scale.
- Identify areas of strong performance that could serve as enablers.
- Identify low-performing domains that pose risks to monetization.

ii. **Document Key Gaps and Enablers:**

- Highlight critical gaps that could impede monetization (e.g., API access control gaps, lack of data lineage documentation).
- Identify quick wins, such as available data assets, capable platforms, or well-documented metadata, that can be leveraged early.

2.2.1.D

Finalize and Share the Maturity Assessment with DGO: If the maturity assessment was refreshed, then the Entity must consolidate the findings and formally share the updated assessment with the National Data Governance Office for alignment.

i. **Consolidate the Assessment Report.** Prepare a structured summary including:

- Domain-level maturity scores
- Capability heatmap
- Key strengths and pain points
- Recommendations aligned to data monetization goals

ii. **Submit to the DGO:**

- Share the report with the National Data Governance Office for review and guidance for further improvements.
- Incorporate any feedback received and retain a final copy for future planning.

RACI Matrix – Data Management Maturity Assessment

Indicative

Sr No.	Activity	DGO	Data Management and Security Director	Data Management and Governance Section Head	Data Strategy Expert	Data Governance Specialist	Data Owner
2.2.1.A	Retrieve the Latest Data Management Maturity Assessment		A	C	R	C	
2.2.1.B	Refresh the Maturity Assessment (If Required)		A	C	R	R	C
2.2.1.C	Analyze the Results for Monetization Readiness		A	C	R	C	C
2.2.1.D	Finalize and Share the Maturity Assessment with DGO	I	A	I	I	R	

RACI Matrix Legend: **R:** Responsible **A:** Accountable **C:** Consulted **I:** Informed

Based on this Activity, the Entity can



Refresh the Data Management Maturity Assessment



Analyze the Results for Monetization Readiness

2.2.2 Current State Assessment Report of Existing Technology and Infrastructure

This step ensures the Entity establishes an accurate and up-to-date view of the current data and analytics landscape that will support data monetization efforts. It builds upon the “Current Data & Analytics Landscape” originally captured in Activity 2.3.1 (Data Architecture Baseline Assessment) within the Data Architecture & Modeling domain and ensures it is refreshed to reflect the post–target architecture environment.

2.2.2.A

Retrieve the Current Data & Analytics Landscape Assessment: The Data Architect must retrieve the “Current Data & Analytics Landscape” Excel file populated during the Data Architecture Baseline Assessment (Activity 2.3.1 in the Data Architecture & Modeling domain) to serve as the foundation for evaluating current technical readiness.

i. Locate the Current Data & Analytics Assessment:

- Retrieve the Current Data & Analytics Landscape file created during Activity 2.3 – Baseline Data Architecture Assessment within the Data Architecture & Modeling domain.

ii. Identify and Extract the Three Required Sheets. Open and review the following sheets:

- **Source Systems:** Lists all operational and analytical data sources with business, technical, and quality metadata.
- **Source Systems Environment:** Outlines the environments (e.g., production, pre-production, testing) for each source system.
- **Data Platforms:** Captures infrastructure used for data storage and processing (e.g., DWH, data lakes, ODS).

iii. Confirm These Sheets Reflect the Baseline (Current-State Only):

- Validate that the content represents the Entity’s technical stack at the time of the original baseline assessment and does not yet include target-state components introduced later.

2.2.2.B (1/2)

Review and Validate the Content of Each Sheet: The Entity must examine the contents of each sheet to confirm technical accuracy, metadata completeness, and relevance for data monetization.

i. Source Systems Sheet:

- Confirm metadata fields are complete (e.g., system name, description, data domain, owner, steward, and whether data quality checks have been performed).
- Check whether any key source systems (e.g., new CRMs, external data providers) have been omitted.

ii. Source Systems Environment Sheet:

- Validate the presence of metadata on production, pre-production, testing, and development environments.
- Confirm whether the environments reflect current operational architecture, especially in cases of migration (e.g., from on-prem to cloud).

2.2.2.B
(2/2)
Cont.iii. **Data Platforms Sheet:**

- Ensure completeness of entries, including metadata on:
 - Data platform name, technology, and integrated source systems
 - Data layers (bronze, silver, gold), ingestion interfaces, volume
- Confirm this sheet currently reflects only the legacy and baseline platforms.

2.2.2.C

Refresh the Assessment to Reflect the Post-Target Architecture Landscape: As the current data landscape was captured prior to implementing the target state architecture, the Entity must update each sheet to reflect changes and new infrastructure relevant to monetization.

i. **Update the “Data Platforms” Sheet with Target-State Platforms:**

- Add newly implemented platforms from the Target Data Architecture (e.g., Data Warehouse).
- For each platform, populate the required metadata:
 - Platform technology
 - Integrated source systems
 - Layered architecture (E.g., Bronze, Silver, Gold)
 - Volume metrics and ingestion/processing interfaces

ii. **Check and Add Any New Source Systems:**

- Identify new systems that provide monetizable data (e.g., social data feeds).
- Add each to the Source Systems sheet and complete all relevant metadata fields.

iii. **Update Source Systems Environments Sheet:** For any newly added or migrated systems.

- Capture environment details (production, staging, development, testing).
- Identify presence of test data and staging configurations.
- Validate technical readiness for integration or productization.

2.2.2.D

Finalize and Store the Updated Assessment: The Entity must consolidate the refreshed Excel file and ensure it is accessible for reference during upcoming monetization activities.

i. **Consolidate and Document Updates:**

- Flag and annotate new additions and updates in the Excel file.
- Validate completeness and accuracy with relevant stakeholders (e.g., data owners, data architects, platform administrators).

ii. **Store and Share the Updated Landscape:**

- Save the updated file in the central repository used for data monetization planning.
- Share with the Data Management and Security Director, Data Architecture and Analytics Section Head, Data Strategy Expert, and other concerned stakeholders.

RACI Matrix – Current State Assessment Report of Existing Technology and Infrastructure

Indicative

Sr No.	Activity	Data Management and Security Director	Data Architecture and Analytics Section Head	Data Strategy Expert	Data Owner	Data Engineer	System Owners	Data Architect	IT Team
2.2.2.A	Retrieve the Current Data & Analytics Landscape Assessment		A	I				R	
2.2.2.B	Review and Validate the Content of Each Sheet		A		C	C	C	R	C
2.2.2.C	Refresh the Assessment to Reflect the Post-Target Architecture Landscape	I	A		C	C	C	R	C
2.2.2.D	Finalize and Store the Updated Assessment	I	A	I				R	

RACI Matrix Legend: **R:** Responsible **A:** Accountable **C:** Consulted **I:** Informed

Based on this Activity, the Entity can



Establish an up-to-date view of the data & analytics landscape supporting data monetization



Confirm readiness of source systems and platforms for data productization



Ensure alignment with the implemented target data architecture

2.3 Data Products Identification & Prioritization

This activity guides the Entity in identifying, evaluating, and prioritizing potential data products based on monetization objectives and monetization readiness. It leverages foundational metadata assets — including the Business Glossary, Dataset Inventory, and Attribute Inventory — to enable structured discovery and selection of datasets that can be productized. The activity also includes the creation of detailed product charters and ensures governance alignment through review and approval.

Process – Data Products Identification & Prioritization

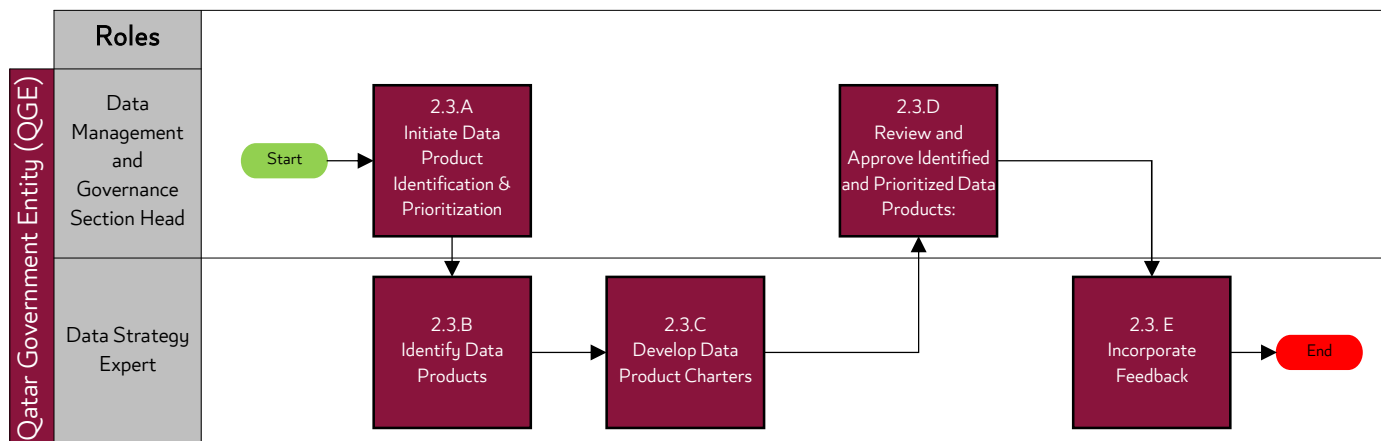


Figure 3: Data Products Identification & Prioritization Process Map

Legend: Process Step Decision Process Start Process End Document Off-Page Reference

2.3.A
(1/2)

Initiate Data Product Identification & Prioritization: The Entity must formally initiate the data product identification and prioritization activity by assigning leadership responsibility and defining the structure, scope, and expectations of the process.

i. Assign Activity Leadership and Governance Oversight:

- The activity must be led by the Data Management and Governance Section Head, who is responsible for overseeing the entire process. This includes:
 - Defining the objectives and expected outcomes.
 - Ensuring alignment with the Entity's data monetization vision and objectives.
 - Establishing an assessment and prioritization methodology, unless a standardized approach or framework is issued to entities as part of the National Data Monetization Strategy.
- The Section Head must also identify and engage key stakeholders, including:
 - Data Strategy Experts
 - Data Governance Specialist



Key Message / Information

The Data Strategy Expert shall serve as the designated Data Product Owner. In this role, they will be responsible for identifying data products, as well as overseeing their development, deployment, and lifecycle management—ensuring continuity, clear accountability, and alignment with the Entity's Data Monetization Strategy and national data standards.

2.3.A
Cont.
(2/2)

ii. Define Objectives, Scope, and Methodology:

- Clearly articulate the purpose of the activity, identifying and prioritizing monetizable data products that align with the monetization objectives, strategic goals and national development priorities.
- Set the scope (e.g., domains covered, internal vs. external use cases) and structure the process around workshops, metadata analysis, and charter development.
- Establish the methodology for evaluation and prioritization to be used in later steps (e.g., value-effort matrix, stakeholder validation).

iii. Communicate Timeline and Reporting Structure:

- Define key phases and milestones (e.g., ideation workshops, review cycles, charter approval).
- Communicate the activity plan and governance expectations across all involved teams to ensure coordination and transparency.

2.3.B
(1/3)

Identify Data Products: The Entity must identify candidate datasets with monetization potential by analyzing metadata assets and leveraging domain knowledge.

i. Leverage Metadata from the Data Catalog & Metadata Management domain: Use the following metadata assets as the foundation for discovery and validation.

- **Dataset Inventory:** Review available datasets, source systems, business relevance, and usage metrics (reference Activity 5.3 within the Data Catalog & Metadata Management domain).
- **Attribute Inventory:** Drill into column-level information, including attribute description, classifications, data types, compliance requirements, etc. (reference Activity 5.4 within the Data Catalog & Metadata Management domain).
- **Business Glossary:** Use to enrich and contextualize datasets and attributes by linking them to defined business terms, domains, and owners. (reference Activity 5.1 within the Data Catalog & Metadata Management domain).

ii. Reconfirm Strategic Themes & Monetization Objectives: The Entity must organize metadata findings and stakeholder insights around high-priority business areas and strategic initiatives to frame the monetization context.

- Analyze dataset inventory alongside business glossary terms to surface data associated with:
 - Critical services (e.g., permits, mobility, housing, citizen feedback).
 - High-impact sectors (e.g., Environment, Energy, Transport, Labor Market).
 - National development themes or emerging cross-entity initiatives.
- Use this domain framing to guide ideation and later prioritization, ensuring alignment with both monetization objectives and business relevance.

2.3.B
Cont.
(2/3)

- iii. **Engage Stakeholders to Validate Data Relevance and Interest:** The Entity must consult with data owners, business SMEs, and analysts to validate usage, demand, and perceived value of identified datasets.
 - Conduct targeted interviews, workshops, or surveys to collect:
 - Known pain points, gaps, or high-interest data areas
 - Historical or anticipated demand for access to specific datasets
 - Willingness of business owners to sponsor or support data productization
 - Use stakeholder insights to supplement metadata findings with contextual understanding that may not be captured in the catalog alone.
- iv. **Shortlist High-Potential Datasets:** Using the Dataset and Attribute Inventories, the Entity must identify and group datasets with potential to support monetizable products — including both near-term opportunities and longer-term candidates that require uplift.
 - a. **Assess Baseline Metadata and Readiness:**
 - Review datasets based on metadata availability, ownership, update frequency, and data quality indicators (data quality metadata).
 - Tag datasets as:
 - Ready for productization (complete metadata, ownership, accessible)
 - Requires uplift (critical dataset, but insufficient data quality or metadata components)
 - Out of scope (e.g., restricted by law, lacking strategic relevance)
 - b. **Group Datasets by Strategic Domain or Theme:**
 - Use business glossary terms and data domains to group datasets into relevant clusters (e.g., Public Transport, Energy Consumption, Real Estate, Licensing Activity).
 - This helps frame product ideas in business terms rather than technical datasets.
 - c. **Engage Stakeholders to Validate Potential:**
 - Meet with business owners and SMEs to understand:
 - Which datasets are most commonly used for operational or reporting purposes.
 - Known pain points or gaps in current data availability.
 - Perceived value or potential of certain datasets for reuse, sharing, or commercialization.
 - d. **Categorize Datasets for Action:**
 - Create a working list of potential data products, categorized as:
 - **Quick Wins:** Readiness and value are both high.
 - **Strategic Uplift Candidates:** High-value datasets that require data quality, metadata, or governance enhancement.
 - **Deprioritized:** Currently out of scope due to low value or high sensitivity.

2.3.B
Cont.
(3/3)

- v. **Conduct Data Product Ideation Workshops:** The Entity must facilitate collaborative workshops to convert shortlisted datasets into conceptual product ideas.

- Organize workshops by domain, involving key stakeholders such as business units, data stewards, IT, and data governance.
- Use the metadata-rich shortlists to guide discussions and inspire product ideas (e.g., APIs, analytics services, dashboards, insight-as-a-service).
- Encourage participants to propose use cases, potential users, access mechanisms, and value propositions.
- Document all outputs and prepare the list of ideas for charter development in the next step.

2.3.C
(1/3)

Develop Data Product Charters: The Entity must develop a standardized charter for each shortlisted data product, capturing its strategic intent, development requirements, value proposition, and implementation feasibility. The charter ensures each product is documented, governed, and ready for prioritization and roadmap integration.

i. **Data Product Description and Development Rationale:**

- Provide a clear and concise description of the data product, including:
 - Product name and summary
 - The problem it solves or opportunity it enables
 - Intended users (internal or external) and target use case
 - Link to the data monetization vision, monetization objectives, broader Entity strategic objectives, and national development priorities
- Reference the datasets and business glossary terms that underpin the product

ii. **High-Level Development Cost Estimate:**

- Outline a rough order-of-magnitude estimate of development costs, covering:
 - Data engineering and integration
 - Platform or infrastructure setup
 - Tools and software licenses
 - Staffing (e.g., analysts, developers, data stewards)
 - Ongoing maintenance and support

iii. **Expected Benefits and Business Value:**

- Specify both tangible and intangible value expected from the product:
 - **Tangible:** Revenue potential (licensing, subscriptions), cost savings, operational efficiency
 - **Intangible:** Improved decision-making, public value, innovation, citizen services
- Estimate ROI (where and if applicable).
- Define key success metrics for post-launch monitoring, such as user adoption rates, access frequency, and user satisfaction scores.

iv. Development Timeline:

- Define development phases and expected delivery timeline:
 - Start and end dates
 - Key milestones (e.g., MVP, pilot, full deployment)
 - Dependencies or potential blockers (e.g., data readiness, resource availability)

v. Data Sources, Platforms, and Required Fields:

- Identify all required data sources, platforms, and datasets, including:
 - Source systems, data platforms (e.g., DWH), and relevant data domains
 - Specific fields or tables needed (e.g., timestamp, location, identifier)
 - Data acquisition method (API, batch, ETL, direct query)
 - Refresh frequency, latency requirements, and ownership/stewardship

vi. Assign Priority Level :

- Evaluate and classify the product using the value–effort matrix outlined in the national data standards:
 - **Quick Wins:** High value, low effort
 - **Strategic Differentiators / Big Projects:** High value, high effort
 - **Fill-Ins:** Low value, low effort
 - **Time Sinks / Money Pits:** Low value, high effort
- Clearly assign the product's priority level and provide rationale.

vii. Define Implementation Stakeholders:

- Identify key roles and responsibilities, including:
 - **Data Strategy Expert:** Oversees product vision, delivery, and alignment with monetization strategy.
 - **Data Owner:** Owns the underlying dataset(s), ensuring business meaning, quality, and policy compliance.
 - **Implementation Team:** Develops, configures, and deploys the product (e.g., engineers, analysts, platform admins).
 - **Data Steward(s):** Manages governance, metadata, quality monitoring, and data lifecycle activities.
 - **Target Consumers:** Internal or external users who will use or benefit from the product.
- List named individuals, business units, or departments where possible to ensure accountability and clarity during product execution.

viii. Identify Dependencies and Constraints :

- Document any known constraints or required enablers for product development:
 - **Technological:** APIs, tooling, integration gaps
 - **People/Skills:** Shortages in technical, governance, or analytics capabilities
 - **Data Preparation:** Cleansing, enrichment, lineage tracing
 - **Legal/Regulatory:** Licensing, compliance, data sharing agreements
 - **Organizational:** Approvals, funding, inter-agency collaboration

2.3.C
Cont.
(3/3)

ix. Address Ethical, Security & Privacy Considerations:

- Document any known constraints or required enablers for product development:
 - Data classification (e.g., top secret, secret, restricted, internal, public)
 - Privacy risks and required mitigation (e.g., anonymization)
 - Access control and encryption protocols
 - Consent mechanisms or sharing agreements (if applicable)
 - Compliance with Qatar Data Regulations (e.g., Personal Data Privacy Protection Law).

2.3.D

Review and Approve Identified and Prioritized Data Products: The Entity must ensure that the identified data products, along with their associated charters and prioritization classifications, are reviewed and formally approved by the Data Management and Governance Section Head.

i. Conduct Governance Review:

- The Data Management and Governance Section Head is responsible for reviewing all completed Data Product Charters and the proposed prioritization framework.
- The review must assess:
 - Strategic alignment with the Entity's data monetization vision and objectives, broader Entity strategic objectives, and national development priorities
 - Completeness and clarity of the charter content
 - Feasibility of delivery timelines and cost estimates
 - Appropriateness of prioritization (based on value–effort matrix)
 - Adequacy of risk, dependency, and compliance considerations

ii. Provide Formal Feedback and Approval:

- The Data Management and Governance Section Head must provide formal feedback on each product and determine one of the following actions:
 - **Approved:** Product is ready to advance to roadmap integration and development planning.
 - **Approved with Revisions:** Product requires minor updates before proceeding.
 - **Deferred:** Product is valid but postponed due to timing, budget, or readiness.
 - **Rejected:** Product is not aligned or lacks justification for further pursuit.
- Feedback should be documented and communicated to the Data Strategy Expert for follow-up in 2.3.E

2.3.E
(1/2)

Incorporate Feedback: The Entity must ensure that all feedback from the review and approval process is addressed and reflected in the final set of data product charters and prioritization decisions.

i. Review and Analyze Governance Feedback:

- The Data Strategy Expert, in collaboration with relevant stakeholders, must review feedback provided by the Data Management and Governance Section Head in step 2.3.D.

2.3.E
Cont.
(2/2)

- Clarify any open questions or comments through direct engagement with reviewers, if required.

ii. Update Data Product Charters:

- Revise the content of impacted charters based on feedback:
 - Refine business case, technical scope, or delivery timeline
 - Adjust cost estimates or development assumptions
 - Re-evaluate prioritization category if rationale has changed
- Ensure updates are version-controlled and changes are clearly documented for traceability.

iii. Finalize the Prioritized Product Portfolio:

- Confirm that all approved and revised charters are finalized and ready for integration into downstream planning activities.
- Store the final versions of the product charters in the centralized repository and ensure they are accessible to the relevant teams.

RACI Matrix – Data Products Identification & Prioritization

Indicative

Sr No.	Activity	Data Management and Security Director	Data Management and Governance Section Head	Data Strategy Expert	Data Governance Specialist	Metadata Specialist	Data Owner	IT Team
2.3.A	Initiate Data Product Identification & Prioritization	A	R	I	I			
2.3.B	Identify Data Products		A	R	C	C	C	C
2.3.C	Develop Data Product Charters		A	R	C			
2.3.D	Review and Approve Identified and Prioritized Data Products	A	R	I	I			
2.3.E	Incorporate Feedback	I	A	R	C	C	C	C

RACI Matrix Legend: R: Responsible A: Accountable C: Consulted I: Informed

Based on this Activity, the Entity can



Identify Data Products



Prioritize and Review Data Products

2.4 Data Monetization Delivery Model

This activity guides the Entity in defining and documenting the Data Monetization Delivery Model, which outlines how data products will be provisioned to users in a scalable, secure, and compliant manner. The delivery model ensures that data products identified in Activity 2.3 are matched with appropriate access and delivery mechanisms, based on user needs, technical readiness, and regulatory requirements. The selected models must be tailored to the nature of the data product, intended user group, and technical infrastructure available.

Process – Data Monetization Delivery Model

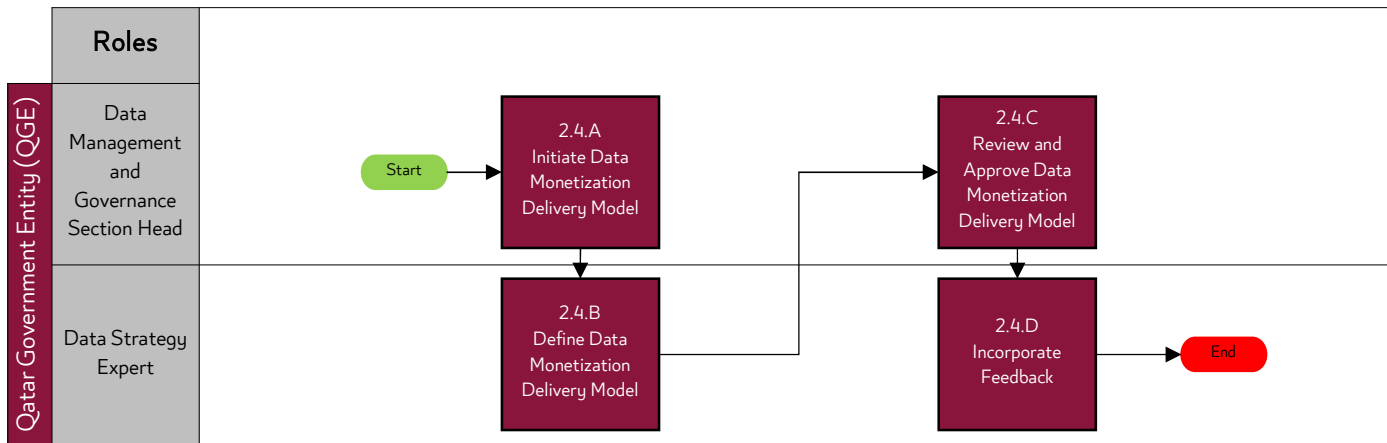


Figure 4: Data Monetization Delivery Model Process Map

Legend: ■ Process Step ◆ Decision ● Process Start ● Process End □ Document ■ Off-Page Reference

2.4.A *Initiate Data Monetization Delivery Model:* The Data Management and Governance Section Head initiates this activity, ensuring alignment with the Data Monetization Vision, capability assessment outcomes, and product charters.

i. **Assign Activity Lead and Stakeholders:**

- Assign the Data Strategy Expert to lead development of the delivery model.
- Engage supporting roles from architecture, platform teams, and data governance.

ii. **Reference Key Inputs:** Build upon:

- The Monetization Vision
- Capability and infrastructure assessments
- Finalized data product charters

2.4.B
(1/5)

Define Data Monetization Delivery Model: The Data Strategy Expert, in collaboration with Data Compliance Specialist, Data Architect and IT Team, defines the applicable delivery models and supporting infrastructure and governance requirements.

i. **Reconfirm Strategic and Technical Foundations:**

- a. Review vision and monetization objectives to align delivery models to business outcomes (e.g., revenue generation, operational efficiency, innovation and growth, public value creation).
- b. Reassess capability gaps and infrastructure status to determine what models are feasible.
- c. Categorize data products by type and target user (e.g., API, raw file) using product charters.

- ii. **Define Applicable Delivery Models and Technical Requirements.** The Entity must define the delivery models it will adopt for monetizing its data products, including when each model is suitable and the technical requirements for implementation. The selected model(s) must align with the Entity's data monetization vision and objectives, product types, and infrastructure readiness.

a. **Raw Data Delivery:**

- **Description:** Selling or distributing raw, unprocessed datasets for users who prefer to analyze and manipulate data independently.
- **Applicable When:**
 - Users may be researchers, analysts, or data scientists
 - Data is static or updated infrequently (e.g., monthly or annually)
 - Bulk download of large datasets is required (e.g., census data)
 - Delivery is needed in file formats such as CSV, JSON, XML
- **Delivery Channels:**
 - Secure file transfer (SFTP)
 - Download portals
- **Technical Requirements:**
 - File formatting standards
 - Metadata inclusion (e.g., dataset description, field definitions)
 - Licensing terms and access restrictions

b. **Data-as-a-Service (DaaS) / API-based Access:**

- **Description:** Providing access to data in real-time, near-real-time, or on-demand via APIs or web services.
- **Applicable When:**
 - Consumers (internal or external) need up-to-date data integrated into apps or systems
 - Use cases may involve dashboards, portals, or mobile apps
 - The product requires filtered or parameterized access (e.g., air quality by location and time)
 - Data is dynamic (e.g., financial data, sensor streams)
- **Delivery Channels:**
 - Public or authenticated APIs
 - Third-party system integrations
- **Technical Requirements:**
 - API gateway and management tools
 - Authentication protocols and rate limits
 - Documentation and developer onboarding support
 - Web services or RESTful architecture

c. **Data Platform:**

- **Description:** A centralized platform providing users with interactive access to data through dashboards, self-service BI tools, or visual analytics.
- **Applicable When:**
 - Users need to explore, analyze, and interact with data (not just receive it)
 - Users lack advanced analytics tools but need to derive insights
 - Use cases may include policy planning, commercial planning, scenario modeling
- **Delivery Channels:**
 - Internal or external BI portals (e.g., Power BI, Tableau Server)
- **Technical Requirements:**
 - Role-based access control and user authentication
 - Dashboard design and integration capabilities
 - Metadata tagging and data layer abstraction
 - System integration for live data feeds or scheduled updates

d. **Data Marketplace:**

- **Description:** A commercial or semi-public portal where multiple data products are listed for preview, discovery, access, and (if applicable) purchase.
- **Applicable When:**
 - The Entity wants to scale external data monetization or foster open data ecosystems
 - Data products are diverse (e.g., APIs, dashboards, datasets)
 - Products are intended for startups, corporates, academia, or the public
- **Delivery Channels:**
 - Online data portals with listing, browsing, and search capabilities that distribute data via APIs / data download (raw data)
- **Technical Requirements:**
 - Product packaging standards (metadata, tags, usage rights)
 - Subscription and pricing models
 - Licensing agreements and terms of use
 - User registration and consent mechanisms
 - Metrics for tracking downloads, usage, and payment (if applicable)

iii. **Categorize Data Products by Delivery Model:** The Entity must evaluate and assign each identified data product to the most appropriate delivery model, using the criteria defined in 2.4.B ii.

a. **Apply Delivery Model Criteria to Each Product:**

- Use delivery model definitions and applicability logic to determine the best fit for each data product.

➤ Consider:

- Intended user group (e.g., public, internal, commercial)
- Access needs (e.g., real-time, self-service, bulk)
- Product format (e.g., API, dashboard, dataset)

b. **Conduct Product-to-Model Mapping Exercise:**

- Map each identified data product to one or more delivery models.
- Use a standardized mapping template capturing:
 - Product name
 - Recommended delivery model
 - Justification
 - Delivery dependencies (e.g., API availability, dashboard readiness)

c. **Assign Readiness Status:**

- Tag each product in the mapping as:
 - **Ready for Delivery:** Meets all technical and governance requirements
 - **Requires Enablement:** Minor gaps exist (e.g., API not yet secured)
 - **Deferred:** Requires significant investment or rework

d. **Validate with Stakeholders:**

- Share draft mapping with key stakeholders (e.g., Data Owners, Data Architect).
- Confirm feasibility of proposed delivery models before moving to pricing and implementation planning.

iv. **Evaluate Delivery Model Enablement Readiness:** The Entity must evaluate its organizational and technical readiness to activate and operationalize each delivery model at scale.a. **Assess Operational Capabilities:**

- **Confirm whether the Entity has the necessary:**
 - API management infrastructure (e.g., gateway, dev portal)
 - BI/analytics platform for dashboards or interactive portals
 - Secure file sharing mechanisms for raw data access
 - Portal or interface for data product discovery

b. **Evaluate Supporting Structures:**

- Check if documentation and governance elements are in place, such as:
 - Terms of use / data sharing agreements
 - Access control policies
 - Metadata and product packaging templates
 - Monitoring and logging setup

c. **Identify Model-Specific Uplift Needs:**

- For each delivery model (not per product), assess whether it is:
 - **Fully enabled:** All required infrastructure and policies in place
 - **Partially enabled:** Small adjustments required
 - **Not yet enabled:** Requires significant investment (roadmap planning)

2.4.B
Cont.
(5/5)

- iv. **Define Governance, Access Control, and Compliance for Each Delivery Model:** The Entity must define how users will access data products under each delivery model and how those access points will be governed, monitored, and kept compliant with national regulations.

- **Access Control:**
 - Define user eligibility and access approval processes
 - Configure authentication and authorization mechanisms per delivery model (e.g., API keys, portal logins, SSO)
- **Role-Based and Tiered Access:**
 - Establish access levels (e.g., viewer, contributor, admin)
 - Segment access based on user type (internal, partner, external public)
- **Legal and Compliance Requirements.** Define and enforce:
 - Licensing conditions
 - Consent and opt-out policies
 - Data classification-based restrictions (e.g., Top Secret, Secret, Restricted, Internal, Public)
 - Cross-border sharing and localization rules (if applicable)
- **Monitoring and Audit Requirements.** Implement mechanisms for:
 - Usage tracking (downloads, API calls, dashboard views)
 - System performance and reliability logs
 - Breach detection and resolution workflows
 - Governance dashboards for reporting on usage and compliance

2.4.C
(1/2)

Review and Approve Data Monetization Delivery Model: The Data Management and Governance Section Head must review the documented data monetization delivery models to ensure they are complete, compliant, and aligned with the Entity's strategic objectives and technical capabilities.

- i. **Conduct Governance Review of Delivery Models:**
- Review documentation package developed in 2.4.B for:
 - Strategic alignment with the data monetization vision and objectives
 - Technical feasibility, based on the capability assessment
 - Clear and appropriate mapping of data products to delivery models
 - Coverage of all required delivery model types (Raw, API/DaaS, Platform, Marketplace) as relevant
 - Completeness of governance, compliance, and access control mechanisms
- ii. **Assess Model Readiness and Risk.** Validate that:
- Each model has a clear activation path
 - Risks and dependencies are identified and documented
 - Required legal, ethical, and operational policies are in place

A

2.4.C
Cont.
(2/2)

iii. Provide Feedback and Approval Status:

- Determine one of the following for each delivery model:
 - **Approved:** Model is fit for use and ready for pricing and rollout planning
 - **Approved with Revisions:** Minor improvements required before activation
 - **Deferred:** Model is valid but needs further enablement (to be included in the roadmap outlined in Activity 2.7)
 - **Not Approved:** Model is misaligned or incomplete and must be reworked
- Document feedback and share with the Data Strategy Expert

2.4.D

Incorporate Feedback and Finalize Delivery Models: The Data Strategy Expert must address all feedback from the governance review and finalize the approved delivery models.

A

i. Update Delivery Model Documentation:

- Revise delivery model definitions based on comments from the Data Management and Governance Section Head
- Ensure updates are traceable and version-controlled
- Revalidate mapping of products to delivery models if any model structure changes

ii. Confirm Final Approval:

- Resubmit any revised models (if required) for sign-off
- Confirm that all approved models are complete and ready for input next steps

iii. Store in Central Repository:

- Save finalized delivery model documentation in the centralized data monetization repository
- Ensure access for stakeholders involved in pricing, planning, and implementation

RACI Matrix – Data Monetization Delivery Model

Indicative

Sr No.	Activity	Data Management and Security Director	Data Management and Governance Section Head	Data Strategy Expert	Data Governance Specialist	Data Owner	Data Architect	Data Compliance Specialist	IT Team
2.4.A	Initiate Data Monetization Delivery Model	A	R	I	I				
2.4.B	Define Data Monetization Delivery Model		A	R	C		C	C	C
2.4.C	Review and Approve Data Monetization Delivery Model	A	R	I	I				
2.4.D	Incorporate Feedback	I	A	R	C	C	C	C	C

RACI Matrix Legend: **R:** Responsible **A:** Accountable **C:** Consulted **I:** Informed

Based on this Activity, the Entity can



Select Data Monetization Delivery Model



Review and Approve Selected Delivery Model

2.5 Data Monetization Pricing Model

This activity guides the Entity in defining and documenting the pricing models it will adopt to charge consumers for access to its data products. The pricing model should be structured to reflect the value of the data, support sustainability, and ensure alignment with business objectives, market demand, and legal and regulatory obligations. Pricing options may include one-time fees, subscriptions, usage-based billing, freemium access, or hybrid combinations, and should be tailored to the nature of the data product and its delivery method.

Process – Data Monetization Delivery Model

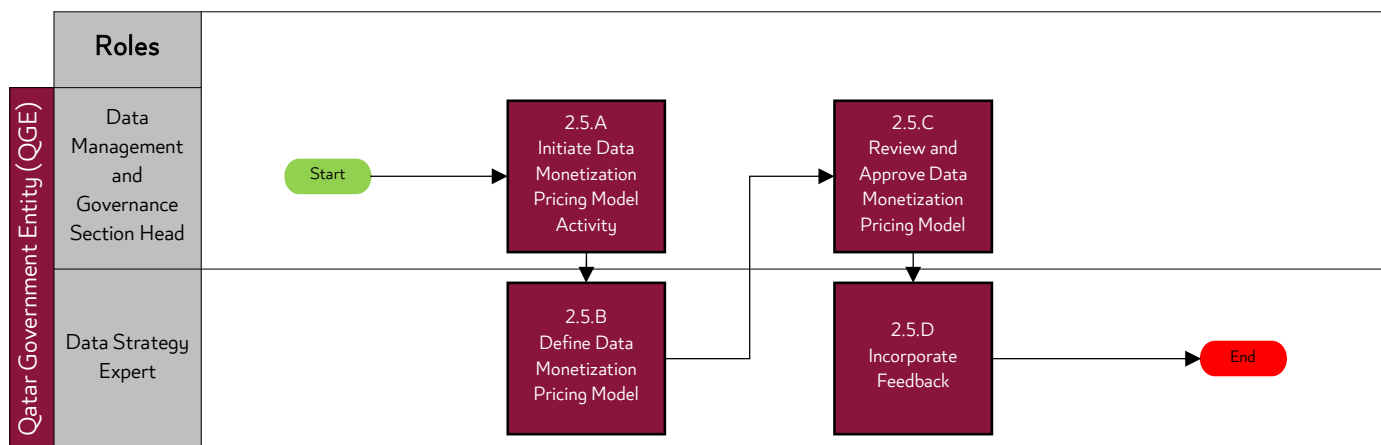


Figure 4: Data Monetization Delivery Model Process Map

Legend: Process Step Decision Process Start Process End Document Off-Page Reference

2.5.A
(1/2)

A

Initiate Data Monetization Pricing Model Activity: The Data Management and Governance Section Head initiates the Data Monetization Pricing Model activity, ensuring alignment with the Entity's data monetization objectives, broader strategic objectives, legal obligations, and data product characteristics. Responsibility for leading this activity is assigned to the Data Strategy Expert, who must coordinate with relevant internal stakeholders including finance, legal, and business domain experts.

i. Appoint Activity Lead and Engage Stakeholders:

- Designate the Data Strategy Expert to lead the pricing model development.
- Engage stakeholders such as:
 - **Finance:** To assess cost structures and ensure cost recovery
 - **Legal:** To confirm compliance with data licensing and privacy laws
 - **Public Service Units:** To ensure alignment with citizen-facing service goals
 - **Data Strategy Expert:** To provide insight into product functionality and value

ii. Define Pricing Objectives:

- The Entity must define pricing objectives that describe what it aims to achieve through the pricing of its data products. These objectives should be informed by the monetization objectives defined in Activity 2.1.B and must be implemented using appropriate pricing models including, but not limited to, those outlined in the National Data Standards. Pricing objectives serve as the link between strategic intent and the practical design of how value is delivered, accessed, and captured.

2.5.A
Cont.
(2/2)

➤ Examples of pricing objectives include, but are not limited to:

- **Revenue Generation:** Charge one-time or subscription fees for access to high-demand commercial datasets (e.g., logistics APIs used by private developers).
- **Cost Recovery:** Apply internal cost recovery models for dashboards or platforms accessed across government Entities to support sustainable service delivery and platform maintenance.
- **Public Value Enablement:** Provide free or subsidized access to data products for mission-aligned users such as researchers or NGOs to support data-driven decisions in areas like health, education, or sustainability.
- **Innovation Enablement:** Use pay-as-you-go pricing for APIs to allow startups and academic institutions to prototype affordably without committing to full subscriptions.
- **Tiered and Inclusive Access:** Introduce tiered or hybrid models to accommodate different users (e.g., internal users, researchers, and private firms), offering flexible access with varying levels of service or cost.



Key Message / Information

Monetization objectives explain why the Entity is monetizing data — to generate revenue, improve efficiency, support innovation, or deliver public value. **Pricing objectives** define what pricing should achieve — such as recovering costs, encouraging adoption, or supporting innovation in priority sectors. **Pricing models** (e.g., subscription, pay-as-you-go, one-time flat fee, freemium, hybrid) are the tools used to deliver these objectives. Together, pricing objectives ensure pricing not only captures value, but also supports sustainability, product viability, and user engagement.

2.5.B
(1/5)

Define Data Monetization Pricing Model: The Data Strategy Expert, in collaboration with legal, finance, commercial, and product teams, must define appropriate pricing models for each data product or product category. These pricing models must reflect the value of the data, delivery method, and market demand, while ensuring sustainability, accessibility, and regulatory compliance.

A

i. **Analyze Cost, Value, and Market Dynamics:** The Entity must analyze the economic and strategic context surrounding each data product to inform appropriate pricing models and tiers. This includes understanding the cost of delivery, the perceived value of the product, and external market conditions.

a. **Estimate Cost of Productization:**

- Refer to the Data Product Charters (Activity 2.3) to assess the high-level costs associated with:
- Data preparation and engineering (e.g., cleaning, transformation, metadata enrichment)
 - Platform enablement (e.g., API development, dashboard design, data lake storage)
 - Ongoing maintenance and support (e.g., platform subscriptions, SLAs, security monitoring)

- **Example:** A real-time air quality monitoring API may require continuous infrastructure support, while a one-time licensing dataset (e.g., business registration archive) has a minimal ongoing cost.

b. Assess Product Value and Strategic Impact:

- Evaluate each product's value to users and how that value aligns with the product's intended role — whether it supports revenue, service efficiency, innovation, or public value:
 - Revenue potential (based on frequency of access, user base, and exclusivity)
 - Strategic or public service value (e.g., enabling planning, policy decisions, transparency)
- **Example:** A water consumption dashboard used by multiple municipalities may not generate revenue directly but may deliver high operational value, justifying a cost-recovery pricing model.

ii. **Match Data Products with Suitable Pricing Models:** The Entity must assign the most appropriate pricing model to each data product or product category, based on its value, delivery model, intended user base, and cost of enablement.

a. **Assign Pricing Models by Product Type and Use Case:** Select a pricing model based on the nature of the data, access method, and the intended audience.

- **One-Time Flat Fee:**
 - Suitable for static or infrequently updated datasets
 - Ideal for downloadable reports, archives, and historical datasets
 - **Example:** A ministry offers a one-time download of historical monthly public bus ridership statistics to a consulting firm preparing a feasibility study for expanding urban transit routes.
- **Pay-As-You-Go (Usage-Based):**
 - Best for real-time or on-demand data delivered via API
 - Users are charged per transaction, API call, or data unit
 - **Example:** A Transport Authority charges navigation app providers per 1,000 API calls to access live road congestion data.
- **Subscription-Based:**
 - Designed for regularly accessed products (e.g., dashboards, recurring datasets)
 - Can be monthly, quarterly, or annual subscriptions
 - **Example:** A municipality offers a subscription for construction companies to access a portal that tracks infrastructure project approvals across city districts.

➤ **Freemium Model:**

- Provides basic access at no cost with advanced features available via paid upgrade
- Encourages engagement while reserving value for premium tiers
- **Example:** An environmental agency offers public access to air quality index data, while detailed historical trends and predictive analytics are available under a premium license.

➤ **Hybrid Model:**

- Combines two or more models depending on user needs or access type
- **Example:** A national statistics platform offers free dashboard views for citizens, one-time fees for dataset downloads, and API subscriptions for commercial users.

b. **Ensure Alignment with Product Goals and Governance:**

➤ Confirm that each selected model reflects:

- The product's strategic purpose (generate revenue, enhance service)
- The delivery method feasibility (e.g., ability to track API usage or control download limits)
- The user's expected behavior and access patterns

c. **Document Pricing Model Assignment:**

➤ For each product (or product category), record:

- Assigned pricing model
- Rationale (value, cost, audience, delivery model)
- Any model dependencies (e.g., metering system for APIs, licensing terms for downloads)

iii. **Define Pricing Tiers and Rules:** The Entity must define clear pricing tiers, access conditions, and billing structures to ensure fair, scalable, and transparent monetization of data products.

a. **Define Tiered Access Models Based on User Segments:**

- Establish access or pricing tiers aligned with the value provided to different user types. These tiers may vary by user group, access frequency, or feature set.

b. **Define Unit of Billing by Delivery Model:**

- Establish what constitutes a billable unit for each delivery model. Examples include but are not limited to:

Delivery Model	Billing Unit Examples
Raw Data	Per dataset or per download
API / DaaS	Per call, per MB, or per user
Dashboards / Portals	Per seat, per project, or monthly access
Marketplace	Per transaction or tiered bundles

c. **Define Usage and Access Limits per Tier:**

- Clarify what's included in each tier and what triggers upgrades or overages.
- **Examples:**
 - API calls per month (e.g., 10,000 free calls, then \$0.05 per 1,000 calls)
 - Dashboard usage (e.g., 1 user free, additional seats require subscription)
 - Dataset exports (e.g., CSV free, Excel and GeoJSON paid)

d. **Ensure Alignment with Data Classification and Licensing:**

- Match pricing tiers to the classification (top secret, secret, restricted, internal, public) of the data product.
- Clearly define licensing terms per tier (e.g., redistribution rights, time-limited access, attribution requirements).

iv. **Validate Pricing Models with Stakeholders:** The Entity must validate the proposed pricing models with relevant internal stakeholders to ensure they are operationally feasible, financially sound, legally compliant, and aligned with the Entity's monetization objectives.

a. **Engage Finance Stakeholders:**

- Confirm that proposed pricing models:
 - Align with public sector budgeting and revenue policies
 - Support cost recovery, sustainability, or surplus generation (where permitted)
 - Account for platform costs, operational overhead, and transaction handling
- Validate revenue projections or usage assumptions, especially for pay-as-you-go and subscription models.
- **Example:** Finance may advise on setting a minimum price floor for a commercial dashboard used by private engineering firms, to ensure cost recovery.

b. **Engage Legal and Compliance Teams:**

- Ensure:
 - All pricing models are consistent with Qatar's Personally Data Privacy Protection Law and the National Data Classification Policy.
 - Licensing and terms of use are clearly defined per pricing tier and delivery model.
 - There is no risk of exposure to sensitive or restricted datasets.
 - Contracts and consent mechanisms are enforceable and fit-for-purpose.
- **Example:** Legal may flag the need to include data redistribution clauses in API-based licensing agreements with private sector users.

2.5.B
Cont.
(5/5)

c. Engage Data Owners and Business Units:

- Confirm that pricing reflects:
 - The perceived value of the data product
 - The product's intended purpose and user audience
 - The balance between public accessibility and monetization objectives
- Gather feedback on whether the pricing model is easy to understand, how and when users are required to move between tiers (e.g., from free to paid), and whether it might limit use across Entities.
- **Example:** A data owner from the transport sector may suggest keeping ridership data free for academic use but charging navigation companies via API subscription.

d. Review Feasibility of Enforcement and Monitoring:

- Ensure technical stakeholders validate the ability to:
 - **Meter usage:** Track and log how much of a product is consumed (e.g., number of API calls, volume of data downloaded, or number of dashboard sessions per user).
 - **Trigger billing events:** Automatically initiate billing or access actions when usage thresholds are reached (e.g., charge after 10,000 free API calls, or when moving to a paid tier).
 - **Monitor tier transitions:** Detect when a user's usage moves them between pricing tiers (e.g., from free to paid, or from basic to enterprise), and apply the correct access level or pricing plan.
 - **Integrate with billing or invoicing systems:** Connect pricing enforcement to internal or external systems for invoicing, cost recovery, or budget tracking.

v. Document the Pricing Model: The Entity must formally document the finalized pricing model for each data product or category to support implementation, governance, and future reference.

- Summarize the assigned pricing model, tiers, billing unit, and rationale.
- Include associated licensing terms, usage limits, and access conditions.
- Ensure documentation is version-controlled and stored in the centralized data monetization repository.
- Use standardized templates for consistency across products.

2.5.C
(1/2)

Review and Approve Data Monetization Pricing Model: The Data Management and Governance Section Head must review the proposed pricing models to ensure they are strategically aligned, financially sound, legally compliant, and operationally feasible.

i. Conduct Formal Review:

- Review the pricing models and supporting documentation developed in 2.5.B for:
 - Strategic alignment with the data monetization vision and objectives
 - Consistency with assigned delivery models
 - Financial viability and sustainability
 - Legal compliance and licensing clarity
 - Fairness and appropriateness across user segments

A

2.5.C
Cont.
(2/2)

ii. Validate Model Feasibility:

- Confirm that:
 - Pricing models can be enforced based on existing capabilities
 - Usage tracking and billing mechanisms are defined (where applicable)
 - Access control tiers are clearly mapped to product types

iii. Provide Feedback or Approval:

- Approve pricing models or provide formal feedback for refinement
- Classify outcomes per model as:
 - **Approved:** The pricing model is complete, viable, and ready for implementation.
 - **Approved with Revisions:** The model is generally sound but requires minor adjustments before finalization.
 - **Deferred:** The model is promising but cannot proceed at this time due to unresolved issues (e.g., legal, technical, or readiness gaps).
 - **Not Approved:** The model does not meet the required criteria and must be reworked or replaced.
- Share feedback with the Data Strategy Expert for incorporation in 2.5.D

2.5.D

Incorporate Feedback: The Data Strategy Expert must address all feedback received during the pricing model review and finalize the documentation for implementation and strategic planning.

A

i. Revise Pricing Model Documentation:

- Update pricing tiers, billing logic, or licensing terms as needed based on feedback from the Data Management and Governance Section Head.
- Ensure revisions are clearly tracked and version-controlled.

ii. Confirm Final Approval:

- Share updated pricing model(s) with reviewers (if required) to confirm final approval.
- Validate that all approved models are ready for operationalization and integration into the go-to-market and roadmap planning phases.

iii. Store Finalized Outputs:

- Archive approved pricing models in the centralized monetization repository.
- Ensure availability to stakeholders supporting delivery, communications, and rollout.

RACI Matrix – Data Monetization Pricing Model

Indicative

Sr No.	Activity	Data Management and Security Director	Data Management and Governance Section Head	Data Strategy Expert	Data Governance Specialist	Finance Team
2.5.A	Initiate Data Monetization Pricing Model Activity	A	R	I	I	
2.5.B	Define Data Monetization Pricing Model		A	R	C	C
2.5.C	Review and Approve Data Monetization Pricing Model	A	R	I		
2.5.D	Incorporate Feedback	I	A	R	C	C

RACI Matrix Legend: **R:** Responsible **A:** Accountable **C:** Consulted **I:** Informed

Based on this Activity, the Entity can



Select Data Monetization Pricing Model



Review and Approve Selected Pricing Model

Legend: Capability Level



Advanced



Very Advanced

2.6 Go-To-Market Strategy (GTM)

The Entity shall develop a GTM strategy to guide the structured launch, promotion, and adoption of its data products across prioritized audiences. The GTM strategy ensures that each product reaches its intended users through tailored messaging, targeted outreach, and effective delivery mechanisms. It must be built on prior activities including the Data Monetization Vision, Capability Assessment, Data Products Identification & Prioritization, Delivery Models, and Pricing Strategy.

Process – Go-To-Market Strategy (GTM)

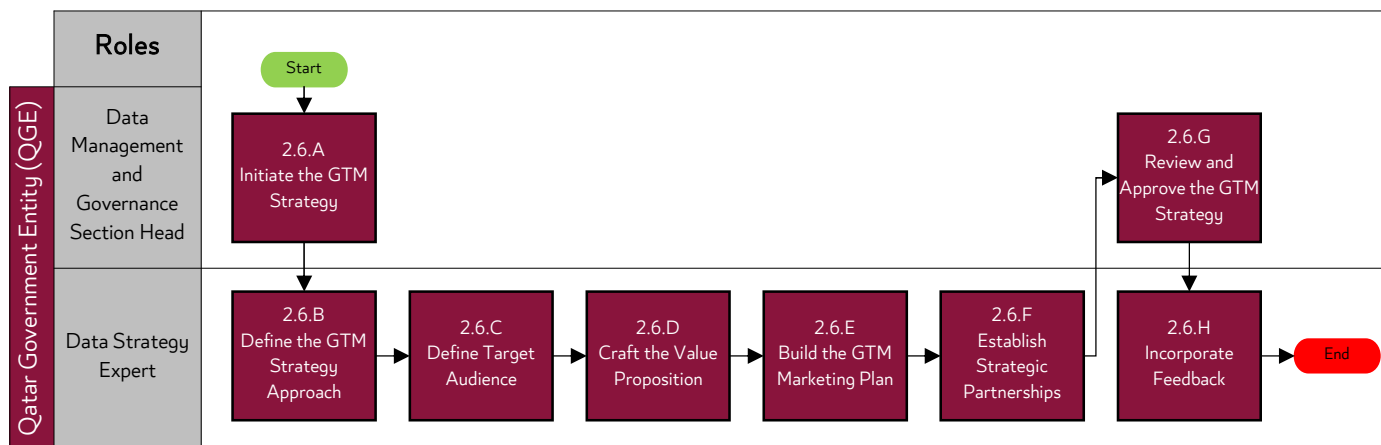


Figure 6: Go-To-Market Strategy Process Map

Legend: Process Step Decision Process Start Process End Document Off-Page Reference

2.6.A

Initiate the Go-To-Market Strategy: The Data Management and Governance Section Head initiates the GTM Strategy and assigns the Data Strategy Expert to lead development, ensuring alignment with upstream activities and monetization objectives.

A

i. Establish GTM Scope and Intent:

- **Define the purpose of the GTM Strategy:** to drive awareness, access, and usage of prioritized data products.
- Clarify whether the GTM Strategy applies to (for example):
 - All approved monetizable data products
 - A launch cohort (e.g., “Top 5 priority products”)
 - A specific user group or delivery channel (e.g., APIs for startups)

ii. Ensure Go-To-Market Readiness for Roadmap Planning:

- Confirm that the GTM strategy is scoped, resourced, and time-bound in a way that can be translated into actionable initiatives and activities in the Data Monetization Roadmap.
- Define initial GTM milestones, dependencies, and campaign windows that will be sequenced and detailed during roadmap development.

iii. Engage Internal Stakeholders:

- Align communications, legal, IT, and product teams early.
- Create a shared understanding of timelines, messaging principles, and success metrics.

2.6.B

A

Define the Go-To-Market Strategy Approach: The Data Strategy Expert defines the GTM approach and delivery framework, including strategic goals, execution principles, and content standards.

i. **Set Strategic GTM Objectives:**

- Define objectives such as:
 - Launch new products to defined user segments
 - Increase internal or cross-entity data product usage
 - Drive adoption of APIs or self-service dashboards
 - Establish a public-sector data brand identity

ii. **Define Core GTM Components:**

- Structure the strategy around four pillars:
 1. Audience segmentation and targeting
 2. Tailored value propositions
 3. Outreach and communications plan
 4. Adoption and engagement tracking

iii. **Ensure Strategic and Operational Alignment:**

- Revalidate how GTM efforts support:
 - National priorities (e.g., innovation, transparency, efficiency)
 - Internal policy or digital transformation goals
 - Approved delivery and pricing models

2.6.C
(1/2)

A

Define Target Audience: The Data Strategy Expert identifies and prioritizes target users based on strategic value, product applicability, and potential for adoption.

i. **Conduct Ecosystem and Sector Mapping:**

- Identify relevant user types. Examples may include, but are not limited to:
 - Government departments using internal dashboards or analytical data
 - Private companies seeking real-time feeds or decision support
 - Researchers and academics using structured datasets
 - Startups and innovators consuming APIs for prototyping or product development
 - NGOs seeking access to thematic public data

ii. **Segment and Prioritize Audiences:**

- Group by:
 - Use case relevance
 - Technical capabilities
 - Engagement potential
 - Data literacy and onboarding needs

2.6.C
Cont.
(2/2)iii. **Validate Demand and Expectations:**

- Conduct structured engagement (surveys, roundtables, interviews) to assess:
 - Preferred channels of access
 - Willingness to adopt data services
 - Expected onboarding and support models

iv. **Develop Target Audience Profiles:**

- For each group, document:
 - Sector and function
 - Key data challenges
 - Product types of interest
 - Adoption constraints (legal, technical, awareness)
 - Ideal delivery method and pricing tier (based on what best suits the segment's usage needs, budget constraints, and technical capacity)

2.6.D
(1/2)

Craft the Value Proposition: The Data Strategy Expert must develop a compelling and audience-specific value proposition that clearly communicates how each data product addresses real needs, creates public or commercial value, and supports decision-making or innovation.

A

i. **Identify and Prioritize Pain Points:**

- Use research gathered from 2.6.C to extract specific, recurring challenges each target audience faces.
- Group pain points into categories such as:
 - **Data availability:** lack of timely access, fragmented sources
 - **Decision quality:** outdated or incomplete information
 - **Efficiency gaps:** manual processes, duplicated effort
 - **Innovation barriers:** restricted experimentation or sandbox access
- **Example:** Urban planning departments may struggle to assess traffic flow due to the lack of historical and real-time data on congestion patterns.

ii. **Align Product Features to Pain Points:**

- For each segment, describe how the product directly resolves their issues or improves outcomes.
- Focus on clarity and relevance, avoiding technical jargon.
- Include specific product features and delivery methods that matter most to that audience.
- **Example:** A real-time traffic congestion API allows municipal transport authorities to automate incident detection, reducing response time and improving service quality.

iii. **Translate Features into Measurable Outcomes:**

- Move beyond "what the product does" to "what the user gains".

2.6.D
Cont.
(2/2)

- Use a mix of:
 - Quantitative metrics (e.g., “reduces data collection time by 60%”)
 - Qualitative outcomes (e.g., “improves transparency and public trust”)
 - Benchmark or case comparisons where relevant
- **Example:** A water utility company using predictive water usage dashboards saw a 20% reduction in emergency maintenance costs through better forecasting.

iv. Identify and Prioritize Pain Points:

- Customize how the value is communicated based on the audience's role, data literacy, and expected outcomes:
 - Government → service efficiency, policy alignment, public trust
 - Private sector → ROI, automation, competitive advantage
 - Academia → research enablement, structured access for studies and analysis
 - NGOs/civic tech → data-driven advocacy, social impact programs

v. Structure a Value Proposition Canvas:

- For each priority product or audience group, document a value proposition including:
 - Segment name and overview
 - Identified pain points
 - Key product features and delivery method
 - Expected outcomes or benefits
 - One-line value statement (e.g., “Helping [audience] achieve [outcome] through [product]”)

2.6.E
(1/3)

Build the Go-To-Market Marketing Plan: The Data Strategy Expert must design a phased marketing and engagement plan that drives awareness, encourages onboarding, and supports sustained usage of the Entity's data products. The plan should translate GTM strategy into actionable outreach activities, coordinated across channels and departments.

A

i. Define Campaign Objectives and Key Messages:

- Set clear objectives for each GTM phase (pre-launch, launch, post-launch) and define messaging aligned to audience segments and data product types.
- Examples include, but are not limited to:
 - “Promote the public launch of the real-time transport API to startups and reach 30 API key activations”
 - “Increase academic engagement with the environmental data portal through 3 university briefings”
- Each objective should:
 - Be tied to the products identified in 2.3
 - Reflect value propositions developed in 2.6.D
 - Be measurable (see KPIs in step v)

2.6.E
Cont.
(2/3)

ii. Select and Tailor Communication Channels:

- Match the chosen channels to target audience behaviors, preferences, and access levels.
- Examples of outreach channels by audience include, but are not limited to:
 - **Government users:** Inter-ministerial circulars, town halls, internal newsletters
 - **Private sector and startups:** LinkedIn campaigns, developer community engagement, API documentation portals
 - **Academia:** Email outreach to institutions, academic conferences, research consortiums
 - **NGOs and civic tech:** Data-for-good forums, thematic roundtables, shared case studies
- In all cases:
 - Ensure messaging is adapted to audience literacy, familiarity with data, and expectations.
 - Use language that connects product value to sector-specific priorities (e.g., service delivery, compliance, innovation).

iii. Develop a Phased Engagement Plan:

- Structure the campaign into sequential phases to guide users through the awareness-to-adoption journey:

Phase	Objective	Example Activities
Awareness	Introduce product	Generate demand
Interest	Generate demand	Webinars, demo days, use case walk-throughs
Onboarding	Enable first-time use	Tutorials, onboarding toolkits, help desk, FAQ support
Engagement	Encourage sustained use	Community spotlights, “did you know?” campaigns, monthly feature updates
Retention	Building ongoing value	Feedback loops, user groups, cross-product engagement

- Ensure each phase is connected to:
 - A product goal (Activity 2.3)
 - A delivery model (Activity 2.4)
 - A pricing model (Activity 2.5)

2.6.E
Cont.
(3/3)

iv. Assign Roles, Budgets, and Timeline:

- Identify cross-functional teams responsible for GTM execution:
 - **Communications team:** Campaign content and creative
 - **Product teams :** Technical onboarding and FAQs
 - **Governance and legal:** Licensing, access policies, public messaging review
 - **Data Strategy Expert:** Overall coordination and progress tracking
- Define:
 - Campaign start and end dates
 - Timeline per phase
 - Budget allocation for promotional activities (if applicable)
 - Touchpoints for reporting progress and resolving blockers

v. Define Success Metrics and KPIs:

- Establish KPIs aligned to campaign objectives and audience segments. Where possible, map them to monetization objectives or service efficiency targets.
- Examples:
 - Product usage (e.g., API calls, dashboard logins, dataset downloads)
 - Conversion metrics (e.g., % of users who activated after awareness campaign)
 - Engagement trends (e.g., repeat access, session duration)
 - Sector representation (e.g., # of agencies or firms onboarded)
 - User satisfaction (e.g., feedback score, NPS)
- Include baseline and target benchmarks and define review intervals to refine the GTM approach in-flight.

2.6.F

Establish Strategic Partnerships: The Data Strategy Expert engages ecosystem partners to co-launch, promote, or amplify data product visibility.

A

i. Identify potential partners. Examples include but are not limited to:

- Research institutions
- Accelerators and digital innovation hubs
- Sector working groups

ii. Define Mutual value. Examples include but are not limited to:

- Sandbox testing and early access in return for feedback
- Co-branded outreach events or webinars
- Data pilots embedded in ongoing innovation programs

iii. Formalize collaboration:

- Light agreements (MoUs)
- Pilot terms or launch schedules
- Marketing co-ownership and metrics

2.6.G

Review and Approve GTM Strategy: The Data Management and Governance Section Head reviews the full GTM Strategy to ensure it is executable, aligned with national objectives, and compliant with all relevant delivery and pricing parameters.

- Validate audience mapping, value propositions, outreach timeline, KPIs, and partnership logic
- Approve for implementation or return for revisions

A

2.6.H

Incorporate Feedback: The Data Strategy Expert incorporates reviewer input, finalizes the GTM strategy, and prepares for execution.

- Update documentation, adjust messaging or audience scope as needed
- Archive in the centralized monetization repository
- Share finalized GTM Strategy with owners of delivery, pricing, and communication functions

A

RACI Matrix – Go-To-Market Strategy

Indicative

Sr No.	Activity	Data Management and Security Director	Data Management and Governance Section Head	Data Strategy Expert	Data Governance Specialist	Marketing Team
2.6.A	Initiate the Go-to-Market Strategy	A	R	I	I	
2.6.B	Define the Go-to-Market Strategy Approach		A	R	C	
2.6.C	Define Target Audience		A	R		C
2.6.D	Craft the Value Proposition		A	R	C	
2.6.E	Build the Go-To-Market Marketing Plan		A	R		C
2.6.F	Establish Strategic Partnerships		A	R		C
2.6.G	Review and Approve the Go-to-Market Strategy	A	R	I	I	I
2.6.H	Incorporate Feedback	I	I	R	C	C

RACI Matrix Legend: R: Responsible A: Accountable C: Consulted I: Informed

Based on this Activity, the Entity can



Define Go-to-Market Strategy



Build the Go-To-Market Marketing Plan

Legend: Capability Level

A

Advanced

VA

Very Advanced

2.7 Data Monetization Roadmap

The Entity shall develop a data monetization roadmap to systematically implement and monitor data monetization initiatives in alignment with its data monetization vision and objectives, data strategy, broader Entity strategic objectives, and national development priorities. The roadmap will serve as a structured plan to guide the execution, sequencing, and resource allocation of monetization efforts while ensuring business alignment and regulatory compliance.

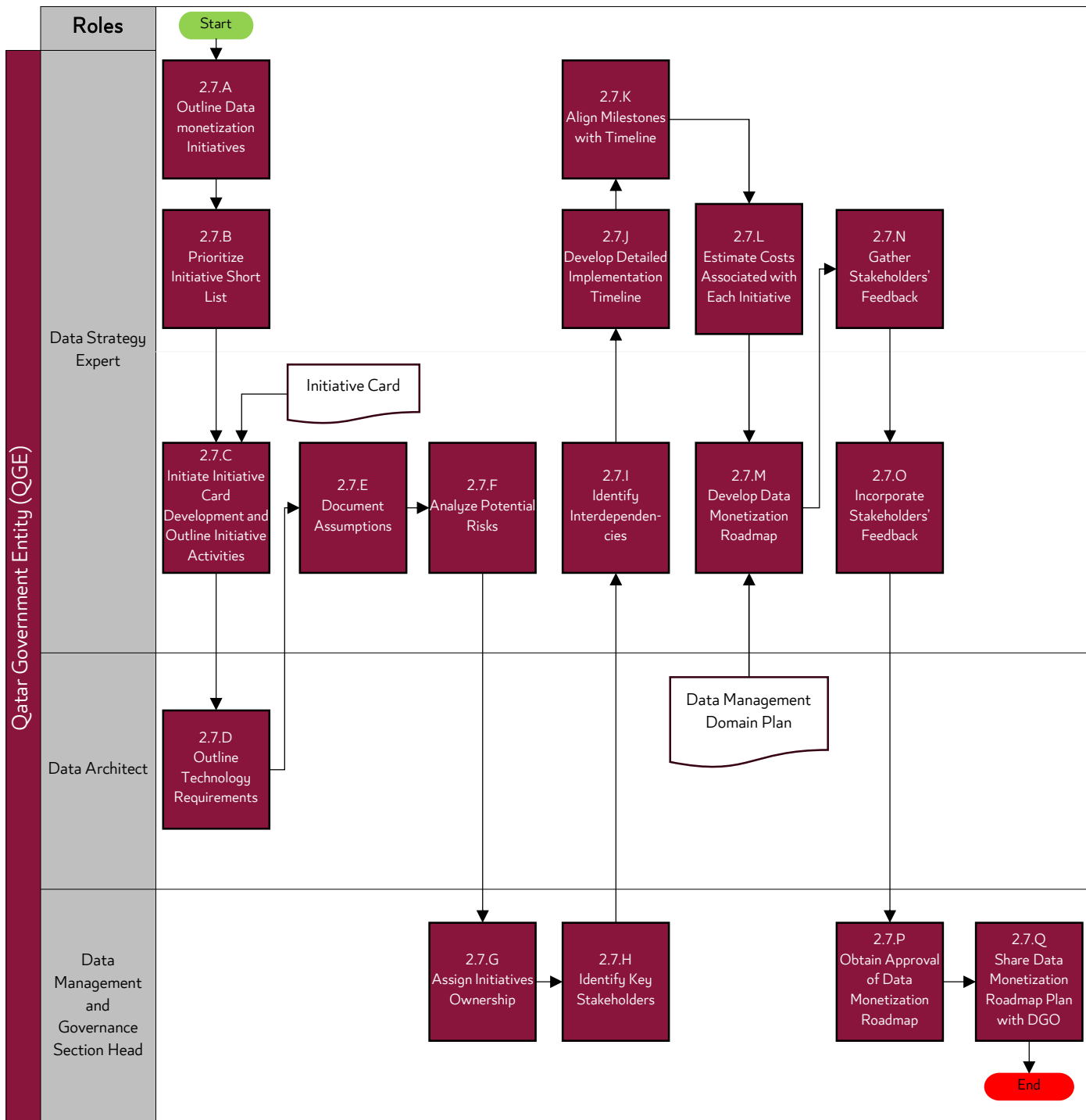


Figure 7: Data Monetization Roadmap Process Map

Legend: Process Step Decision Process Start Process End Document Off-Page Reference

2.7.A

Outline Data Monetization Initiatives: The Entity must identify and document a comprehensive long list of data monetization initiatives to be included in the roadmap, covering both short-term enablers and longer-term strategic activities. These initiatives translate the data monetization vision into actionable projects, ensuring the Entity's monetization efforts are viable, sequenced, and aligned with the Entity's objectives.



Key Message / Information

The initiatives captured in this step may include the development and launch of specific data products (based on Data Product Charters created in Activity 2.3), but also broader enablement efforts such as delivery platform enhancements, governance model improvements, or pilot programs. The roadmap is not limited to products — it also covers infrastructure, operations, and policy-related activities needed to support sustainable monetization.

Examples of Data Monetization initiatives include, but are not limited to:

- Conducting internal data product pilots and sandbox initiatives
- Developing and launching priority data products (e.g., APIs, dashboards, curated datasets)
- Building or enhancing data delivery platforms (e.g., data marketplaces, developer portals)
- Establishing or updating monetization governance roles and workflows
- Automating access request workflows for commercial and internal users
- Creating inter-agency cost recovery models for internal data sharing
- Enhancing data licensing frameworks to support tiered access and consent management
- Launching marketing campaigns and onboarding programs to drive user adoption
- Upgrading technical infrastructure for delivery, access control, and usage metering

2.7.B

Prioritize Initiative Short List: The Entity must evaluate and prioritize the list of data monetization initiatives identified in 2.7.A, selecting a set of initiatives to move forward for detailed planning and roadmap development. Prioritization ensures that the Entity allocates its available budgets, staffing capacity, and technical resources effectively across both near-term and longer-term initiatives, based on each initiative's value, feasibility, and implementation dependencies.

Initiatives may be prioritized based on:

- **Strategic Alignment:** Contribution to monetization objectives such as revenue generation, operational efficiency, innovation, and public value.
- **Feasibility:** The readiness of data, platforms, governance structures, and organizational support needed to implement the initiative successfully.
- **Dependencies:** Links to prioritized products, approved delivery models, or pricing considerations that affect sequencing.
- **Impact Potential:** The scale and visibility of value delivered, across short-term and long-term horizons.

The resulting prioritized list ensures that early momentum is achieved without losing sight of the structural enablers required for sustainable data monetization.

2.7.C

A

Initiate Initiative Card Development and Outline Initiative Activities: Develop initiative cards for each prioritized initiative outlined in the short list, capturing essential activities and steps required to guide implementation. For each initiative, outline the key activities by breaking them down into specific steps and sub-activities that need to be completed in sequence (where applicable). Include descriptions of each step to provide clear guidance on execution, along with any necessary details on tools, techniques, or methodologies that may be required.

Asset Guidance

An **Initiative Card Template** provides a structured format to document key information related to prioritized initiatives, such as initiative overview, key activities, sponsor, owner, stakeholders, timeline, key milestones, budget, technology requirements, dependencies, assumptions, risks, and milestones. The initiative cards provide a structured overview of proposed projects, allowing stakeholders to quickly understand each initiative's purpose, expected impact, and resource requirements.

Illustrative

OVERVIEW xxx		SPONSOR xxx	OWNER xxx	STAKEHOLDERS xxx
KEY ACTIVITIES		TIMELINE	BUDGET (IN QAR)	
1. Key Activity I. Sub-activity X • Detailed Steps II. Sub-activity Y • Detailed Steps 2. Key Activity I. Sub-activity X • Detailed Steps II. Sub-activity Y • Detailed Steps		xxx	QAR xxx	
		EXPECTED BENEFITS		
		• xxx		
		KEY MILESTONES		
		A. xxx B. xxx C. xxx		
		TECHNOLOGY REQUIREMENTS		
		• xxx		

OVERVIEW xxx		SPONSOR xxx	OWNER xxx	STAKEHOLDERS xxx																																																																																																									
KEY ACTIVITIES		TIMELINE																																																																																																											
<table border="1"> <thead> <tr> <th>#</th> <th>Milestones & Key Activities</th> </tr> </thead> <tbody> <tr> <td>A.</td> <td>Milestone</td> </tr> <tr> <td>1.</td> <td>Key Activity</td> </tr> <tr> <td>B.</td> <td>Milestone</td> </tr> <tr> <td>2.</td> <td>Key Activity</td> </tr> <tr> <td>C.</td> <td>Milestone</td> </tr> <tr> <td>3.</td> <td>Key Activity</td> </tr> </tbody> </table>		#	Milestones & Key Activities	A.	Milestone	1.	Key Activity	B.	Milestone	2.	Key Activity	C.	Milestone	3.	Key Activity	<table border="1"> <thead> <tr> <th>#</th> <th>M1</th> <th>M2</th> <th>M3</th> <th>M4</th> <th>M5</th> <th>M6</th> <th>M7</th> <th>M8</th> <th>M9</th> <th>M10</th> <th>M11</th> <th>M12</th> </tr> </thead> <tbody> <tr> <td>A.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>B.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>C.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			#	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	A.													1.													B.													2.													C.													3.												
#	Milestones & Key Activities																																																																																																												
A.	Milestone																																																																																																												
1.	Key Activity																																																																																																												
B.	Milestone																																																																																																												
2.	Key Activity																																																																																																												
C.	Milestone																																																																																																												
3.	Key Activity																																																																																																												
#	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12																																																																																																	
A.																																																																																																													
1.																																																																																																													
B.																																																																																																													
2.																																																																																																													
C.																																																																																																													
3.																																																																																																													
DEPENDENCIES		ASSUMPTIONS & RISKS																																																																																																											
• xxx		• xxx																																																																																																											

2.7.D

Outline Technology Requirements: Identify and document the technology requirements needed to support each prioritized data monetization initiative. This includes outlining the required tools, software, and systems needed to ensure successful implementation and adoption across the Entity.

A

2.7.E

Document Assumptions: Record assumptions including but not limited to resource availability, stakeholder engagement, and data complexity to ensure transparency and guide decision-making.

A

2.7.F

Analyze Potential Risks: Identify and assess risks associated with data monetization initiatives to ensure proactive mitigation strategies. Examples include but are not limited to:

A

- **Limited Standardization Support:** Low stakeholder buy-in for data-sharing frameworks and integration protocols may hinder data monetization vision.
- **Data Privacy Compliance:** Insufficient implementation of data protection measures may lead to non-compliance, especially when monetizing sensitive datasets
- **Unclear Ownership and Governance:** Lack of defined roles, responsibilities, and decision rights across data domains and monetization efforts.
- **Dependence on External Systems:** Over-reliance on third-party systems or data inputs may create bottlenecks or introduce quality/availability concerns.
- **Resource Constraints:** Limited internal capacity or outdated infrastructure may delay key integration or platform-related initiatives.

2.7.G

Assign Initiatives Ownership: The Data Management and Governance Section Head will assume ownership of all the data monetization initiatives. This designation ensures that all the initiatives have a dedicated leader who can oversee progress and resolve roadblocks that may arise.

A

2.7.H

Identify Key Stakeholders: Identify and engage key stakeholders essential to the success of data monetization initiatives, including but not limited to data owners, IT teams, data architects, business users, and data governance specialists. Early involvement ensures alignment with strategic objectives, clarifies roles and responsibilities, and facilitates collaboration, enabling execution and adoption of integration efforts.

A

2.7.I

Identify Interdependencies: Analyze how data monetization initiatives may impact or be influenced by existing systems, projects, or planned upgrades to enhance resource coordination. This step involves:

A

- Reviewing how integration efforts intersect with ongoing IT and business workflows.
- Identifying resource dependencies, including shared teams, tools, or data assets.
- Ensuring cross-departmental coordination to prevent conflicts, redundancies, or delays.

2.7.J

Develop Detailed Implementation Timeline: Break down each activity within the respective initiative into actionable steps with start and end dates, ensuring the timeline is realistic and achievable. Each step should have a clear description of the required task, dependencies on other activities, and allocated resources. Ensure that the timeline accounts for potential delays or risks identified earlier, so adjustments can be made without derailing the project.

A

2.7.K

Align Milestones with Timeline: Set specific checkpoints or milestones throughout the implementation to assess progress. These milestones allow the evaluation of whether the initiative is proceeding as planned and provide opportunities for course corrections.

A

2.7.L

Estimate Costs Associated with Each Initiative: Estimate Costs Associated with Each Initiative: Estimate expenses related to data product development, delivery enablement, licensing and compliance, marketing and outreach, platform maintenance, people resources, and training needs. This step ensures the budget is realistic, comprehensive, and covers both one-time setup and development activities, and ongoing operational requirements to support successful monetization.

A

2.7.M

Develop Data Monetization Roadmap: Create a roadmap outlining timelines, phases, and key milestones for implementing prioritized data monetization initiatives. Sequence initiatives based on dependencies, resource availability, and strategic alignment. Define projected timelines for each initiative to enable stakeholders to monitor progress, coordinate efforts, and allocate resources effectively over time.

A

Asset Guidance

The **Data Management Domain Plan Template** helps the Entity to outline each identified initiative, including its sub-activities, owners, stakeholders, and activity timeframes.

Illustrative

[illegible]

2.7.N

Gather Stakeholders' Feedback: Present the draft plan to all relevant stakeholders, inviting input on its objectives, scope, proposed activities, and overall timeline. This step ensures that any potential issues, concerns, or overlooked areas are identified early, improving the plan's alignment with organizational needs and building stakeholder commitment.

A

2.7.O

Incorporate Stakeholders' Feedback: Incorporate constructive feedback from stakeholders to refine the plan, addressing identified concerns and ensuring it aligns with stakeholder expectations. This step fine-tunes the plan details and strengthens its practical feasibility by leveraging diverse perspectives.

A

2.7.P

Obtain Approval of Data Monetization Roadmap: After incorporating stakeholder feedback, present the finalized Data Monetization Roadmap to the Data Committee or relevant authority for formal approval. This step ensures alignment with organizational priorities and secures support for implementation. Once approved, the plan is formally adopted and communicated to all relevant stakeholders.

A

2.7.Q

Share Data Monetization Roadmap Plan with DGO: Submit the finalized Data Monetization Roadmap to the National Data Governance Office (DGO) for review. The DGO will review the plan and provide recommendations, allowing the Entity to ensure their plan aligns with the broader national data program agenda and best practices.

A

RACI Matrix – Data Monetization Plan

Indicative

Sr No.	Activity	DGO	Data Management and Security Director	Data Management and Governance Section Head	Data Governance Specialist	Data Architect	Data Stewards	Data Strategy Expert
2.7.A	Outline Data Monetization Initiatives		A	C	C		C	R
2.7.B	Prioritize Initiative Short List		A	C	C		C	R
2.7.C	Initiate Initiative Card Development and Outline Initiative Activities			A	C			R
2.7.D	Outline Technology Requirements			A	C	R	C	C
2.7.E	Document Assumptions			A	C		C	R
2.7.F	Analyze Potential Risks			A	C			R
2.7.G	Assign Initiatives Ownership		A	R				
2.7.H	Identify Key Stakeholders		A	R			C	C
2.7.I	Identify Interdependencies			A	C			R
2.7.J	Develop Detailed Implementation Timeline			A	C			R
2.7.K	Align Milestones with Timeline			A	C			R
2.7.L	Estimate Costs Associated with Each Initiative			A	C		C	R
2.7.M	Develop Data Monetization Roadmap			A	C			R
2.7.N	Gather Stakeholders' Feedback			A				R
2.7.O	Incorporate Stakeholders' Feedback			A	C			R
2.7.P	Obtain Approval of Data Monetization Roadmap		A	R				
2.7.Q	Share Data Monetization Roadmap Plan with DGO	C/I	A	R				

RACI Matrix Legend:

R: Responsible

A: Accountable

C: Consulted

I: Informed

Based on this Activity, the Entity can

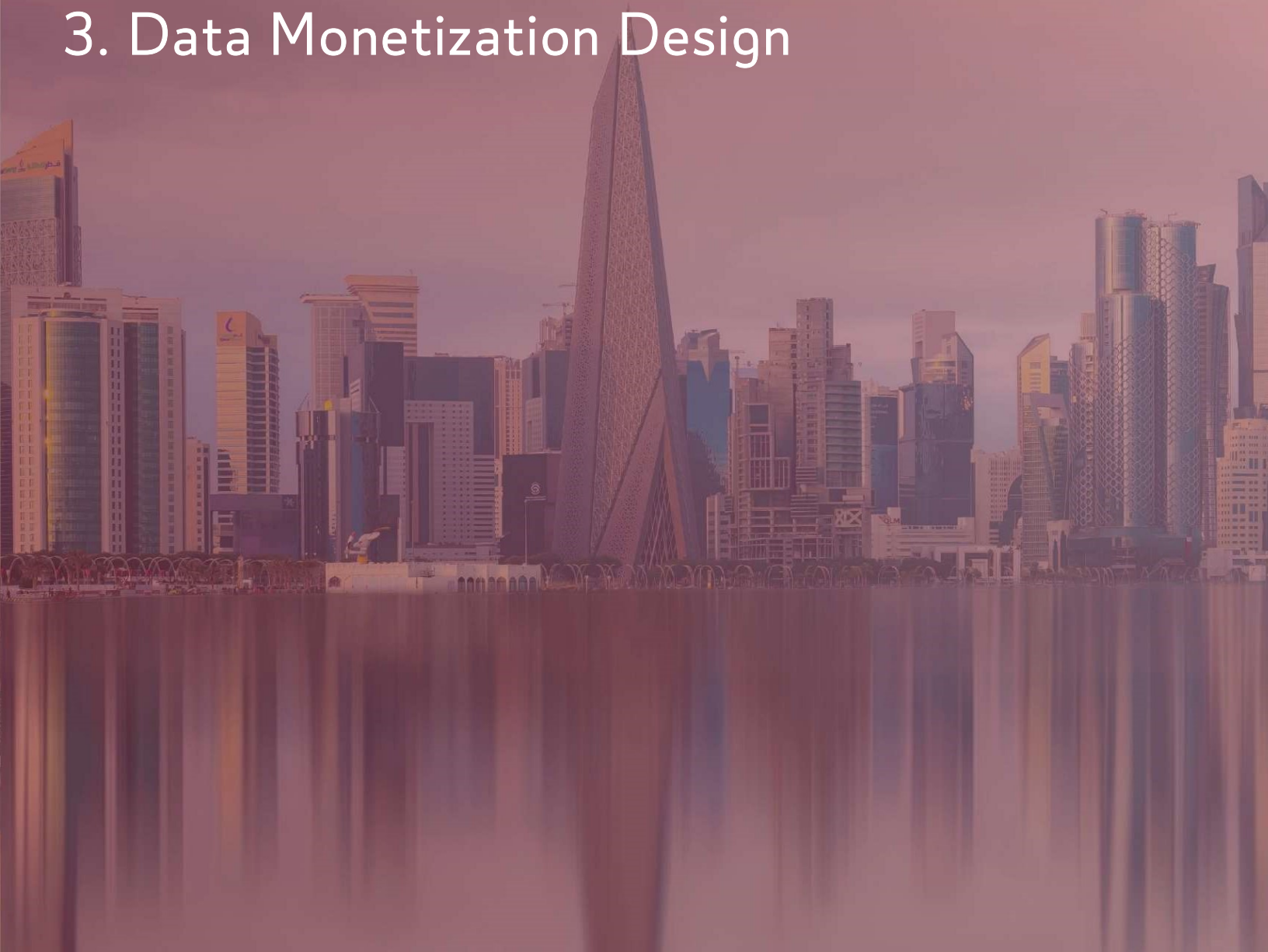


Outline Data Monetization Initiatives



Develop and Review Data Monetization Roadmap

3. Data Monetization Design



3. Data Monetization Design

What is Data Monetization Design and why does the Entity need it?

The Data Monetization Design section focuses on translating the strategic planning and roadmap activities into detailed, actionable designs that prepare data products for operationalization and monetization.

This section ensures that each prioritized data product undergoes Proof of Concept (POC) validation, is supported by a technical architecture, and is governed by standardized, legally compliant data contracts. By following a structured approach to design validation, architecture development, and contractual governance, the Entity minimizes delivery risks, ensures scalability and security, and lays the foundation for sustainable, trusted data monetization initiatives. Section 3 is comprised of three key activities:

- **3.1 Data Products POC:** Validate the technical feasibility, usability, compliance, and adoption potential of prioritized data products through sandbox testing.
- **3.2 Data Product Architecture:** Develop high-level and low-level technical designs that define the structure, workflows, security, and interoperability of the data products, aligned with the national data standards.
- **3.3 Data Contracts:** Prepare and finalize populated data contracts using standardized templates, ensuring proper governance, legal compliance, and operational readiness for product deployment.

By completing this section, the Entity ensures that each data product is technically sound, legally protected, and strategically positioned for successful monetization and market engagement. The remaining sections of this chapter will detail the below activities to guide the execution of the below:



Guiding Principles for Data Monetization Design

1. **Value-Driven Product Design and Prioritization:** Design data products with a clear, validated business or societal value proposition, ensuring strategic alignment with the Entity's data monetization vision, broader Entity objectives, and national development priorities.
2. **POC as a Critical Validation Stage:** Use sandbox environments and structured POC exercises to validate the technical feasibility and user value of proposed data products before committing to full-scale development and deployment.
3. **Comprehensive and Consistent Architecture Documentation:** Develop and maintain both high-level and low-level technical design documents for each data product, clearly detailing system architecture, data flows, access protocols, security specifications, and operational considerations.
4. **Structured and Governed Data Exchange:** Establish formal data contracts for each data product, clearly defining roles, responsibilities, access rights, usage conditions, security, privacy obligations, and retention and deletion terms in alignment with national data governance standards.
5. **User-Centric Design and Accessibility:** Prioritize intuitive user interfaces, accessible data formats, clear metadata publication, and technical guidance to ensure usability for a diverse range of internal and external users.
6. **Continuous Product Design and Governance Enhancement:** Embed structured feedback loops, testing evaluations, and compliance monitoring to continuously refine product designs, governance frameworks, and user support processes in response to operational learnings and evolving needs.

3.1 Data Products Proof of Concept (POC)

The POC phase allows the Entity to validate the feasibility, usability, compliance, and strategic fit of prioritized data products before committing to full development and market launch. Conducted within a controlled sandbox or non-production environment, the POC ensures that technical assumptions, delivery models, pricing approaches, and user adoption pathways are tested under real-world conditions with minimal risk.

By executing POCs, the Entity can minimize delivery risks, refine product design, confirm regulatory alignment, and gather early user feedback. Each POC must be directly linked to an initiative in the approved Data Monetization Roadmap and contribute to informed decision-making around final product development, resource allocation, and roadmap sequencing.

This activity ensures that only validated, feasible, and value-aligned products move forward into full-scale commercialization or internal deployment efforts.

Process – Data Products Proof of Concept

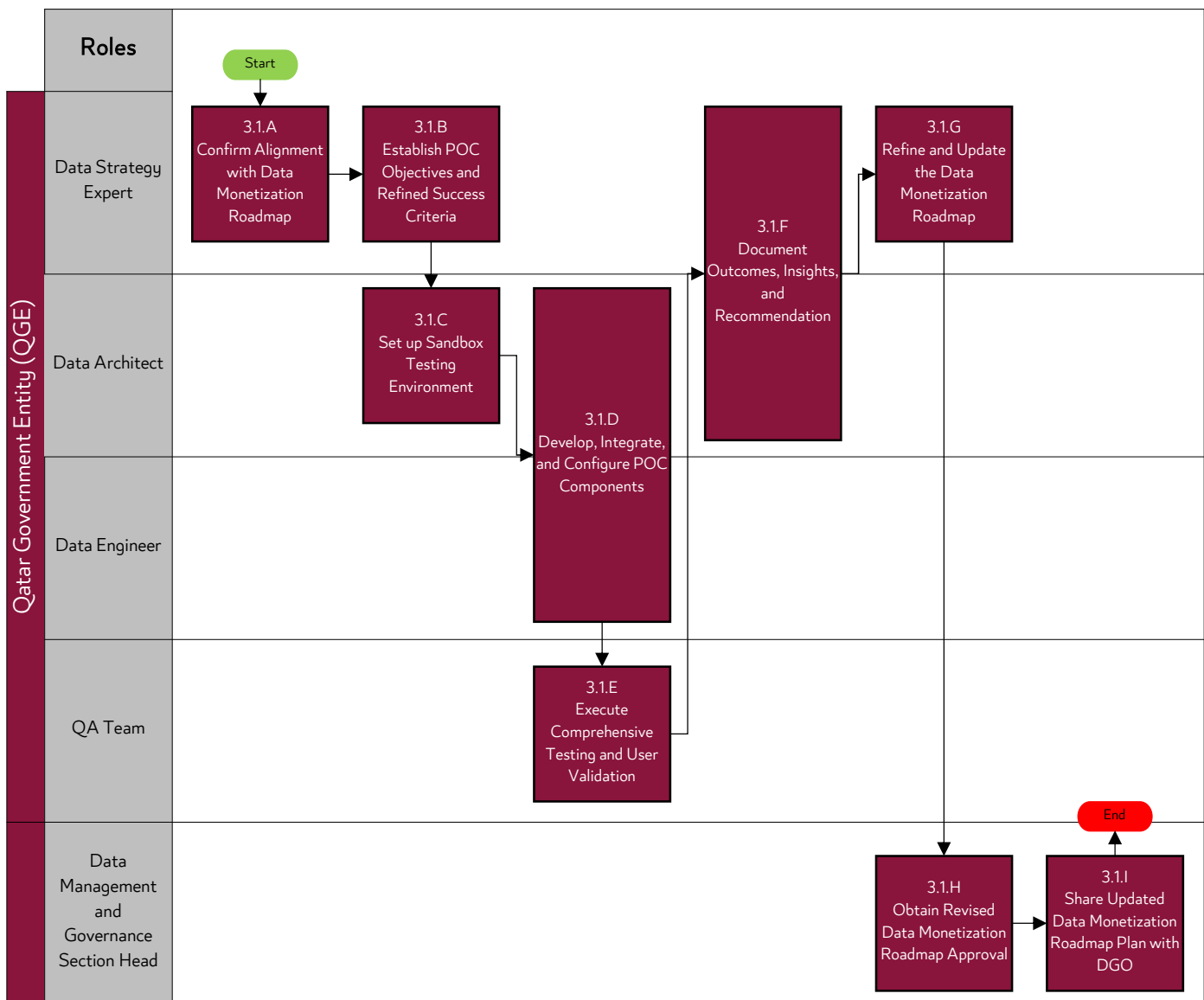


Figure 8: Data Products Proof of Concept Process Map

Legend: Process Step Decision Process Start Process End Document Off-Page Reference

3.1.A

A

Confirm Alignment with Data Monetization Roadmap: The Data Strategy Expert must validate that each data product selected for POC is correctly prioritized within the Data Monetization Roadmap and that the POC scope is aligned with strategic goals, technical readiness, and resource availability. This ensures that POCs are properly integrated into the Entity's monetization strategy and can be realistically executed within planned timelines and capabilities.

i. **Confirm Product Prioritization in the Roadmap:**

- a. **Validate Roadmap Listing:** Ensure the data product appears in the approved Data Monetization Roadmap.
 - Check that the product is linked to a specific initiative or workstream.
 - Confirm that the product's intended delivery model and target audience are documented.
- b. **Confirm Strategic Alignment:** Verify that the selected POC product contributes to monetization vision and objectives.
 - Validate that the product supports revenue generation, operational efficiency, innovation, or public value.
 - Ensure the product aligns with national or sectoral.

ii. **Confirm Resource and Readiness Alignment:**

- a. **Validate Resource Availability:** Check that technical, financial, and human resources are allocated for the POC execution.
 - Verify that sandbox environments and testing platforms are provisioned.
 - Confirm assignment of owners and delivery teams for the POC.
- b. **Assess Readiness Dependencies:** Review readiness dependencies based on capability assessment outputs.
 - Identify any pre-requisite activities (e.g., data cleansing, access approvals) required before initiating the POC.
 - Flag any gaps that could delay or block POC execution.

iii. **Define POC Execution Scope:**

- a. **Scope Validation:** Confirm that the intended POC covers the necessary technical components and user validation scope.
 - Ensure focus on priority features that influence delivery model validation.
 - Avoid unnecessary overbuild beyond sandbox testing needs.
- b. **Success Integration Planning:** Prepare for integration of validated POC outcomes into production plans and roadmap adjustments.
 - Define how learnings from the POC will influence the future architecture and operational models.
 - Plan review checkpoints for refining initiative milestones based on POC findings.

Establish POC Objectives and Refined Success Criteria: The Data Strategy Expert must define the objectives and success criteria for each POC to ensure that testing efforts are targeted, measurable, and aligned with strategic, technical, and operational goals.

i. **Define the POC Validation Objectives:**

- a. **Set Strategic Validation Goals:** Define the high-level purpose of the POC (e.g., confirm feasibility, usability, or compliance).
 - Align the objectives with the Data Monetization Vision and Roadmap.
 - Ensure objectives link directly to monetization enablers, such as delivery model validation, pricing feasibility, or user adoption pathways.
- b. **Tailor Objectives to Product and Delivery Model:** Customize objectives based on the product's nature and delivery approach. Examples include, but are not limited to:
 - **API products:** Focus on scalability, integration readiness, and metering accuracy.
 - **Dashboards/portals:** Focus on user experience, data refresh reliability, and access control.

ii. **Define Success Criteria for Evaluation:**

- a. **Establish Technical Success Measures:** Define minimum acceptable thresholds for system performance and reliability.
 - E.g., API uptime $\geq 99\%$, dashboard response time ≤ 3 seconds under load.
- b. **Establish Compliance and Privacy Success Measures:** Specify success requirements for data protection, access control, and regulatory compliance.
 - E.g., no unauthorized access incidents.
- c. **Establish User Experience Success Measures:** Set targets for onboarding success, ease of use, and satisfaction.
 - E.g., $>80\%$ of test users complete onboarding without assistance; user satisfaction rating >4 out of 5.

iii. **Identify Testing Boundaries and Constraints:**

- a. **Define Testing Scope Limits:** Clarify what is in-scope and out-of-scope for the POC to maintain focus.
 - E.g., Only basic search functionality is tested; advanced analytics features are excluded.
- b. **Identify Known Constraints:** Document any known risks or limitations that could affect POC outcomes.
 - E.g., Limited sample data volume and restricted user group access.

3.1.C
(1/2)

A

Set Up Sandbox Testing Environment: The Data Architect and Data Engineer must establish a secure, isolated testing environment that replicates real-world conditions while maintaining a risk-free, non-production setting for validating POC objectives.

i. **Establish Sandbox Governance and Security Controls:**

- a. **Implement Data Privacy and Security Measures:** Apply anonymization, masking, or tokenization for sensitive data used in the sandbox.
 - Ensure no PII or sensitive records are exposed.
 - Use synthetic data where real datasets cannot meet privacy requirements.
- b. **Configure Access Controls and Audit Mechanisms:** Set up role-based access permissions for testers, developers, and reviewers.
 - Enable full audit logging of data access, changes, and test activities.
 - Restrict data export and external API connectivity unless explicitly authorized.

ii. **Build and Configure Sandbox Technical Infrastructure:**

- a. **Deploy Core Sandbox Components:** Set up isolated environments for hosting APIs, data stores, dashboards, or user portals.
 - Ensure scalability to handle intended testing volumes and user loads.
 - Replicate core delivery model experiences (e.g., API calls, dashboard views).
- b. **Integrate Testing and Monitoring Tools:** Install tools for performance monitoring, functional testing, and user feedback capture.
 - Enable usage tracking for APIs or portals during testing.
 - Set up automated alerts for critical failures during stress testing.

iii. **Prepare and Load Data Assets for Testing:**

- a. **Curate and Load Test Data:** Select, clean, and load sample datasets aligned to the POC scope.
 - Include sufficient metadata, quality controls, and lineage documentation.
- b. **Manage Data Versions and Refresh Logic:** Establish data versioning protocols to support reproducibility and rollback if needed.
 - Simulate scheduled refreshes or live streaming updates where applicable to mimic real-world operations.

iv. **Enable User Collaboration and Feedback Collection:**

- a. **Configure User Interaction Points:** Set up channels inside the sandbox for testers to submit feedback, flag issues, and suggest improvements.
 - E.g., Embedded feedback forms, ticketing portals, annotated dashboards.

3.1.C
Cont.
(2/2)

- b. **Define Feedback Management Process:** Assign responsibilities for triaging and analyzing feedback collected during the POC phase.

- Ensure feedback is linked to specific user sessions and testing objectives.

- v. **Define Exit Strategy for Sandbox Decommissioning:**

- a. **Set Time Limits and Access Closure:** Define maximum testing duration (e.g., 4–8 weeks) and automatic access revocation dates.

- Notify users in advance of planned environment shutdowns.

- b. **Plan for Data and Asset Disposition:** Define secure data retention or deletion protocols post-POC.

- Archive necessary test logs, feedback, and findings for auditing and traceability.

3.1.D
(1/2)

Develop, Integrate, and Configure POC Components: The Data Engineer and Data Architect must build, configure, and integrate the minimum viable components required for executing the POC within the sandbox environment.

A

- i. **Develop Core POC Components:**

- a. **Build Minimum Viable Features:** Develop APIs, ingestion pipelines, dashboards, or portals that represent the essential functionality of the data product.

- Focus only on critical workflows identified in the POC scope.
- Prioritize simplicity, modularity, and scalability.

- b. **Enable Basic Access and Usage Controls:** Implement access authentication (e.g., API keys, user accounts) and basic usage tracking mechanisms.

- Set up test credentials or sandbox-specific access tiers.
- Prepare initial metering logic if applicable (e.g., basic API call counters).

- ii. **Integrate with Supporting Systems and Platforms:**

- a. **Establish Internal Integrations:** Connect POC components to required backend systems such as data repositories, authentication servers, or analytics engines.

- Simulate realistic data flows wherever feasible.
- Use mocked services if live integrations are unavailable.

- b. **Configure Monitoring and Logging:** Set up basic performance monitoring (e.g., API latency dashboards, system health alerts).

- Enable logging of key actions such as API calls, login attempts, data exports.

- iii. **Configure Preliminary Delivery Model Simulations:**

- a. **Activate Simulated Delivery Channels:** Replicate intended delivery model behavior inside the sandbox environment.

3.1.D
Cont.
(2/2)

- **For APIs:** Enable endpoints that represent the production access structure.
- **For dashboards/portals:** Set up navigation, filtering, and basic visualization elements.

b. **Implement Access and Tiering Rules:** Apply tiered access controls or feature restrictions that mirror planned pricing or access models.

- E.g., Free-tier user vs. paid-tier user differences in available features.

3.1.E

Execute Comprehensive Testing and User Validation: The QA Team, supported by the Data Strategy Expert and Data Architect, must conduct structured, end-to-end testing of the POC to validate technical functionality, data quality, compliance, and user experience before full-scale deployment.

A

i. **Conduct Functional and Technical Testing:**

a. **Validate Core System Workflows:** Ensure APIs, data ingestion pipelines, dashboards, and access portals perform as intended.

- Verify successful API call responses and data flow consistency.
- Confirm data retrieval, upload, and visualization work correctly across platforms.

b. **Perform Load and Stress Testing:** Simulate concurrent usage to evaluate system resilience under peak load conditions.

- Measure latency, throughput, and error rates under increasing demand.
- Identify system bottlenecks or failures under simulated real-world pressure.

ii. **Conduct Data Quality and Compliance Testing:**

a. **Validate Data Quality:** Assess data against the seven data quality dimensions.

- Ensure no critical data fields are missing in test outputs.
- Verify that data refresh cycles align with product requirements.

b. **Assess Regulatory Compliance and Access Controls:** Validate that all sandbox activities comply with applicable privacy, licensing, and access control policies.

- Confirm audit logs capture necessary user and system activities.
- Test failure scenarios for unauthorized access attempts or missing consent.

iii. **Conduct User Experience Testing and Feedback Collection:**

a. **Execute User Validation Sessions:** Conduct structured test sessions with target user groups (internal and/or external testers).

- Walk users through critical workflows like account creation, API access, data search, or dashboard exploration.
- Observe user behavior and navigation patterns to capture usability issues.

b. **Collect and Analyze User Feedback:** Gather structured feedback from testers to assess perceived value, ease of use, and onboarding friction.

- Use feedback forms, quick surveys, and debrief interviews after testing sessions.
- Analyze feedback against POC objectives and identify common themes.

3.1.F

Document Outcomes, Insights, and Recommendation: The Data Architect must consolidate and document all POC results, capturing technical findings, user feedback, and actionable recommendations to guide full-scale development and roadmap adjustments.

i. **Summarize Technical and Testing Results:**

- a. **Capture System and Data Findings:** Document key observations from functional, performance, and data quality testing.
 - Highlight major successes, bottlenecks, and critical technical gaps.
- b. **Trace Results to Success Criteria:** Map testing outcomes back to the POC objectives and success criteria.
 - Identify whether each criterion was met, partially met, or not met.

ii. **Consolidate User Experience and Compliance Insights:**

- a. **Analyze User Feedback:** Summarize feedback on onboarding experience, usability, and overall satisfaction.
 - Highlight recurring issues or improvement suggestions raised by users.
- b. **Capture Compliance Observations:** Document any privacy, access control, or audit trail issues identified during testing.
 - Confirm compliance validation outcomes against regulatory standards.

iii. **Formulate Recommendations for Next Steps:**

- a. **Recommend Technical Adjustments:** Suggest improvements to product architecture, delivery models, or sandbox configuration based on testing results.
 - Prioritize quick fixes and critical scalability needs.
- b. **Recommend Roadmap Adjustments:**
 - Propose any necessary changes to roadmap sequencing, initiative timelines, or resource allocations based on validated findings.

A

3.1.G
Cont.
(1/2)

Refine and Update the Data Monetization Roadmap: The Data Strategy Expert must incorporate validated POC insights into the Data Monetization Roadmap to adjust initiative timelines, resource allocations, and delivery expectations based on real-world findings.

i. **Analyze Impact of POC Outcomes:**

- a. **Assess Strategic and Operational Adjustments:** Review how POC results affect the feasibility, timelines, or scope of data monetization initiatives.
 - Identify whether major technical, compliance, or user adoption barriers were uncovered.
 - Validate whether previously set delivery milestones remain realistic.

A

3.1.G
Cont.
(2/2)

- b. **Identify Resource and Resourcing Implications:** Determine if additional technical, financial, or staffing resources are required.

- Highlight initiatives that may need accelerated investment or replanning.

ii. **Implement Roadmap Refinements:**

- a. **Update Initiative Timelines and Milestones:** Adjust project phases, delivery dates, or interim checkpoints where required.

- Ensure all updates are based on validated, documented POC outcomes.

- b. **Refine Scope or Prioritization Where Necessary:** Propose minor re-sequencing or rescoping of initiatives if critical path dependencies have shifted.

- Maintain overall alignment with the data monetization vision and objectives.

- c. **Prepare Updated Roadmap Package:** Document all changes to initiatives, timelines, and resource plans based on POC learnings.

- Summarize rationale for each adjustment clearly.

3.1.H

Obtain Revised Data Monetization Roadmap Approval: Submit the updated Data Monetization Roadmap to the Data Committee or relevant authority for formal approval. This step ensures alignment with POC insights and secures support for implementation. Once approved, the plan is formally adopted and communicated to all relevant stakeholders.

A

3.1.I

Share Updated Data Monetization Roadmap Plan with DGO: Submit the updated Data Monetization Roadmap to the National Data Governance Office (DGO) for review. The DGO will review the plan and provide recommendations, allowing the Entity to ensure their plan aligns with the broader national data program agenda and best practices.

A

RACI Matrix – Data Products Proof of Concept

Indicative

Sr No.	Activity	DGO	Data Management and Security Director	Data Architecture and Analytics Section Head	Data Management and Governance Section Head	Data Strategy Expert	Data Compliance Specialist	Data Architect	Data Engineer	QA Team
3.1.A	Confirm Alignment with Data Monetization Roadmap		I		A	R	C			
3.1.B	Establish POC Objectives and Refined Success Criteria				A	R				
3.1.C	Set up Sandbox Testing Environment			A		C		R	C	
3.1.D	Develop, Integrate, and Configure POC Components			A		C		R	R	
3.1.E	Execute Comprehensive Testing and User Validation			A		C	C	C	C	R
3.1.F	Document Outcomes, Insights, and Recommendation			A		R		R		
3.1.G	Refine and Update the Data Monetization Roadmap		I		A/R	R	C			
3.1.H	Obtain Revised Data Monetization Roadmap Approval		A		R	I				
3.1.I	Share Updated Data Monetization Roadmap Plan with DGO	C/I	A		R					

RACI Matrix Legend:

R: Responsible

A: Accountable

C: Consulted

I: Informed

Based on this Activity, the Entity can



Develop and Review Data Products POC

Legend: Capability Level

A Advanced

VA Very Advanced

3.2 Data Products Architecture

The Data Product Architecture activity translates validated POC results into structured technical designs that will guide the full-scale development, deployment, and operation of data products. This activity ensures that every monetized data product has a robust, scalable, secure, and interoperable foundation aligned with the Entity’s strategic objectives and national data architecture standards.

The Entity must develop both a high-level architecture and a detailed low-level architecture that collectively define system components, integration points, data flows, user interactions, and security specifications. Architecture designs must reflect POC insights, comply with security and privacy requirements, and ensure the data product is operationally ready for commercialization or internal deployment.

This activity is critical to minimizing delivery risks, ensuring system scalability, protecting data assets, and enabling seamless integration with existing and future digital infrastructure.

Process – Data Products Architecture

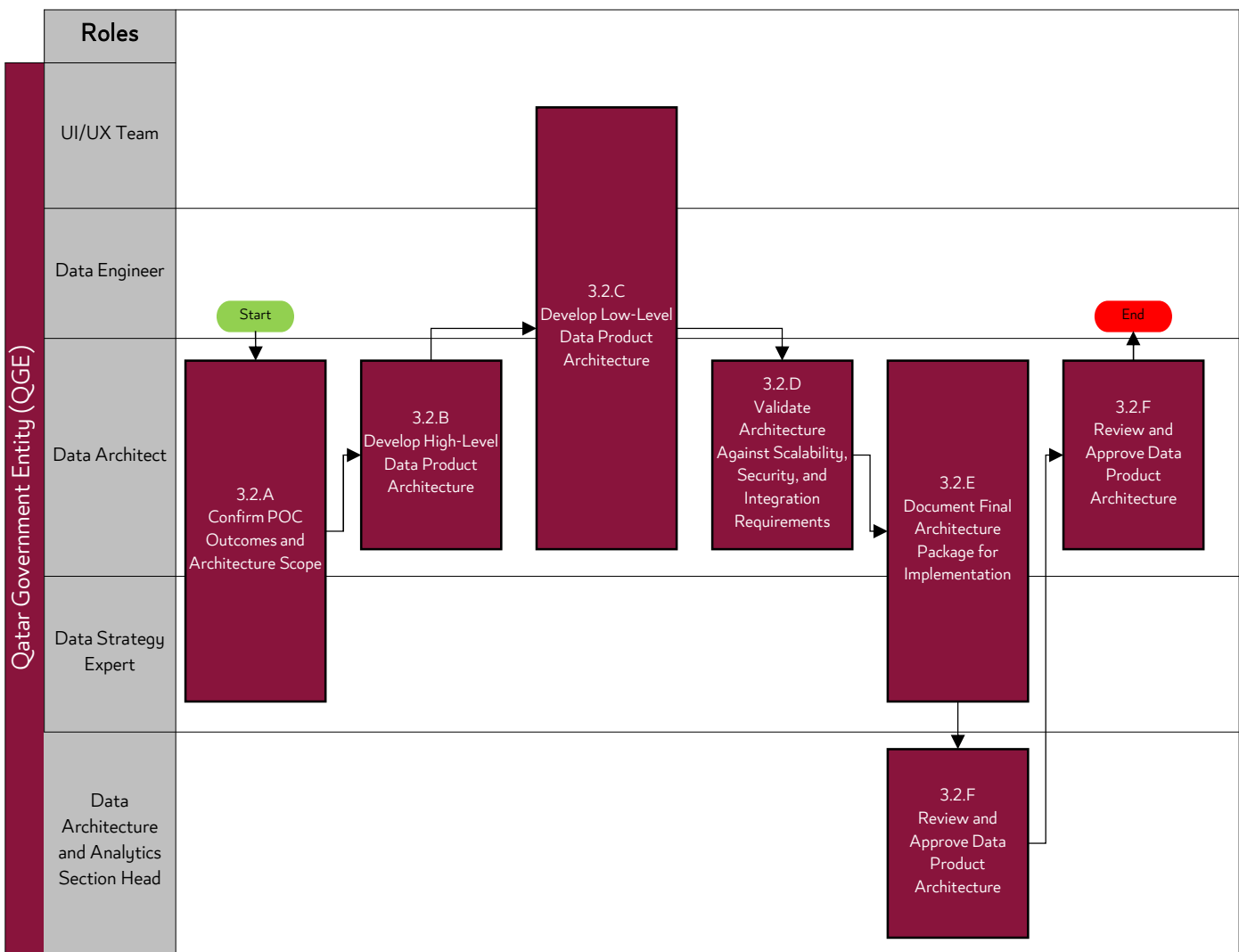


Figure 9: Data Products Architecture Process Map

3.2.A

A

Confirm POC Outcomes and Architecture Scope: The Data Strategy Expert, in collaboration with the Data Architect, must confirm that the Data Product Architecture design is grounded in validated POC outcomes and is aligned with the finalized Data Monetization Roadmap.

i. **Validate POC Results Alignment:**

- a. **Review Key POC Outcomes:** Analyze technical, compliance, and user validation results from the completed POC.
 - Identify validated success factors (e.g., system scalability, API reliability).
 - Flag unresolved issues or risks that must be addressed in the architecture design.
- b. **Confirm Achievement of Success Criteria:** Check if all previously defined POC success criteria were met or partially met.
 - Map each fulfilled or outstanding criterion to its corresponding design implication.
 - Highlight any architectural areas needing redesign or enhancement based on POC learnings.

ii. **Confirm Architecture Scope Boundaries:**

- a. **Define the Scope of the High-Level and Low-Level Design:** Clarify which product features, delivery mechanisms, and integration points must be captured in the architecture.
 - Scope should reflect validated delivery models and pricing implications.
 - Focus on critical components required for the initial product launch and early GTM phases.
- b. **Identify Scope Exclusions and Limitations:** Clearly document any features, integrations, or expansion capabilities that are out of scope for the current phase.
 - E.g., Future analytics modules, full-scale production optimizations, or cross-sector integrations beyond the initial audience.

iii. **Align with Roadmap Initiatives and Milestones:**

- a. **Confirm Roadmap Linkage:** Verify that the data product's architecture activities are sequenced correctly within the overall Data Monetization Roadmap.
 - Check initiative ownership, dependencies, and timing milestones related to the product.
- b. **Validate Roadmap Stability Post-POC:**
 - Confirm that no additional significant changes to the Data Monetization Roadmap are required beyond those already incorporated during the POC phase.
 - If major new architectural risks, dependencies, or resource gaps are identified, escalate to the Data Monetization Governance structures for review and formal approval.

3.2.B

Develop High-Level Data Product Architecture: The Data Architect, supported by the Data Strategy Expert and Data Governance Specialist, must develop a high-level design document that captures the overall structure, key system layers, integration points, and business requirements for the data product.

i. **Define Business and Technical Requirements:**

- a. **Document Business Objectives:** Capture the business needs the data product must fulfill, based on validated POC outcomes and monetization objectives.
 - E.g., Real-time data delivery for APIs, analytical insights for policy dashboards.
- b. **Define Core Technical Requirements:** Outline the primary technical expectations for product delivery.
 - E.g., Required uptime, latency thresholds, access security needs.

ii. **Develop High-Level Architecture Diagrams:**

- a. **Illustrate System Architecture Layers:** Create diagrams showing major system layers such as:
 - Integration Layer (data ingestion pipelines, external connectors)
 - Ingestion and Storage Layer (databases, data lakes)
 - Data Processing Layer (ETL/ELT jobs, enrichment engines)
 - Presentation Layer (dashboards, APIs, portals)
- b. **Map External Interfaces and Data Flows:** Identify integration points with external systems, consumers, or internal shared services.
 - E.g., API management platforms, identity management systems, billing engines.

iii. **Define Associated Business Processes and Journeys:**

- a. **Document Key Business Workflows:** Outline the business processes that the data product supports or enables.
 - E.g., Access request workflows, data subscription activation, user onboarding.
- b. **Define User Stories or Journeys:** Develop representative user flows illustrating how users interact with the product.
 - E.g., API consumer journey, dashboard user data discovery and download process.

iv. **Draft Data Flow Diagrams:**

- a. **Illustrate End-to-End Data Movement:** Map how data moves from source ingestion to processing, storage, and end-user delivery.
 - Highlight major transformation points and data lineage.
- b. **Capture Data Quality and Security Checkpoints:** Identify where data validation, access control, and audit logging occur in the flow.
 - Ensure alignment with governance and compliance requirements.

A

Develop Low-Level Data Product Architecture: The Data Architect, supported by the Data Engineer and UI/UX Team, must develop a detailed technical design covering the system's internal components, data workflows, user interactions, and security controls necessary for full-scale deployment of the data product.

i. **Develop Detailed System and Component Diagrams:**

- a. **Create Component-Level Architecture Diagrams:** Illustrate the detailed internal system architecture, showing:
 - **Class Diagrams:** Object structures and relationships (e.g., APIs, database objects).
 - **Sequence Diagrams:** Order of interactions between system components.
 - **State Diagrams:** Transition flows of key system entities under different conditions.
 - **Module Descriptions:** Responsibilities, input/output, and logic of sub-systems.
 - **Database Schema Design:** Tables, relationships, indexing, and key management strategies.
- b. **Develop State and Workflow Diagrams:** Model how the system behaves during different operational states.
 - E.g., API rate limit triggered, user session expiration, data refresh execution.

ii. **Design Data Processing Logic and Algorithms:**

- a. **Define Core Data Processing Workflows.** Map how data will be handled across different stages, including:
 - Integration Layer (data ingestion pipelines, external connectors)
 - Ingestion and Storage Layer (databases, data lakes)
 - Data Processing Layer (ETL/ELT jobs, enrichment engines)
 - Presentation Layer (dashboards, APIs, portals)
- b. **Specify Key Algorithms or Processing Rules.** Document any algorithms or rules that automate key processing steps, such as:
 - Aggregation rules for summarizing raw data into reportable datasets.
 - Scoring or classification models for analytics-based products.
 - Validation rules for incoming data quality checks (e.g., required fields, range checks).
- c. **Define Failure Handling and Recovery Mechanisms:** Design fallback procedures for data processing failures or system errors.
 - E.g., Retry policies for ingestion failures, alerting mechanisms for schema mismatches, manual override procedures.

iii. **Design User Interface (UI) and User Interaction Flows:**

- a. **Create UI Layouts and Navigation Maps:** Draft screen layouts, menu structures, dashboard structures, and navigation flows.
 - Wireframes for main screens and dashboards.
 - Interaction maps covering flows like user onboarding, account management, and data downloads.
- b. **Define User Interaction Scenarios:** Describe expected user actions, system responses, and feedback loops.
 - E.g., New user signup, password reset, subscription upgrade process.

iv. **Define Security Specifications:**

- a. **Specify Authentication and Authorization Mechanisms.** Define user access control approaches ensuring secure, role-based, and scalable authentication, including:
 - Role-Based Access Control models for system access.
 - Federated or delegated authentication mechanisms for external users (e.g., OAuth principles).
- b. **Define Encryption and Data Protection Standards.** Specify that encryption must be applied for data protection:
 - Encryption of data both at rest and in transit using industry-standard protocols.
 - Use of encryption key management practices that ensure confidentiality and integrity.
- c. **Secure API and Interface Design.** Apply secure design practices for exposed APIs and user interfaces, including:
 - Authentication token management and session validation practices.
 - Network and IP-based restrictions for sensitive administrative functions where necessary.
- d. **Define Audit Logging and Monitoring Controls.** Ensure comprehensive logging and proactive monitoring for security events, including:
 - Access attempts (successful and failed).
 - Data changes and administrative actions.
 - Anomaly detection triggers (e.g., abnormal API usage patterns).

Validate Architecture Against Scalability, Security, and Integration Requirements: The Data Architect, in collaboration with Data Strategy Expert, Data Engineer and the Metadata Specialist, must validate that the developed data product architecture meets key non-functional requirements related to scalability, security, privacy, and interoperability, ensuring readiness for full-scale deployment.

i. **Validate Scalability and Performance Readiness:**

- a. **Review Scalability Design Principles:** Assess whether the system architecture can handle expected growth in data volumes, user numbers, and transaction rates.
 - Evaluate horizontal and vertical scaling capabilities (e.g., scalable APIs, modular storage).
 - Confirm elasticity mechanisms for cloud environments, if applicable.
- b. **Conduct Performance Risk Assessment:** Identify potential bottlenecks or single points of failure in the system design.
 - Simulate expected peak loads and stress scenarios using design models.
 - Recommend architectural changes if risk thresholds are exceeded.

ii. **Validate Security and Privacy Controls:**

- a. **Review Data Protection Mechanisms:** Confirm that encryption, authentication, and access controls are properly designed across all system layers.
 - Check compliance with national data protection laws and Entity-specific security policies.
 - Validate field-level or role-based access control designs where applicable.
- b. **Validate Privacy and Consent Handling:** Ensure that user consent management, data minimization, and audit logging requirements are embedded in workflows.
 - Confirm ability to track user consent history and revoke access if needed.

iii. **Validate System Integration and Interoperability:**

- a. **Assess API and Data Interface Design:** Review how the system connects with internal and external platforms via APIs, connectors, or data pipelines.
 - Validate compliance with Entity or API standards (e.g., RESTful principles, OpenAPI specifications).
- b. **Confirm Metadata and Catalog Integration:** Ensure that system components integrate properly with metadata management, data catalogs, or governance repositories.
 - Verify that data lineage, ownership, and classification information are captured and updated.

3.2.E

Document Final Architecture Package for Implementation: The Data Architect, supported by the Data Strategy Expert and Data Engineer, must consolidate the completed high-level and low-level designs into a structured final architecture package, ensuring it is ready for development, integration, and operational rollout. The architecture package and any supporting documentation must be stored in the data architecture repository outlined in the data architecture and modeling domain guidelines.

i. **Consolidate High-Level and Low-Level Architecture Deliverables:**

- a. **Assemble Architecture Artifacts.** Compile all developed design components into a unified package, including:
 - High-Level Architecture Document (system layers, integration points, business processes, user journeys).
 - Low-Level Design Document (detailed components, workflows, algorithms, user interfaces, security specifications).
- b. **Cross-Reference Architecture Elements:** Ensure all diagrams, workflows, and specifications are internally consistent and traceable.
 - Validate that system components are reflected accurately across high-level and low-level views.
 - Confirm linkage between user journeys, data flows, and backend system design.

ii. **Validate Documentation Completeness and Accuracy:**

- a. **Conduct Internal Peer Review:** Organize an internal technical review session involving architecture peers and technical stakeholders.
 - Verify that all mandatory sections are completed, and critical dependencies are addressed.
 - Identify and correct any inconsistencies, omissions, or conflicts before formal review.
- b. **Confirm Alignment with Policies and Standards.** Ensure that the final documentation complies with:
 - National Data Architecture and Modeling Standards.
 - Internal security, privacy, and interoperability policies.
 - Monetization objectives and delivery models defined earlier.

iii. **Prepare Implementation Support Materials:**

- a. **Develop Architecture Traceability Matrices.** Create traceability matrices linking:
 - POC success criteria to architecture decisions.
 - Monetization and delivery model requirements to architecture elements.
- b. **Outline Handover Plan for Development Teams:** Define how the final architecture package will be transitioned to development, integration, and testing teams.
 - Identify key points of contact for clarifications during implementation.

A

3.2.F

Review and Approve Data Product Architecture: The Data Architecture and Analytics Section Head, supported by Data Management and Governance Section Head, must formally review the finalized Data Product Architecture to ensure it meets strategic, technical, security, and compliance requirements before implementation begins.

A

i. **Conduct Formal Architecture Review:**

- a. **Organize Review Sessions:** Schedule and facilitate structured review sessions with all relevant stakeholders.
 - Include Data Architecture, Security, Data Governance, Monetization, and Compliance representatives.
 - Ensure reviewers receive the full architecture package with sufficient time for pre-reading.
- b. **Assess Architecture Against Key Evaluation Criteria.** Validate that the architecture:
 - Supports the data monetization vision and objectives.
 - Aligns with national data architecture and modeling standards.
 - Satisfies security, privacy, and interoperability requirements.
 - Reflects validated POC outcomes and real-world deployment readiness.

ii. **Classify Review Outcomes and Actions:**

- a. **Document Review Results.** Capture reviewer feedback formally, classifying outcomes per architecture component as:
 - Approved
 - Approved with Minor Revisions
 - Requires Major Revisions
 - Not Approved (Requires Redesign)
- b. **Summarize Action Items:** Consolidate required revisions, clarifications, or approvals into an actionable tracker.
 - Assign ownership for addressing each revision point.

iii. **Consolidate Final Review Comments:**

- Compile all reviewer feedback, approvals, and revision requests into a single governance review record.
- Confirm that all feedback points are clearly categorized (e.g., approved, minor revisions, major revisions) and ready for incorporation.

3.2.G
(1/2)

Incorporate Feedback and Finalize Architecture: The Data Architect must revise the Data Product Architecture based on formal review feedback, ensuring the design is complete, consistent, and ready for implementation.

A

i. **Implement Approved Revisions:**

a. **Apply Required Changes:**

- Update the High-Level and Low-Level Architecture documents to reflect approved modifications.
- Ensure corrections address technical, security, compliance, and governance feedback without introducing new risks.

b. **Conduct Internal Validation:**

- Review updated documents internally with the architecture and engineering teams.
- Confirm that revisions are correctly applied and fully integrated across diagrams, workflows, and specifications.

ii. **Finalize Architecture Package for Implementation:**

a. **Consolidate Final Documents:**

- Prepare the finalized version of all architecture deliverables, ensuring traceability and version control.
- Ensure consistency across the High-Level Design, Low-Level Design, security specifications, and user journeys.

b. **Prepare for Development Handover:**

- Ensure the finalized package is ready for handover to the development, integration, and testing teams.
- Document any known limitations, technical assumptions, or recommended best practices for implementation.

RACI Matrix – Data Products Architecture

Indicative

Sr No.	Activity	Data Management and Security Director	Data Architecture and Analytics Section Head	Data Management and Governance Section Head	Data Governance Specialist	Data Strategy Expert	Data Compliance Specialist	Data Architect	Data Engineer	UI/UX Team	Metadata Specialist
3.2.A	Confirm POC Outcomes and Architecture Scope	I	A			R		R			
3.2.B	Develop High-Level Data Product Architecture		A		C	C		R			
3.2.C	Develop Low-Level Data Product Architecture		A					R	R	R	
3.2.D	Validate Architecture Against Scalability, Security, and Integration Requirements		A			C		R	C		C
3.2.E	Document Final Architecture Package for Implementation		A			R	C	R	C		
3.2.F	Review and Approve Data Product Architecture	A	R	C	I	I	I	I	I		
3.2.G	Incorporate Feedback and Finalize Architecture	I	A		C	C	C	R	C		

RACI Matrix Legend:

R: Responsible

A: Accountable

C: Consulted

I: Informed

Based on this Activity, the Entity can



Develop Data Products High-Level Design (HLD)



Develop Data Products Low-Level Design (LLD)



Finalize Data Products Architecture

3.3 Data Contracts

The Data Contracts activity ensures that all monetized data products exchanged or accessed through delivery models are governed by standardized, legally binding agreements. These contracts define the rights, responsibilities, and obligations of data providers and consumers, ensuring secure, compliant, and controlled data access in alignment with the Entity's data monetization strategy.

In this activity, the Entity must identify which data products require contracts, understand the key components included in standardized contract templates, and accurately populate those templates with product-specific and usage-specific information.

The Entity must then validate, review, and finalize the populated contracts to ensure they are legally enforceable, compliant with security and privacy standards, and operationally ready for deployment.

This approach ensures consistency, minimizes legal and operational risk, and supports scalable, trustworthy data monetization across different products, audiences, and delivery models.

Process – Data Contracts

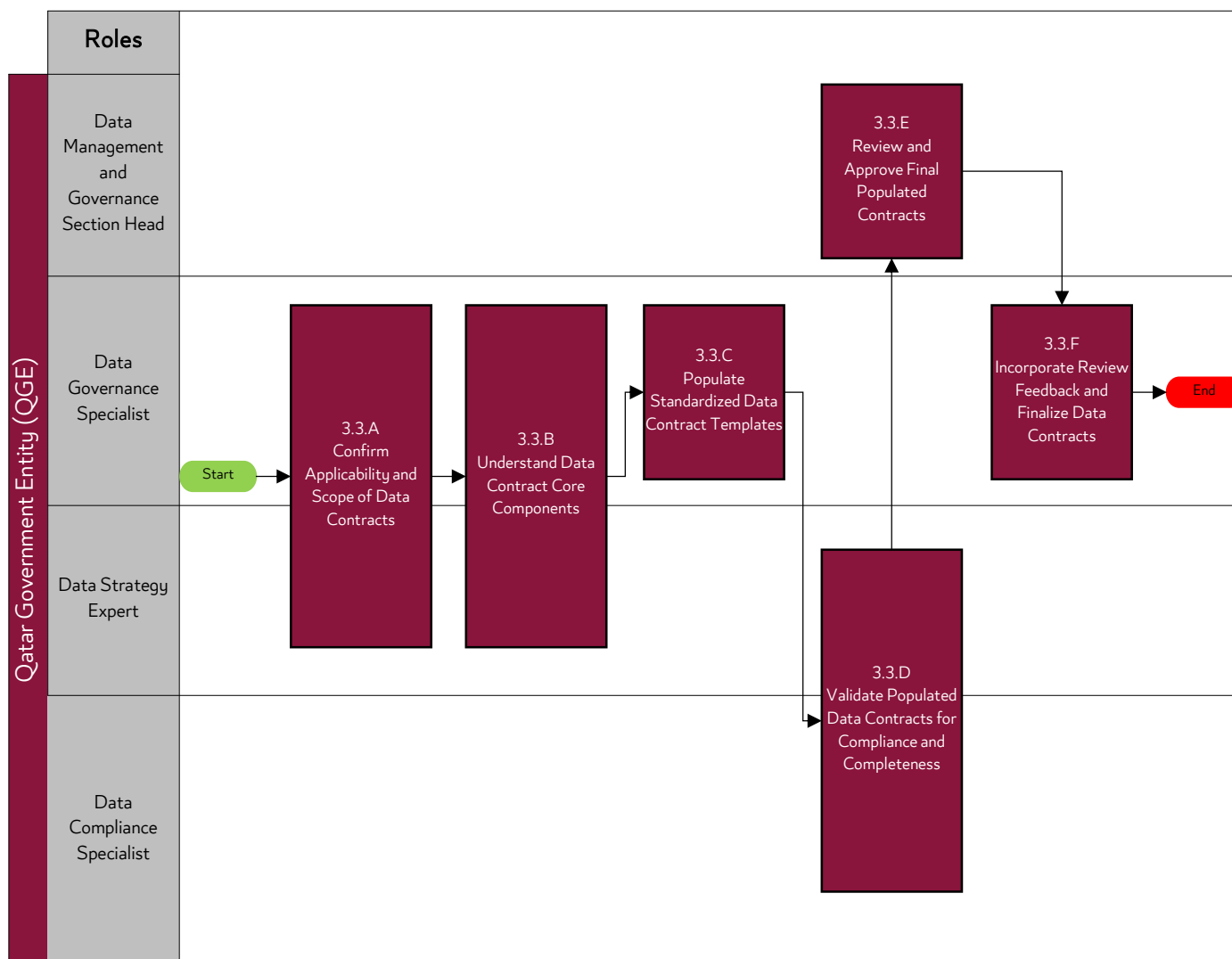


Figure 10: Data Contracts Process Map

Legend: Process Step Decision Process Start Process End Document Off-Page Reference

3.3.A

A

Confirm Applicability and Scope of Data Contracts: The Data Strategy Expert, in collaboration with the Data Governance Specialist, must determine which data products require formal data contracts based on their usage, delivery models, and external or internal sharing requirements.

i. **Identify Data Products Requiring Contracts:**

a. **Review Delivery Models and Sharing Scenarios:** Analyze the delivery mechanisms defined in Activity 2.4 to determine contractual needs.

- Products involving external delivery channels (e.g., APIs, dashboards, marketplaces) require mandatory contracts.
- Products shared internally across government entities may require lighter governance agreements.

b. **Assess Monetization and Access Models:** Determine the need for contracts based on pricing and access structures defined in Activity 2.5.

- Products offered via subscriptions, pay-per-use, or tiered access models must have contractual terms for service levels, pricing, and user obligations.

ii. **Define When Data Contracts Are Mandatory vs. Optional:**

a. **Mandatory Data Contracts.** Required when the data product involves:

- External parties (private sector, NGOs, academia, other government Entities) accessing the product.
- Monetization activities (e.g., selling access, licensing fees).
- Sensitive data requiring security, privacy, or regulatory compliance guarantees.

b. **Optional or Simplified Agreements.** Potentially permitted when the data product is:

- Used internally within the Entity with no external access.
- Low-risk, open-access datasets with no sensitive information and clear public value.

iii. **Establish Contract Scoping Parameters.** For each data product requiring a contract, define:

- The parties involved (internal or external).
- The type of access (API access, data download, dashboard viewing).
- The intended use cases and audience restrictions (e.g., research only, commercial use allowed).
- The applicable licensing, compliance, and retention requirements.

3.3.B

A

Understand Data Contract Core Components: The Data Strategy Expert, supported by the Data Governance Specialist and Data Compliance Specialist, must review and understand the key components that standardized data contracts will contain, to ensure readiness for accurate population and operational application.

i. **Review Mandatory Components of Standard Data Contracts:**

a. **Understand Required Legal and Business Elements.** Familiarize with the mandatory sections of data contracts that will be provided through standardized templates, including:

- Identification of the contracting parties (data provider, data consumer).
- Detailed description of the data product (type, format, frequency, delivery method).
- Terms of permitted and prohibited uses.

b. **Understand Required Access, Security, and Compliance Elements.** Recognize the standardized clauses covering:

- Access conditions and duration.
- Data privacy, security, and protection obligations.
- Breach notification and compliance reporting obligations.

ii. **Map Data Product-Specific Information to Contract Components:**

a. **Identify Required Product-Specific Inputs.** For each data product requiring a contract, prepare:

- Product description aligned with delivery models.
- Target users and permitted use cases defined in the Go-To-Market Strategy.
- Special regulatory, security, or licensing conditions if applicable.

b. **Flag Special Conditions or Adaptations.** Identify any cases where optional clauses or additional contractual protections may be needed, such as:

- Data sensitivity considerations (e.g., datasets containing regulated personal data).
- Cross-border sharing scenarios, if future expansions are planned.

3.3.C
(1/2)

A

Populate Standardized Data Contract Templates: The Data Governance Specialist, supported by the Data Strategy Expert and Data Compliance Specialist, must accurately populate the standardized data contract templates, inserting the product-specific, usage-specific, and compliance-specific information prepared in the previous step.



Key Message / Information

The standardized data contract templates required for data monetization activities will be developed by the National Planning Council (NPC) as part of the National Data Monetization Strategy. Once released, the Entity must adopt and apply these templates without modification (unless specified) to ensure consistency, compliance, and alignment with the national data standards.

3.3.C
Cont.
(2/2)i. **Insert Product and Delivery Information:**

- a. **Populate Product Descriptions and Access Channels.** Complete the contract sections related to the data product's characteristics, including:
 - Data type, structure, and format (e.g., CSV, JSON, API access, dashboard view).
 - Delivery mechanisms defined in Activity 2.4 (e.g., raw data delivery, API-based access, data platform, data marketplace).
- b. **Define Usage Scope and Audience Restrictions.** Insert terms describing:
 - Authorized users and allowed use cases (e.g., internal analysis, research use only, commercial resale prohibited).
 - Access duration (e.g., 12 months, renewable annually) and geographic restrictions if applicable.

ii. **Populate Security, Privacy, and Compliance Fields:**

- a. **Insert Security Requirements:** Populate fields covering required authentication, authorization, encryption, and user access control measures aligned with delivery models and Entity standards.
 - E.g., Mandatory multi-factor authentication for dashboard access; token-based authentication for APIs.
- b. **Insert Privacy and Data Handling Terms.** Populate clauses covering:
 - Consent management obligations.
 - Data minimization and anonymization requirements.
 - Data retention, archiving, and deletion timelines after contract termination.

iii. **Populate Customer Obligations and Exit Terms:**

- a. **Insert Customer Responsibilities.** Populate obligations such as:
 - Maintaining confidentiality of accessed data.
 - Prohibitions on unauthorized redistribution or resale.
- b. **Populate Termination and Post-Termination Handling:** Insert termination conditions and data destruction or handover obligations at the end of the agreement.
 - E.g., 30-day notice for termination, mandatory data deletion within 60 days post-termination.

3.3.D
(1/2)

Validate Populated Data Contracts for Compliance and Completeness: The Data Compliance Specialist, supported by the Data Governance Specialist, must validate that each populated data contract is complete, accurate, and compliant with applicable legal, security, privacy, and interoperability standards before formal review and approval.

i. **Validate Legal, Regulatory, and Governance Compliance:**

- a. **Review Mandatory Clauses and Licensing Terms.** Confirm that all mandatory sections of the standardized template are properly populated and comply with:

A

3.3.D
Cont.
(2/2)

- National Data Protection Laws and relevant licensing frameworks.
- Entity-specific data governance, access control, and sharing policies.

b. **Validate Rights and Obligations Alignment:** Ensure that the populated terms clearly define rights, responsibilities, and acceptable use by the data consumer.

- Confirm that restrictions on redistribution, resale, and secondary use are clearly stated.

ii. **Validate Security and Privacy Provisions:**

a. **Verify Security Controls and Access Mechanisms:**

- Check that security fields (authentication methods, encryption requirements, user authorization protocols) are correctly populated and realistic for operational deployment.

b. **Validate Privacy and Consent Requirements:**

- Confirm that privacy terms reflect necessary consent management obligations, data minimization practices, and post-termination data deletion requirements.

iii. **Validate Operational and Interoperability Fields:**

a. **Check Delivery Model and Access Method Details:**

- Confirm that delivery mechanisms (e.g., raw data delivery, API-based) are correctly described and match the product's implementation approach.

b. **Validate Integration and Metadata Requirements:**

- Ensure that metadata sharing, lineage tracking, and system interoperability obligations are properly addressed, if applicable.

3.3.E
(1/2)

Review and Approve Final Populated Contracts: The Data Management and Governance Section Head, must formally review and approve the finalized populated data contracts before they are operationalized for data sharing, integration, and monetization.

i. **Conduct Governance and Compliance Review:**

a. **Review Strategic Alignment and Completeness:**

- Verify that populated contracts fully cover all mandatory sections, accurately reflect product delivery and access models, and are consistent with the data monetization vision and roadmap initiatives.

b. **Confirm Legal and Regulatory Compliance:**

- Validate that populated contracts meet all applicable legal, privacy, and security obligations without contradictions or omissions.

A

3.3.E
Cont.
(2/2)ii. **Classify Review Outcomes and Required Actions:**a. **Classify Each Populated Contract:**

- **Approved:** No changes required.
- **Approved with Minor Revisions:** Small adjustments required before use.
- **Requires Major Revisions:** Contract requires substantial rework and revalidation.

b. **Summarize Review Comments and Action Items:**

- Consolidate any reviewer feedback into an actionable checklist for follow-up and correction before operational rollout.

3.3.F

Incorporate Review Feedback and Finalize Data Contracts: The Data Governance Specialist, supported by the Data Compliance Specialist, must revise the populated data contracts based on governance review feedback, ensuring they are finalized, approved, and ready for operational use.

A

i. **Implement Required Revisions:**a. **Address Review Comments and Required Changes:** Apply all approved revisions, corrections, and clarifications from the review phase.

- Prioritize critical compliance, security, and licensing corrections first.
- Ensure that updates are traceable and documented.

b. **Conduct Final Internal Validation:** Validate updated contracts internally to ensure that all changes have been incorporated correctly.

- Confirm that no new inconsistencies or compliance gaps were introduced during the revision process.

ii. **Finalize and Archive Contracts for Operational Use:**a. **Finalize Approved Versions:** Prepare the final, approved versions of populated contracts for operational rollout.

- Apply version control, include final sign-off dates, and confirm readiness for usage.

b. **Archive Contracts in Governance Repository:** Store finalized contracts in the Entity's approved data contract management system or repository.

- Ensure accessibility for authorized internal teams and track linkage to associated data products and monetization initiatives.

RACI Matrix – Data Contracts

Indicative

Sr No.	Activity	Data Management and Security Director	Data Management and Governance Section Head	Data Governance Specialist	Data Strategy Expert	Data Compliance Specialist	Data Architect	Metadata Specialist
3.3.A	Confirm Applicability and Scope of Data Contracts		A	R	R			
3.3.B	Understand Data Contract Core Components	I	A	R	R	C		
3.3.C	Populate Standardized Data Contract Templates		A	R	C	C		C
3.3.D	Validate Populated Data Contracts for Compliance and Completeness		A		R	R	C	C
3.3.E	Review and Approve Final Populated Contracts	A	R	I	I	I		
3.3.F	Incorporate Review Feedback and Finalize Data Contracts	I	A	R	C	C		

RACI Matrix Legend:

R: Responsible

A: Accountable

C: Consulted

I: Informed

Based on this Activity, the Entity can



Develop Data Product Contracts

4. Data Monetization Implementation



4. Data Monetization Implementation

What is Data Monetization Implementation and why does the Entity need it?

The Data Monetization Implementation section focuses on the execution and operationalization of the Entity's monetization strategy, transitioning from design and planning into live, sustainable data product delivery.

This section ensures that all foundational capabilities — including staffing, enabling systems, marketing activities, and technical infrastructures — are activated and operationalized. It also guides the Entity through the structured development, testing, trust validation (QDTI assessment), deployment, and monitoring of data products in production environments. Section 4 is comprised of two key activities:

- **4.1 Data Monetization Function Activation:** Establish the organizational capabilities, enabling systems (CRM, billing, licensing), and marketing/sales operations needed to support ongoing data monetization activities.
- **4.2 Data Product Development and Deployment:** Develop, validate, trust-assess, and deploy monetized data products, ensuring compliance with data quality, privacy, security, and interoperability standards.

By completing this section, the Entity ensures that its data monetization program moves beyond strategic planning into real-world operational delivery, with systems, processes, and products ready for sustained commercialization and trusted user adoption.



Guiding Principles for Data Monetization Design

1. **Strategic Alignment and Value Realization:** Ensure all data products implemented are directly aligned with the Entity's overall data monetization vision and objectives, broader Entity objectives, and national development priorities.
2. **Data Trust, Quality, and Compliance by Design:** Deploy only those data products that meet required QDTI scores, ensuring that users and stakeholders can rely on the integrity and security of monetized data assets.
3. **Sustainable Delivery and Monetization Models:** Operationalize delivery and pricing models that are scalable, fair, accessible, and financially sustainable — balancing short-term monetization needs with long-term service delivery, ecosystem enablement, and public benefit.
4. **Stakeholder-Centric Activation and Onboarding:** Engage internal teams, external partners, and end-users through structured onboarding, transparent communication, and support programs to maximize adoption, satisfaction, and ongoing product value realization.
5. **User Experience and Operational Excellence.** Prioritize seamless, responsive, and user-friendly deployment experiences across all data access points, while embedding operational monitoring, SLA tracking, and incident management processes to ensure service excellence.
6. **Continuous Feedback, Monitoring, and Iteration:** Embed continuous performance monitoring, user feedback collection, and structured review processes to enable agile enhancements, respond to evolving user and market needs, and sustain monetization performance over time.

4.1 Data Monetization Function Activation

The Data Monetization Function Activation activity ensures that the organizational capabilities, enabling systems, and operational workflows needed to execute data monetization activities are fully established and ready for launch.

This activity focuses on building the human and technical foundations necessary to manage data products, onboard users, operate delivery and billing systems, and engage customers in accordance with the Go-To-Market Strategy. It ensures that the Entity's internal teams are staffed and trained, that enabling systems such as CRM, billing, and licensing platforms are deployed and integrated, and that marketing and sales operations are activated.

Before full-scale operationalization, the Entity must conduct a formal readiness review to validate that all systems, resources, and processes are functioning as intended, and that any gaps identified are addressed. This structured approach minimizes operational risk, ensures compliance, and establishes a sustainable platform for long-term data monetization success.

Process – Data Monetization Function Activation

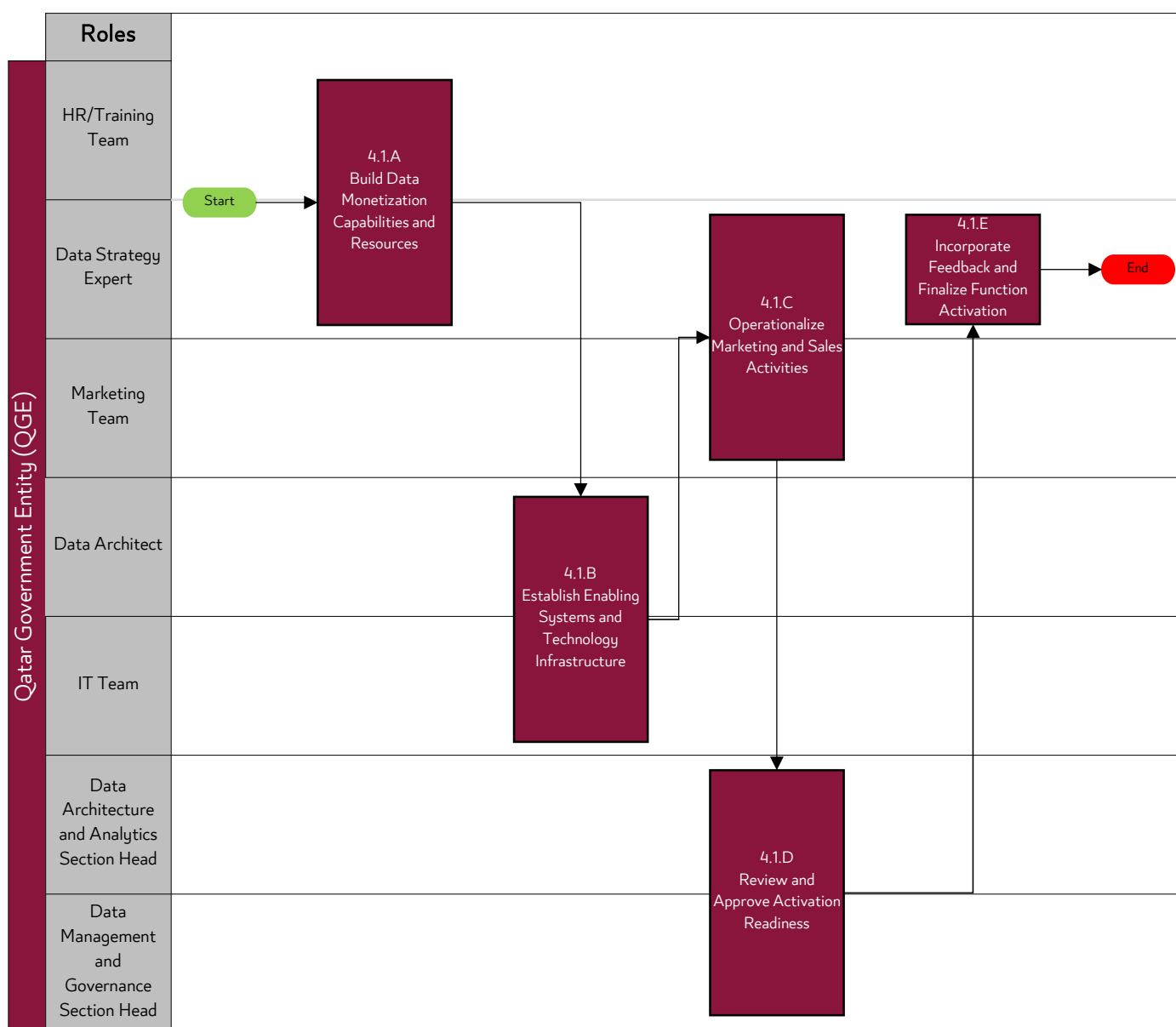


Figure 11: Data Monetization Function Activation Process Map

Legend: Process Step Decision Process Start Process End Document Off-Page Reference

4.1.A

VA

Build Data Monetization Capabilities and Resources: The Data Management and Governance Section Head, supported by the Data Strategy Expert and HR/Training teams, must ensure that the necessary organizational capabilities, staffing, and skills are in place to support data monetization operations.

i. **Identify Required Roles and Capabilities:**

a. **Define Monetization Function Roles and Responsibilities.** Identify and define key roles needed to operate the data monetization function. Examples may include:

- Sales and Customer Success Officers (client onboarding, relationship management).
- Technical Support Teams (API maintenance, platform support).

b. **Conduct Gap Analysis:** Compare existing staffing levels and skillsets against the defined roles.

- Identify capability gaps that must be filled through reallocation, or upskilling.

ii. **Address Resource Gaps Through Assignment or Upskilling:**

a. **Design and Deliver Upskilling Programs.** Develop internal training programs for existing staff:

- Topics may include data product management, data licensing frameworks, CRM system usage, billing and invoicing processes.
- Prioritize roles and capabilities based on operational dependencies (e.g., customer-facing roles before full GTM launch).

iii. **Establish Operational Readiness for Key Teams:**

- Confirm that all critical roles are staffed or resourced before operationalizing enabling systems.
- Ensure that staff are onboarded, trained, and familiar with the data monetization vision, products, delivery models, pricing structures, and go-to-market activities.



Key Message / Information

The Entity should refer to the Data Culture & Literacy domain guidelines to understand how to assess the current data skills of personnel assigned to Data Monetization roles, identify gaps against required competencies, and implement targeted upskilling initiatives. The guidelines provide detailed methodologies for conducting skills assessments, defining personas, creating learning paths, and selecting appropriate training courses to uplift capabilities

4.1.B

VA

Establish Enabling Systems and Technology Infrastructure: The Data Architect and the IT Team, must implement the enabling systems and platforms needed to support day-to-day data monetization operations.

i. **Identify Core Systems Required for Monetization Operations:**

- a. **Define Essential Systems Based on Operational Needs.** Identify and specify the systems needed to support the monetization lifecycle. These may include, but are not limited to:

- **CRM Systems:** To manage customer onboarding, subscription management, and customer relationship tracking.
- **Billing and Payment Systems:** To enable subscription billing, pay-per-use invoicing, and financial reconciliation.
- **Financial Management Systems:** To integrate payment data with Entity finance operations.
- **Licensing Management Platforms:** To manage access agreements, consent tracking, and contract enforcement.

b. **Confirm System Readiness Requirements:**

- Define system-level requirements such as scalability, integration capabilities (e.g., API support), user access management, and reporting features.

ii. **Deploy and Configure Enabling Systems:**

- a. **Procure or Configure Identified Systems:** Initiate system procurement (if needed) or configure existing platforms to support data product monetization operations.

- Ensure CRM, billing, licensing, and finance systems are connected for seamless user and revenue flows.

- b. **Integrate Systems with Data Monetization Platforms:** Establish secure integration between enabling systems and delivery platforms (e.g., APIs, dashboards, data portals).

- Automate key workflows where possible (e.g., access granting after payment confirmation).

iii. **Ensure Operational Readiness of Systems:**

- Test and validate all critical systems before go-live to confirm that:
 - Customer onboarding, subscription activation, billing, and payment flows operate as intended.
 - User access control, reporting, and compliance monitoring are functional and meet defined requirements.

4.1.C

VA

Operationalize Marketing and Sales Activities: The Data Strategy Expert, supported by the Marketing Team, must operationalize the marketing, sales, and user engagement activities defined in the Go-To-Market Strategy to support product adoption and revenue generation.

i. **Launch Marketing Campaigns Based on the Go-To-Market Strategy:**

a. **Activate Awareness and Outreach Campaigns.** Implement the marketing initiatives defined in Activity 2.6, including but not limited to:

- Press releases, website updates, and public communications.
- Social media campaigns, email marketing to targeted user groups.

b. **Conduct Engagement Events and Webinars.** Host events such as:

- Product launch webinars, live demos, training sessions, and Q&A workshops for early adopters and key sectors.

ii. **Operationalize Sales and Onboarding Processes:**

a. **Enable Customer Onboarding Workflows:** Set up operational workflows for customer account creation, API key issuance, product access activation, and billing setup.

- Ensure that onboarding flows are integrated with CRM, licensing, and billing systems.

b. **Launch Pricing and Access Management Mechanisms:** Implement subscription management, pay-per-use billing activation, and user tier management mechanisms as defined in Activity 2.5.

- Enable automated access revocation for non-payment or contract expiry.

iii. **Monitor Marketing and Sales Performance:**

- Set up tracking and analytics to monitor performance against GTM KPIs, including but not limited to:
 - Number of users onboarded
 - Subscription activation rates
 - Campaign engagement rates
 - Revenue generated.
- Adjust marketing and sales tactics dynamically based on performance data and user feedback during the early phases of rollout.



Key Message / Information

Further details regarding the tracking, monitoring, maintenance, and continuous improvement of data product performance can be found in Section 5: Data Monetization Performance Management. Entities should reference Section 5 to ensure full alignment with performance management best practices.

4.1.D

Review and Approve Activation Readiness: The Data Management and Governance Section Head, supported by the Data Architecture and Analytics Section Head, must formally review the readiness of enabling systems, resources, and marketing and sales activities before full-scale operationalization of the data monetization function.

VA

i. **Conduct Readiness Assessment:**

- a. **Review Enabling Systems Readiness:** Verify that all critical enabling systems (CRM, billing, licensing, financial management tools) are operational and integrated.
 - Confirm that system handoffs (e.g., customer onboarding to billing activation) are tested and functional.
- b. **Review Human Resources and Capability Readiness:** Confirm that all critical monetization function roles have been staffed, trained, and prepared.
 - Ensure onboarding records and role-specific capability validations are complete.
- c. **Review Marketing and Sales Launch Readiness:**
 - Validate that GTM campaigns have launched, onboarding workflows are active, and performance tracking mechanisms are in place.

ii. **Classify Readiness Outcomes:**

- a. **Readiness Decision per Area.** For each operational domain (systems, people, GTM execution), classify readiness as:
 - Ready for Full Activation
 - Ready with Minor Mitigations
 - Not Ready (Requires Major Remediation)
- b. **Summarize Gaps and Action Plans:**
 - Document any critical gaps found during review and define clear, time-bound action plans to resolve them before full-scale go-live.

4.1.E
(1/2)

Incorporate Feedback and Finalize Function Activation: The Data Strategy Expert and technical teams, must address any gaps or feedback identified during the readiness review, and finalize the activation of the data monetization function for full-scale operational rollout.

VA

i. **Address Gaps and Implement Required Corrections:**

- a. **Resolve Identified Gaps:** Implement action plans to address any gaps classified during the readiness review (4.1.D).
 - Prioritize resolution of critical systems, staffing, or compliance issues first.
- b. **Conduct Targeted Re-Validation:** Re-test corrected systems, workflows, and resource assignments where major gaps were identified.
 - Confirm that remediation efforts have successfully mitigated previously noted risks.

4.1.E
Cont.
(2/2)

ii. Finalize and Approve Function Activation:

a. Obtain Final Go-Live Approval:

- Secure final governance sign-off from the Data Management and Governance Section Head (and, if necessary, the Executive Committee) confirming that all systems, resources, and processes are ready for full operationalization.

b. Transition to Full Operational Model: Officially activate all enabling systems, customer onboarding workflows, marketing campaigns, and financial management operations.

- Announce activation internally and prepare external communications if applicable.

RACI Matrix – Data Monetization Function Activation

Indicative

Sr No.	Activity	Data Management and Security Director	Data Architecture and Analytics Section Head	Data Management and Governance Section Head	Data Strategy Expert	Data Governance Specialist	Data Architect	IT Team	Marketing Team	HR/Training Team
4.1.A	Build Data Monetization Capabilities and Resources	I/C		A	R	C				R
4.1.B	Establish Enabling Systems and Technology Infrastructure		A		C	C	R	R		
4.1.C	Operationalize Marketing and Sales Activities			A	R	C			R	
4.1.D	Review and Approve Activation Readiness	A	R	R	I	I	I	I	I	I
4.1.E	Incorporate Feedback and Finalize Function Activation	I	I	A	R	C	C	C	C	C

RACI Matrix Legend:

R: Responsible

A: Accountable

C: Consulted

I: Informed

Based on this Activity, the Entity can



Activate the Data Monetization Function

Legend: Capability Level

A Advanced

VA Very Advanced

4.2 Data Product Development & Deployment

The Data Product Development and Deployment activity ensures that prioritized data products are fully developed, validated, and deployed in a controlled, secure, and compliant manner.

This activity operationalizes the strategic and design work completed in earlier phases, transforming architecture designs and remediation efforts into tangible, production-ready data products. The Entity must carefully manage all stages of the development lifecycle; confirming readiness, remediating data quality issues where necessary, building product components, assessing data trust through QDTI, executing thorough functional, security, compliance, and user acceptance testing, and then deploying products into production with proper governance oversight.

Process – Data Product Development & Deployment

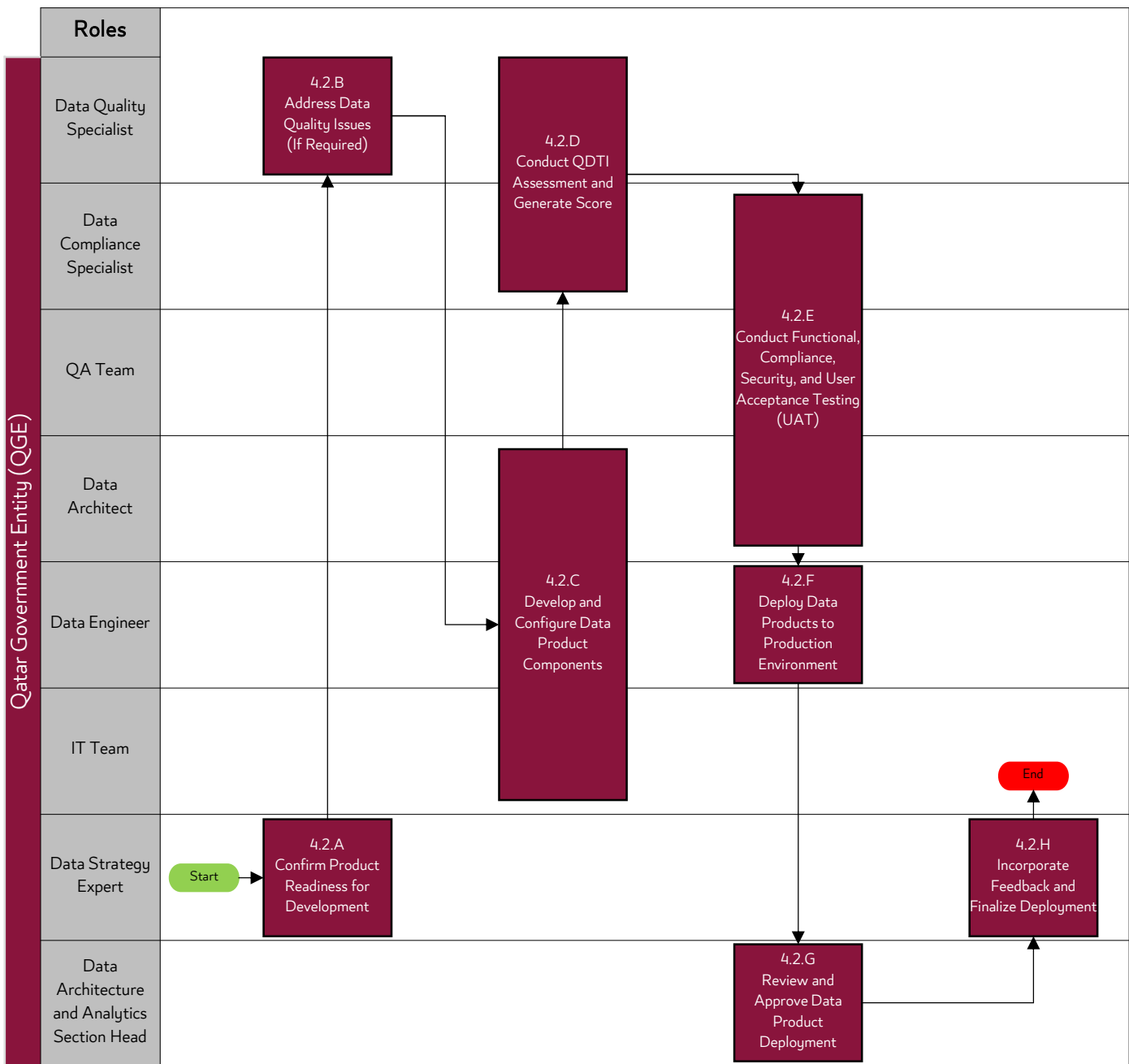


Figure 12: Data Product Development & Deployment Process Map

Legend: Process Step Decision Process Start Process End Document Off-Page Reference

4.2.A

Confirm Product Readiness for Development: The Data Strategy Expert, supported by the Data Architect, must verify that all prerequisites for product development are satisfied, ensuring that only validated, strategically prioritized data products proceed into full development.

VA

i. **Confirm Strategic and Operational Alignment:**

- a. **Validate Roadmap Prioritization and POC Completion:** Confirm that the data product is prioritized in the approved Data Monetization Roadmap and has successfully completed POC validation.
 - Ensure that POC success criteria were achieved or addressed.
 - Validate that the product aligns with monetization objectives and GTM strategy.
- b. **Confirm Architecture and Contract Finalization:** Ensure that the finalized Data Product Architecture and Data Contracts are completed, reviewed, and approved.
 - Confirm that technical, security, and governance foundations are properly documented.

ii. **Confirm Data Readiness and Delivery Model Fit:**

- a. **Validate Data Asset Readiness:** Ensure that core datasets intended for the product are available, complete, and properly cataloged.
 - Confirm that initial data profiling or metadata completeness checks have been performed.
- b. **Confirm Delivery Model Applicability:** Verify that the selected delivery model and pricing model remain appropriate based on current data conditions and product scope.
 - Highlight any significant delivery model risks that could impact development planning.

iii. **Confirm Resource and Infrastructure Availability:**

- Confirm that the necessary development resources (technical teams, tools, environments) are available and ready.
- Ensure that the respective environments are provisioned and properly secured for the development phase.

4.2.B
(1/2)

Address Data Quality Issues (If Required): The Data Quality Specialist, in collaboration with the Data Owner and Data Engineer, must ensure that any identified data quality issues impacting the data product are addressed before full-scale development continues. This step ensures that the data meets the minimum quality thresholds necessary to support a successful product launch, user trust, and operational success.

VA

i. **Review Data Quality Findings and Remediation Plans:**

- a. **Review Prior Data Quality Assessments.** Analyze data profiling and quality assessment results from earlier phases, including:
 - Data Catalog metadata profiling insights.
 - Initial POC outcomes regarding data quality issues.
 - Planned remediation activities captured in the Data Monetization Roadmap.

4.2.B
Cont.
(2/2)

b. **Confirm Data Quality Requirements for Development.** Define minimum quality thresholds required before full development, aligned with:

- Data quality thresholds across the seven data quality dimensions (accuracy, completeness, timeliness, etc.).

ii. **Execute Data Quality Remediation.**



Key Message / Information

The Entity must reference and apply the methodologies outlined in the national Data Quality Management domain guidelines when executing data quality remediation activities. Remediation should focus on addressing gaps across core data quality dimensions (e.g., accuracy, completeness, consistency, timeliness) to achieve minimum quality conformance thresholds.

iii. **Validate Post-Remediation Data Readiness:**

- Re-profile datasets using approved profiling and scoring tools (as defined in the data quality management domain guidelines).
- Confirm that datasets meet or exceed minimum data quality thresholds.
- Ensure readiness for final development, testing, and deployment phases.

4.2.C
(1/2)

Develop and Configure Data Product Components: The IT Team, supported by the Data Architect, Data Engineer and Data Strategy Expert, must develop, configure, and integrate the necessary technical components required to deliver the finalized data product, ensuring alignment with the approved architecture, delivery models, and quality standards.

VA

i. **Develop Core Data Product Components:**

a. **Build System Components Based on Architecture Design:** Develop APIs, dashboards, ingestion pipelines, or portals as defined in the finalized Data Product Architecture.

- Focus on delivering minimum viable product features prioritized for initial launch.
- Ensure modularity and scalability for future enhancements.

b. **Implement Data Processing Workflows:** Configure data ingestion, transformation, and delivery workflows aligned with the defined data quality, security, and compliance requirements.

- Include validation steps, enrichment processes, and lineage tracking mechanisms.

ii. **Integrate Access Management, Pricing, and Licensing Mechanisms:**

a. **Configure User Access Controls:**

- Implement access authentication, authorization, and role-based permissions matching the delivery model and licensing conditions.

b. **Enable Pricing and Usage Metering Mechanisms:**

- Integrate subscription management, pay-per-use metering, and access tier enforcement based on the Pricing Model.

4.2.C
Cont.
(2/2)

iii. Configure Monitoring, Logging, and Operational Controls:

- Implement monitoring dashboards, usage logging, and performance alerts for key system components.
- Ensure audit logging for critical user actions (e.g., API calls, data downloads, access violations).
- Enable system health checks, error reporting, and notification mechanisms for operational readiness.

4.2.D
(1/5)

Conduct Qatar Data Trust Index (QDTI) Assessment and Generate Score: The Data Quality Specialist and the Data Compliance Specialist must assess the finalized data product using the QDTI framework and generate an official QDTI score for publication alongside the product deployment.

VA

i. Prepare for QDTI Assessment:

- **Confirm Data Product Readiness for Assessment:** Ensure that the developed data product has completed all development, configuration, and internal data quality remediation steps.
- **Familiarize with QDTI Framework:** The Entity must review and understand the QDTI framework, including the assessment methodology, scoring dimensions, and calculation approach.

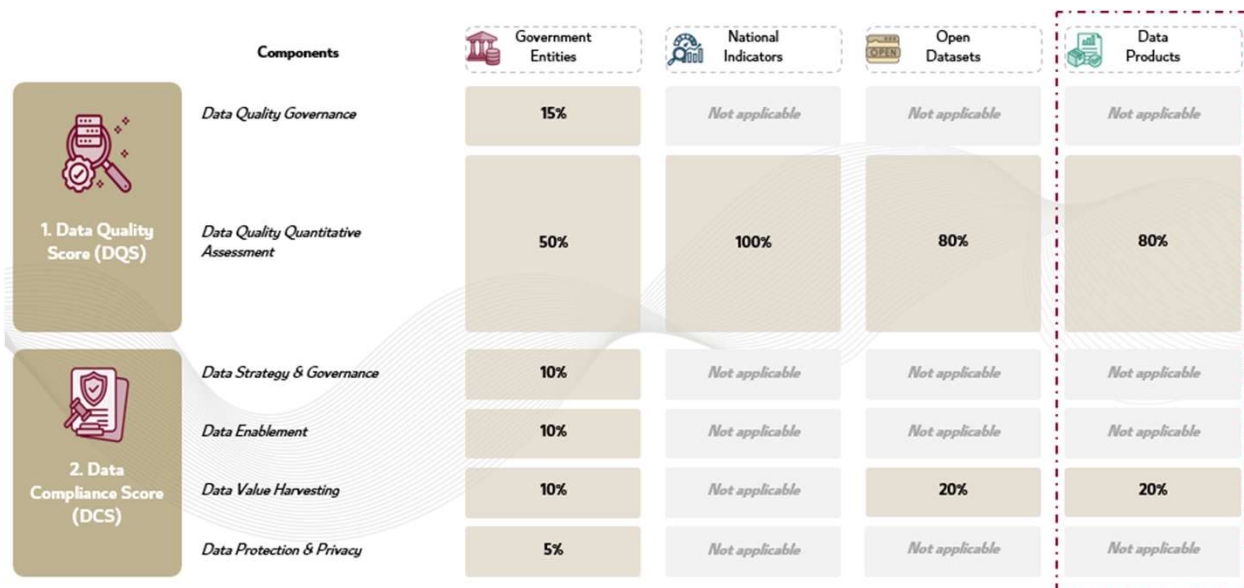


Figure 13: Data Products QDTI Score Breakdown



Key Message / Information

The Data Quality Specialist and the Data Compliance Specialist must calculate the QDTI score for the selected data product by combining the Data Quality Score (weighted at 80%) and the Data Compliance Score (weighted at 20%).

4.2.D
Cont.
(2/5)

ii. Conduct Data Quality and Compliance Assessment:

- a. **Calculate Data Quality Score (DQS):** Data quality is assessed through a specific set of data quality rules, which are aligned with the seven main dimensions of data quality and their sub-dimensions.

Main Dimension	Data Products Quality Checklist (illustrative)*	Evaluation method
1. Accuracy	1. Do the values in the key and reference fields follow the expected pattern?	Percentage of records that follow an expected structure or pattern: Grade 3: More than 85% Grade 2: Between 60-85% Grade 1: Less than 60%
	2. Do the numerical values fall within specific logical and statistical ranges?	Percentage of records that fall within expected logical or statistical ranges: Grade 3: More than 85% Grade 2: Between 60-85% Grade 1: Less than 60%
2. Completeness	3. Do all fields contain non-empty data?	Percentage of fields containing data: Grade 3: More than 85% Grade 2: Between 60-85% Grade 1: Less than 60%
	4. Is all metadata available and complete?	Percentage of metadata that is fully filled out: Grade 3: More than 85% Grade 2: Between 60-85% Grade 1: Less than 60%
3. Consistency	5. Are fields stored in a uniform and consistent format?	Percentage of records that adhere to a standardized format: Grade 3: More than 85% Grade 2: Between 60-85% Grade 1: Less than 60%
	6. Do the values match approved reference lists such as ISO Country Codes?	Percentage of records that match an approved reference data list: Grade 3: More than 85% Grade 2: Between 60-85% Grade 1: Less than 60%
4. Uniqueness	7. Are the values in the key fields unique without duplication?	Percentage of records that contain a unique primary key: Grade 3: More than 85% Grade 2: Between 60-85% Grade 1: Less than 60%
5. Timeliness	8. Does the data reflect the latest available values according to the specified update cycle?	Percentage of records that fall within the specified time frame: Grade 3: More than 85% Grade 2: Between 60-85% Grade 1: Less than 60%
6. Validity	9. Does the data match the data type specified for each field (e.g., numbers, dates)?	Percentage of records that match the specified data type for each field: Grade 3: More than 85% Grade 2: Between 60-85% Grade 1: Less than 60%
	10. Does the data comply with business rules?	Percentage of records that comply with the specified rules: Grade 3: More than 85% Grade 2: Between 60-85% Grade 1: Less than 60%
7. Accessibility	11. Are there multiple ways to access the data (APIs, SQL queries, downloading CSV files)?	Grade 3: Provides diverse access methods (e.g., APIs, CSV/Excel) Grade 2: Limited access methods (e.g., CSV/Excel) Grade 1: Access is restricted and complex (data not available for extraction)



Key Message / Information

The DCS score is calculated by dividing the total achieved score (grades) by the maximum possible total score (33, based on 11 checklist items, each worth up to 3 points). The checklist questions are illustrative and may be adjusted as needed, provided they remain aligned with their respective data quality dimensions.

*Illustrative***Data Quality Quantitative Assessment Score**

$$= \frac{\sum \text{Scores across all sub-dimensions}}{(\text{Nb. of sub-dimensions assessed} \times 3)} = \frac{30}{17 \times 3} = 59\%$$

- b. **Calculate Data Compliance Score (DCS):** Data Products compliance is assessed through a checklist aligned with the specifications and sub-specifications of the Data Monetization domain, which falls under the Data Value Realization component.

Dimension	Sub-dimension	Scoring Criteria
1. Data Product Planning & Administration	1. Have the data product requirements been defined in charters specifying necessary data domains/ sources, the data product's purpose/ description and target users, expected benefits and business value (ROI), and timeline for development and deployment of the data product?	1 – if compliant 0 – if not compliant
	2. Has the Entity developed an inventory of all data products (i.e.: data catalog for data products) eligible for publication on the national data marketplace, including details about their sources and formats?	1 – if compliant 0 – if not compliant
	3. Are there clear data lineage and documentation practices established to track data sources and transformations?	1 – if compliant 0 – if not compliant
	4. Is there an established plan or process for the ongoing maintenance (including quality monitoring and improvements) and support of the data products?	1 – if compliant 0 – if not compliant
2. Data Product Development	5. Is there a dedicated team responsible for the creation, promotion, and management of the data product?	1 – if compliant 0 – if not compliant
	6. Does the team include experts in data analytics, engineering, business domain knowledge, and product delivery?	1 – if compliant 0 – if not compliant
	7. Does the data product have a documented architecture (a high-level and low-level design documents) that includes aspects such as ingestion, processing, storage, access layers, security controls?	1 – if compliant 0 – if not compliant
	8. Has the entity defined and documented the delivery model for its data product? (e.g.: specifying whether it will be provided as Raw Data, Data-as-a-Service (DaaS) via API)	1 – if compliant 0 – if not compliant
	9. Is there a defined and documented monetization model (e.g., subscription, pay-per-use, licensing) that the Entity will adopt to charge customers on accessing its data products?	1 – if compliant 0 – if not compliant
	10. Has the data product successfully completed a Proof of Concept (PoC) with predefined success criteria, validation of data quality, performance testing, stakeholder evaluation, and formal approval before full integration into the National Data Marketplace?	1 – if compliant 0 – if not compliant
3. Data Product Governance & Compliance	11. Does the data product have clear documentation on its intended use, limitations, and compliance requirements?	1 – if compliant 0 – if not compliant
	12. Are data masking and anonymization techniques applied where necessary to protect sensitive information?	1 – if compliant 0 – if not compliant
	13. Is there a formalized data contract that clearly defines the data products' structure, schema, data quality SLAs, update frequency, compliance requirements, access policies, and responsibilities of both providers and consumers, including terms for dispute resolution and contract versioning?	1 – if compliant 0 – if not compliant
	14. Does the data product have a defined retention and deletion policy that specifies how long data is stored, when it is deleted, and compliance with regulatory requirements?	1 – if compliant 0 – if not compliant

4.2.D
Cont.
(4/5)

Dimension	Sub-dimension	Scoring Criteria
4. Data Product Format & Metadata	15. Is metadata for each data product created and published to enable effective search and retrieval?	1 – if compliant 0 – if not compliant
	16. Does the data product align with a domain-specific universal schema as applicable? (e.g., FHIR for healthcare, ISO 20022 for finance, or national eGovernment standards for citizen data)	1 – if compliant 0 – if not compliant
	17. Can the data product be integrated with other systems using standard formats (e.g., JSON, XML, CSV)?	1 – if compliant 0 – if not compliant
	18. Does the data product support real-time operations through machine-readable interfaces (e.g.: APIs)?	1 – if compliant 0 – if not compliant
5. User Feedback & Performance Management	19. Is there an active online forum (e.g.: on the national data marketplace) or any other mechanisms for the users to submit feedback and engage in discussions regarding the published data products?	1 – if compliant 0 – if not compliant
	20. Have success metrics/ KPIs been defined to evaluate the data product's impact and inform future improvements?	1 – if compliant 0 – if not compliant



Key Message / Information

The compliance score is calculated by dividing the number of compliant sub-dimensions by the total number of sub-dimensions assessed (20 in this case).

Illustrative

$$\text{Data Products Compliance Score} = \frac{\text{Nb.of sub-dimensions with a score of 1}}{\text{Total Nb.of sub-dimensions being assessed}}$$

- c. **Aggregate Scores to Determine Final QDTI:** Calculate the weighted average of DQS (80%) and DCS (20%) to generate the final QDTI score for the data product.



Figure 14: Illustrative QDTI Score Calculation

4.2.D
Cont.
(5/5)

iii. **Document and Publish QDTI Score:** Prepare a formal QDTI Assessment Report for the data product, including:

- Detailed DQS and DCS scores, QDTI score, and key observations.
- Improvement recommendations (if applicable) for future product releases.
- Publish the QDTI score alongside the data product.

4.2.E
(1/2)

Conduct Functional, Compliance, Security, and User Acceptance Testing (UAT): The QA Team, supported by the Data Architect, Data Compliance Specialist, and selected User Acceptance Testers, must validate that the developed data product meets all technical, security, compliance, and usability requirements before deployment.

VA

i. **Conduct Functional and Technical Testing:**

a. **Validate Core System Components:** Test APIs, dashboards, ingestion pipelines, and access portals to ensure they perform as intended.

- Verify successful API calls, data retrieval processes, data processing pipelines, and user interface functionality.

b. **Validate Integration and Interoperability:** Confirm that all internal and external system integrations operate correctly.

- Ensure that APIs are securely accessed, that data flows correctly without loss or corruption, and that errors are properly detected, logged, and handled to maintain system reliability.

ii. **Conduct Security and Privacy Testing:**

a. **Validate Access Controls and Authentication:**

- Test user authentication mechanisms, role-based access control, and token-based API security as configured.

b. **Verify Privacy Compliance and Data Protection:**

- Confirm that sensitive data is protected according to Entity privacy policies, including encryption, consent management, and breach detection mechanisms.

iii. **Conduct Compliance Testing:**

- Verify that the product complies with national data governance frameworks, licensing conditions, auditability requirements, and QDTI-aligned practices (as previously outlined).
- Confirm traceability of data handling and access activities for governance reporting.

iv. **Conduct UAT:**

a. **Execute UAT with Target Users:** Facilitate structured UAT sessions with a selected group of internal and/or external users representing the product's intended audience.

- Use pre-defined UAT scripts to walk through key product workflows (e.g., user registration, data search, dashboard interaction, API data extraction).

4.2.E
(2/2)

- b. **Capture UAT Feedback and Acceptance Decisions:** Collect user feedback on product usability, functionality, and satisfaction.
- Document UAT outcomes: Pass, Pass with Minor Changes, or Fail (requiring major redesign).

4.2.F

VA

Deploy Data Products to Production Environment: The Data Engineer, supported by the Data Architect and IT Team, must deploy the validated data product into the production environment, ensuring that access controls, metadata, and operational monitoring are fully configured before public or internal launch.

i. **Prepare Production Environment for Deployment:**

- a. **Configure Production Infrastructure:** Set up required hosting environments for APIs, dashboards, data portals, or download services.
- Ensure that production infrastructure is scalable, secured, and isolated from development and testing environments.
- b. **Migrate Finalized Product Components:** Deploy validated technical components (APIs, ingestion pipelines, dashboards) from the testing environment into production.
- Conduct a final technical verification of component readiness post-migration.

ii. **Configure Access Management, Metadata, and Monitoring:**

- a. **Set Up Access Controls and Licensing Enforcement:** Implement final production-level authentication, authorization, licensing, and subscription enforcement configurations.
- Ensure that access is restricted according to pricing tiers and user permissions.
- b. **Finalize Metadata Publication.** Publish complete metadata records for the deployed product, including but not limited to:
- Product description, owner, version, delivery method, pricing model, QDTI score.
- c. **Enable Operational Monitoring and Logging:**
- Activate real-time monitoring dashboards, error tracking systems, and audit logging for production use.

iii. **Confirm Deployment Readiness for Launch:**

- Conduct a final deployment readiness check verifying that all critical systems (access management, usage tracking, monitoring, support processes) are operational.
- Prepare incident response plans and operational support workflows for live product usage.

4.2.G

VA

Review and Approve Data Product Deployment: The Data Architecture and Analytics Section Head must formally review the deployed data product to ensure it meets operational, compliance, and user readiness standards before full activation and user onboarding.

i. **Conduct Deployment Readiness Review:**

- a. **Review Deployment and System Readiness:** Confirm that all production environments, access controls, metadata publications, and monitoring systems are operational.
 - Verify that access tiering, licensing enforcement, and pricing models are correctly implemented.
- b. **Validate Data Quality and Compliance Readiness:** Review QDTI Assessment Results and ensure that the published score matches the data quality and compliance standards expected.
 - Confirm that user consent mechanisms, audit logging, and regulatory compliance features are fully operational.

ii. **Classify Deployment Review Outcomes:**

- a. **Classify Each Deployment Readiness Area.** For each domain (technical deployment, security and privacy, user access, compliance), classify readiness as:
 - Approved for Full Launch
 - Approved with Minor Conditions
 - Requires Major Remediation Before Launch
- b. **Document Review Feedback and Action Plans:**
 - Summarize any issues identified during the review and assign responsible teams for resolution before user onboarding.

4.2.H
(1/2/)

VA

Incorporate Feedback and Finalize Deployment: The Data Strategy Expert, supported by the Data Engineer and Data Governance Specialist, must address any feedback or issues identified during the deployment review and finalize the data product for full operational use and monetization tracking.

i. **Implement Required Revisions:**

- a. **Address Review Feedback and Corrective Actions:** Apply all required changes or mitigations identified during the Deployment Review.
 - Prioritize resolution of critical technical, compliance, or operational gaps before broader user onboarding.
- b. **Conduct Targeted Re-Validation (If Applicable):** Re-test corrected areas where significant changes were made.
 - Confirm that fixes do not introduce new issues and that readiness for live operations is maintained.

4.2.H
Cont.
(2/2)

iii. Finalize Deployment and Transition to Operations:

- a. **Finalize Product Launch Documentation.** Update and archive all operational documentation, including:
- Final product metadata records.
 - Final QDTI Score publication details.
 - Operational support workflows and escalation procedures.
- b. **Transition to Operational Monitoring and Monetization Tracking:** Activate live system monitoring, user onboarding processes, and monetization KPI tracking mechanisms.
- Ensure that ongoing support teams are fully briefed, and handover is completed.

RACI Matrix – Data Product Development & Deployment

Indicative

Sr No.	Activity	Data Management and Security Director	Data Architecture and Analytics Section Head	Data Strategy Expert	Data Architect	Data Engineer	Data Owner	Data Quality Specialist	Data Compliance Specialist	Data Governance Specialist	IT Team	QA Team
4.2.A	Confirm Product Readiness for Development		A	R	C							
4.2.B	Address Data Quality Issues (If Required)		A			C	C	R				
4.2.C	Develop and Configure Data Product Components		A	C	R	R					R	
4.2.D	Conduct QDTI Assessment and Generate Score		A					R	R	C		
4.2.E	Conduct Functional, Compliance, Security, and User Acceptance Testing (UAT)		A	C	R	C			R	C		R
4.2.F	Deploy Data Products to Production Environment		A	C	C	R				C	C	
4.2.G	Review and Approve Data Product Deployment	A	R	I								
4.2.H	Incorporate Feedback and Finalize Deployment	I	A	R	C				C	C	C	

RACI Matrix Legend:

R: Responsible

A: Accountable

C: Consulted

I: Informed

Based on this Activity, the Entity can



Deploy Data Products



Calculate and Publish QDTI Score for Data Products

5. Data Monetization Performance Management



5. Data Monetization Performance Management

What is Data Monetization Performance Management and why does the Entity need it?

Data Monetization Performance Management refers to the continuous monitoring, evaluation, and optimization of the Entity's data monetization initiatives. It ensures data products meet established goals, deliver expected business outcomes, and adapt efficiently to evolving market conditions and stakeholder needs. The Entity requires Data Monetization Performance Management to ensure long-term effectiveness, sustainability, and continuous improvement of its monetization activities. This phase provides essential feedback loops and insights necessary for ongoing strategic alignment, compliance assurance, and value maximization.

By systematically executing Data Monetization Performance Management, the Entity ensures sustained effectiveness, continuous value realization, and strategic alignment of data monetization activities, ultimately reinforcing Qatar's national vision for leveraging data as a strategic economic asset.

The remaining sections of this chapter will detail the below activities to guide the execution of the below:



Guiding Principles for Data Monetization Performance Management

1. **Continuous Performance Tracking:** Consistently measure and analyze the performance of data monetization initiatives against clearly defined KPIs to validate success and identify areas requiring refinement.
2. **Risk Awareness and Compliance Assurance:** Maintain ongoing vigilance in monitoring compliance with regulatory, security, and privacy standards, ensuring that data monetization practices uphold the highest ethical standards and mitigate risks proactively.
3. **Stakeholder Transparency:** Ensure transparent and timely performance reporting to stakeholders, clearly communicating results, challenges, opportunities, and strategic adjustments to build trust and maintain accountability.
4. **Sustainability and Value Assurance:** Regularly review monetization activities to ensure long-term sustainability and profitability, while maintaining alignment with the Entity's strategic objectives, national development priorities, and the public interest.
5. **Continuous Feedback Integration:** Regularly solicit and integrate feedback from customers, stakeholders, and operational teams to inform improvements in product offerings, operational processes, and customer engagement practices.

5.1 Data Products Monitoring & Maintenance

Data Product Monitoring and Continuous Improvement are essential processes for ensuring that deployed data products consistently meet user needs, remain aligned with market demands, and continue to deliver value. These processes provide a structured approach to collecting performance data, monitoring product quality, and gathering user feedback to guide ongoing improvements..

Process – Data Products Monitoring & Maintenance

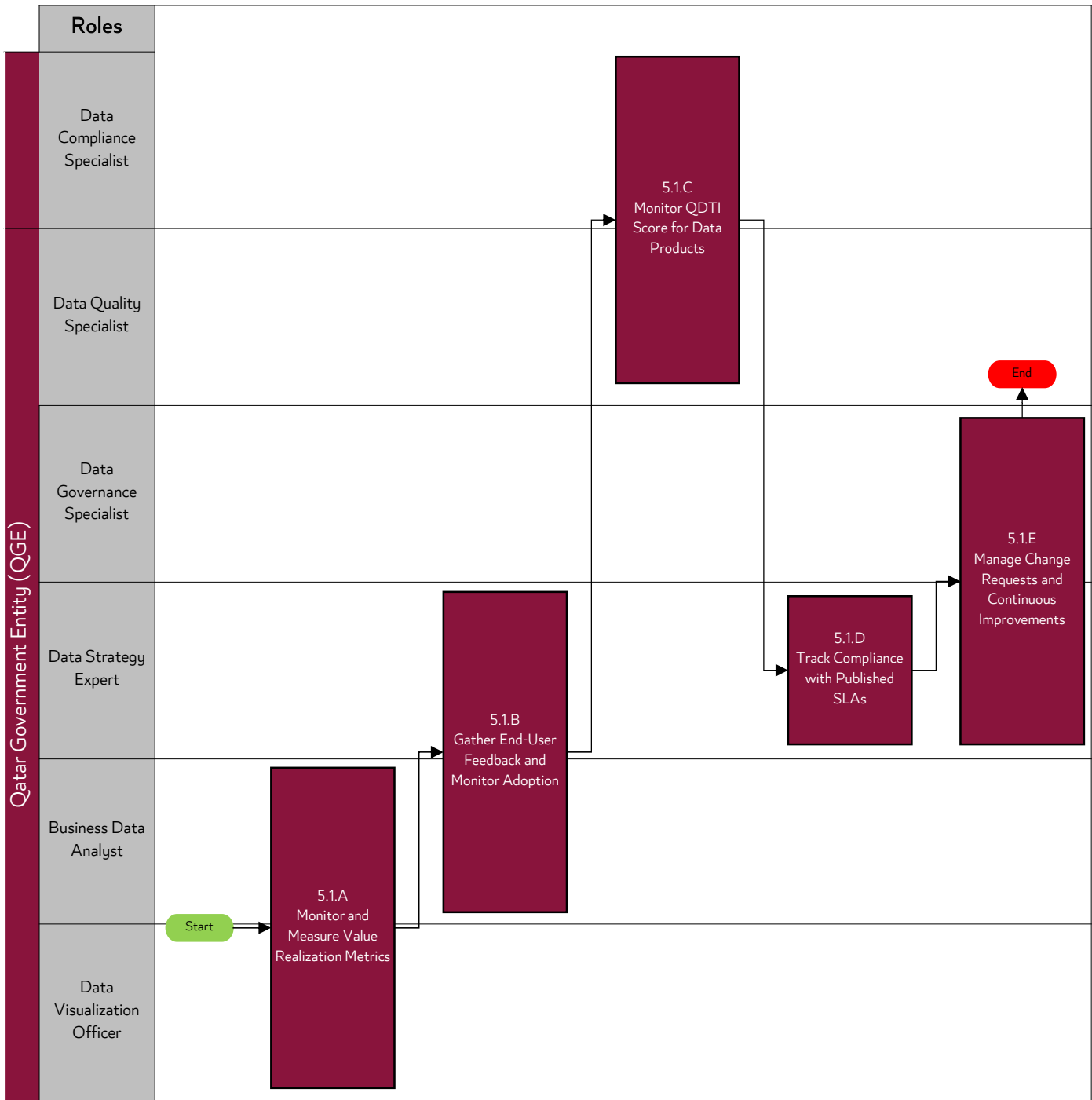


Figure 15: Data Products Monitoring & Maintenance Process Map

5.1.A

Monitor and Measure Value Realization Metrics: To measure and compare the actual performance of data products against projected values to assess the value delivered, the Entity must do the following:

i. **Define Value Metrics:**

- Refer to the Data Product Charters to identify and document the key metrics that define value realization for each product (e.g., revenue, adoption rate, cost savings, user satisfaction).
- These metrics should be tied to the specific goals and KPIs set in the Data Product Charters.

ii. **Set Baseline Projections:**

- Establish baseline projections for each metric, comparing them to the original goals defined in the Data Product Charters.
- Ensure the projections cover both short-term goals (e.g., first quarter ROI) and long-term sustainability (e.g., year-over-year growth).

iii. **Measure Actual Performance:**

- Use monitoring tools such as analytics dashboards, financial tracking systems, and user adoption metrics to collect real-time data on the performance of the deployed data products.
- Compare the actual performance against the projected metrics to evaluate any discrepancies and identify areas of concern.

iv. **Report Results:**

- Prepare reports showing the actual value realized versus the projections. These reports should include explanations for any significant variations.
- Share these reports with senior leadership and stakeholders to maintain transparency and ensure alignment with organizational goals.

VA

5.1.B
(1/2)

Gather End-User Feedback and Monitor Adoption: To collect end-user feedback and track the adoption of the deployed data products, the Entity must do the following:

i. **Design Feedback Mechanisms:**

- Implement a combination of active and passive feedback mechanisms. These may include:
 - Surveys: Quarterly or bi-annual surveys to gather insights on user satisfaction, product usage, and areas for improvement.
 - In-Platform Feedback Forms: Direct feedback collection from users interacting with the data product interface.
 - Usage Analytics: Track metrics such as the number of active users, frequency of use, and feature adoption rates.

ii. **Segment Feedback:**

- Categorize feedback based on user demographics (e.g., government agencies, private sector, academic institutions) to identify trends and common issues.
- Focus on feedback from high-value users (e.g., major clients or critical internal stakeholders) to prioritize improvements.

VA

5.1.B
Cont.
(2/2)iii. **Analyze Feedback:**

- Conduct regular reviews of the feedback to identify recurring themes, issues, or requests. For instance, if users consistently report slow response times, this should trigger a review of the product's performance and an action plan for improvement.

iv. **Monitor Adoption Metrics:**

- Track the rate of adoption for each product feature (e.g., API usage, dashboard views). Use tools like Google Analytics or custom dashboards to track user engagement.
- Measure key adoption milestones such as initial sign-ups, active usage, and retention rates.

5.1.C

Monitor QDTI Score for Data Products: To ensure that data products maintain trusted, high-quality standards over time, the Entity shall monitor the Qatar Data Trust Index (QDTI) score of each deployed data product, focusing on the key dimensions of accuracy, completeness, consistency, uniqueness, timeliness, validity, and accountability.

VA

i. **Monitor QDTI Scores:**

- Continuously track the QDTI score for each active data product.
- Configure alerts to trigger when the QDTI score falls below the GREEN threshold (85+).

ii. **Investigate and Document Score Deviations:**

- When a product's QDTI score falls below 85, document the contributing factors (e.g., missing metadata, poor data completeness, access issues).

iii. **Plan and Implement Remedial Actions:**

- Develop a corrective action plan to address QDTI gaps and restore the product's score to GREEN status.
- Coordinate with relevant teams (e.g., data stewards, data owners, data architect, IT Team) to resolve underlying issues.

iv. **Report QDTI Compliance:**

- Prepare regular reports summarizing QDTI scores, non-compliance cases, and actions taken.
- Share reports with internal leadership and external stakeholders to ensure transparency and build trust in published data products.

5.1.D
(1/2)

Track Compliance with Published SLAs: To ensure that the deployed data products consistently meet the service-level expectations defined in the SLAs.

VA

i. **Define Key SLA Metrics:**

- Clearly define and publish SLA metrics for each data product, such as service uptime, API response time, and incident resolution time.
- Ensure SLAs are based on user expectations and business requirements, aligning with both internal and external needs.

ii. **Monitor SLA Performance:**

- Use real-time monitoring dashboards or automated alert systems to track SLA compliance continuously. These tools should monitor uptime, latency, and incident response times to ensure that all service levels are met.

5.1.D
Cont.
(2/2)iii. **Proactively Manage SLA Incidents:**

- Establish a clear protocol for managing SLA breaches, including immediate actions, reporting, and communication with affected users.
- Track incidents and resolutions and use this data to optimize the product's performance and reduce future breaches.

iv. **Report on SLA Compliance:**

- Regularly generate reports on SLA performance and compliance. These reports should highlight any breaches, causes, and actions taken to address the issues.

5.1.E

Manage Change Requests and Continuous Improvements: To manage and document enhancements, updates, and feature requests for deployed data products based on user feedback and evolving market needs.

VA

i. **Establish a Change Request Process:**

- Define a formal change request process that includes submitting requests, reviewing and approving changes, and implementing them in a structured manner.
- Ensure that change requests are logged and categorized (e.g., bug fixes, new features, performance improvements).

ii. **Prioritize Change Requests:**

- Evaluate the impact and feasibility of each change request. Prioritize changes based on user feedback, business needs, and resource availability.

iii. **Implement Changes in Iterations:**

- Implement changes incrementally, starting with high-priority updates. Use agile development practices to incorporate user feedback into the next release cycle.
- Maintain a change log to track all modifications, ensuring transparency for all stakeholders.

iv. **Test and Deploy Changes:**

- Test changes in a controlled environment before deploying to production. This ensures that updates do not introduce new issues or affect product stability.
- Once changes are deployed, ensure that they are thoroughly monitored to confirm they meet the intended goals.

RACI Matrix – Data Products Monitoring & Maintenance

Indicative

Sr No.	Activity	Data Management and Security Director	Data Management and Governance Section Head	Data Governance Specialist	Business Data Analyst	Data Visualization Officer	Data Engineer	Data Quality Specialist	Data Strategy Expert
5.1.A	Monitor and Measure Value Realization Metrics	I	A		R	R			C
5.1.B	Gather End-User Feedback and Monitor Adoption	I	A						R
5.1.C	Monitor QDTI Score for Data Products		A					R	C
5.1.D	Track Compliance with Published SLAs		A	R					C
5.1.E	Manage Change Requests and Continuous Improvements		A	R					R

RACI Matrix Legend:

R: Responsible

A: Accountable

C: Consulted

I: Informed

Based on this Activity, the Entity can



Monitor and Maintain Data Products

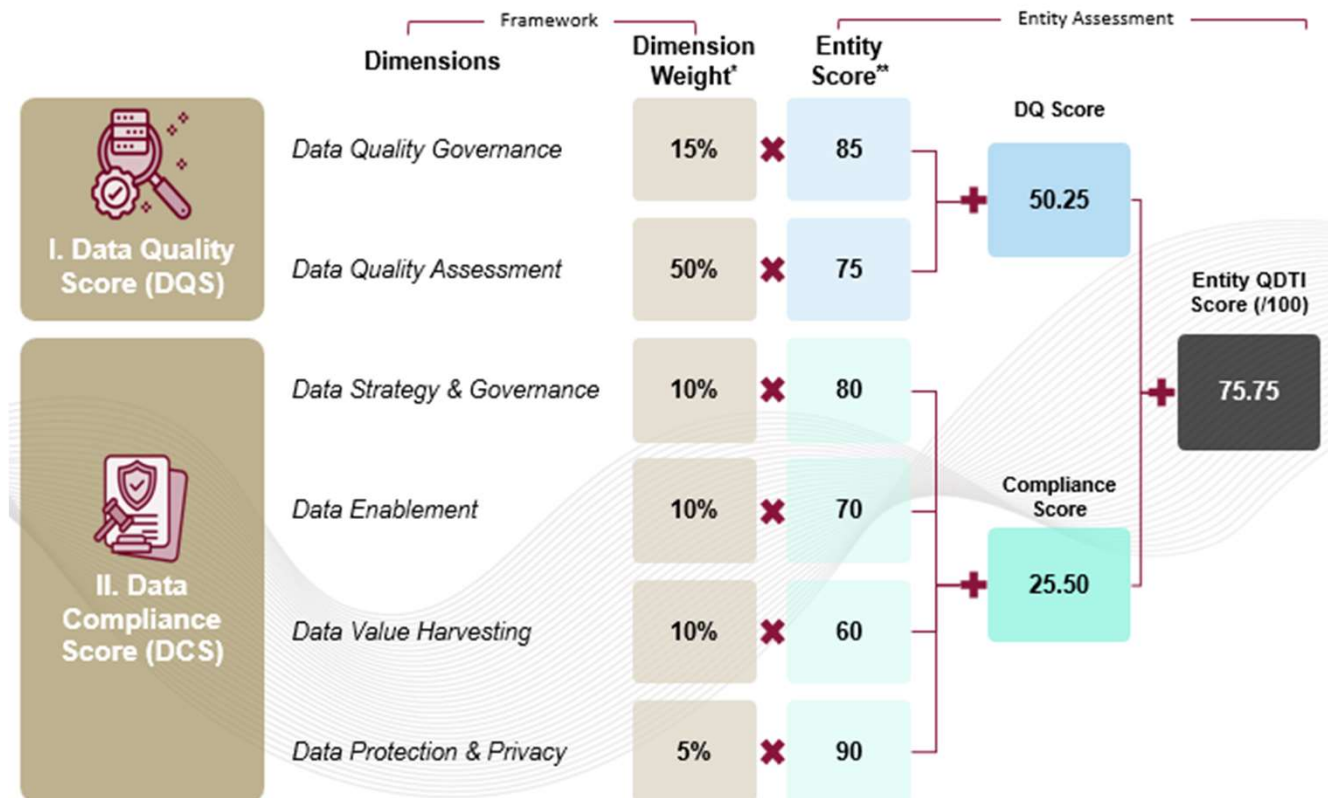


Gather and Address End-user Feedback

5.2 QDTI

The Qatar Data Trust Index (QDTI) is designed to measure and enhance data integrity across national entities by promoting adherence to governance standards and ensuring the accuracy, reliability, and responsible management of data. This initiative aims to build trust and support a robust digital economy. The overall QDTI score is derived from two dimensions: the Data Quality Score (DQS) and the Data Compliance Score (DCS), which together combine to determine the Entity's QDTI score.

This section outlines the steps needed to gather the necessary information for calculating the DCS.



***Note:** The sum of the weights across all dimensions should add up to 100%

****Note:** This score is calculated by computing the weighted average score of all the sub-dimensions under each respective Dimension (scores are on a scale of 0 to 100)

Figure 16: Illustrative QDTI Scoring Methodology for an Entity

5.2.A

Initiate Data Monetization Compliance Assessment: The Data Management and Governance Section Head assigns the Data Compliance Specialist to oversee the assessment process. The specialist is responsible for managing the evaluation of the Entity's adherence to the National Data Monetization Standards.



Key Message / Information

The Data Monetization Domain falls under the Data Impact Realization Dimension in the National Data Management Framework and, consequently, within the QDTI Dimension.

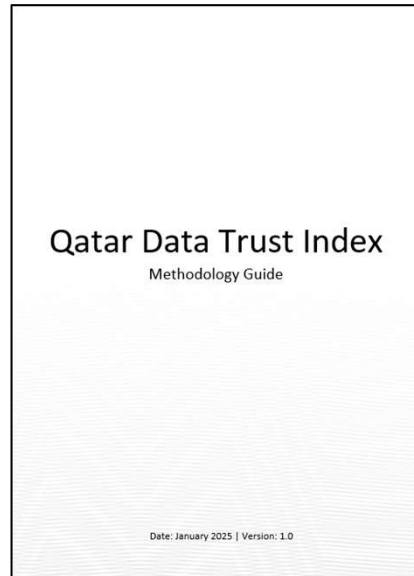
5.2.B

Conduct Data Monetization Compliance Assessment: Initiate the self-assessment to evaluate adherence to the National Data Monetization Standards. This assessment will ensure compliance and accountability while identifying areas for improvement.

 Asset Guidance

The **Qatar Data Trust Index Methodology Guide** can be leveraged to guide the Entity through the steps required to conduct the self-assessment.

Illustrative



 Asset Guidance

The **QDTI Assessment Template** can be used to document compliance with the National Data Standards. This template is intended for use prior to the DGO launching the self-assessment on its platform to calculate the overall QDTI Score.

Illustrative

Domain	Control	Control Description
DQM	DQM.1.1.1 Data Quality Policy	As part of the Data Quality Policy control, the Entity shall create and maintain an enterprise-wide Data Quality Management Policy...
DQM	DQM.1.1.2 Data Quality Policy	As part of the Data Quality Policy control, the Entity shall publish and distribute a Data Quality Management Policy...
DQM	DQM.1.1.3 Data Quality Planning	As part of the Data Quality Planning control, the Entity shall perform initial data quality profiling for the identified Critical Data Elements (CDEs)...
DQM	DQM.1.1.4 Data Quality Planning	As part of the Data Quality Planning control, the Entity shall develop a data quality plan aligned with its data strategy and profiling results...

Specification	Control Specification	Capability Level	Compliance
DQM.1.1.1.1 Data Quality Policy Creation	The Entity shall create a data quality policy in alignment with the NDQAF published by the NPC....	Foundational	Compliant
DQM.1.1.2.1 Data Quality Policy Publication	The Entity shall publish a data quality policy....	Foundational	Compliant
DQM.1.1.3.1 Initial Data Quality Profiling	The Entity shall identify CDEs and perform initial data quality profiling for the identified CDEs....	Foundational	Compliant
DQM.1.1.4.1 Data Quality Plan Design	Based on the initial data profiling results, the Entity shall develop a data quality plan in alignment with the Entity's data strategy...	Foundational	Compliant



Key Message / Information

The DGO will launch the self-assessment on its platform and will provide toolkits and host workshops to guide entities through the self-assessment process during the first year.

5.2.C

Submit Data Monetization Score to DGO: Submit the Data Monetization Compliance Score to the DGO for evaluation.



Key Message / Information

The DGO will calculate the Entity's overall Qatar Data Trust Index (QDTI) score only after the Entity has completed both the Data Quality Score (DQS) assessment and the required self-assessments for all other data management domains to determine the Data Compliance Score (DCS). Once all assessments are completed, the DGO will aggregate the compliance scores across domains to finalize the DCS, which will then be combined with the DQS to determine the Entity's overall QDTI score.

RACI Matrix - QDTI

Indicative

Sr No.	Activity	DGO	Data Management & Security Director	Data Management and Governance Section Head	Data Compliance Specialist	Data Governance Specialist
5.2.A	Initiate Data Monetization Compliance Assessment		I	A	R	
5.2.B	Conduct Data Monetization Compliance Assessment		I	A	R	C
5.2.C	Submit Data Monetization Score to DGO	I	I	A	R	I

RACI Matrix Legend: **R:** Responsible **A:** Accountable **C:** Consulted **I:** Informed

Based on this Activity, the Entity can



Calculate Data Monetization Compliance Score

6. Appendix



6.1. Templates and Frameworks

Asset No.	Asset Name	Description	File Name
1	Initiative Card Template	Template used to outline and track the details of a specific initiative.	NPC_DGO_QDKC_General_Initiative Card Template
2	Data Management Domain Plan Template	Template that helps the Entity capture an overview of identified initiatives, detail their sub-activities, owners, stakeholders, and activity timeframe.	NPC_DGO_QDKC_General_Data Management Domain Plan Template



المجلس الوطني للتخطيط
National Planning Council

دولة قطر • State of Qatar