



Data & Analytics, Enterprise Reporting Target State Modernisation Roadmap

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Status: Draft 0.4



Data & Analytics and Enterprise Reporting Platforms

The target state aims to acquire and transform data into actionable insights that drive business value across strategic pillars;

Self-Service – Users can access, analyse and visualise data independently. In the future, moving from a centralised model to more self-service model and GenAI serviced interface for decision making

Data quality and governance – Embedded and automated governance, ownership and stewardship,

Advanced Analytics & AI – ML and model deployment and monitoring for advanced analysis, foundations for AI & GenAI

Security & Compliance – Robust security by design and embedded regulatory compliance

Performance & Reliability – Always available, high performing technology that meets SLAs for critical data pipelines

Visualisation & Insight- Data that is easy to understand and action, through effective presentation and exploration tools



An **intuitive** data ecosystem that enables self-service and discovery



A **trusted and compliant** data ecosystem that is secure by design with embedded regulatory and risk controls



Consistent **use and reuse** of data with focussed, curated and ready to use **Data Products**



Operating Model maturity, to provide guidance and support in the use and re-use of data.



Uplift data products capability in the enterprise domains in emerging enterprise domain model



A **shift from legacy monolithic, duplicative systems** to consolidated capability on automated, innovative technologies



Reduced technical debt by transforming workloads to modern technologies (rather than a 1-for-1 replacement of technology) and decommission of exit and contain technology assets



Eliminating data silos through improved collaboration and discoverability across data assets



Advanced Analytics uplift through **maturity in Data Science and Machine Learning Ops**, supported by modern data science workbench technology



Scope & Context

A **key foundational platform** which facilitates the delivery of secure and reliable data for insight and analysis across the organisation. The Data & Analytics platform is a key enabler for AI and generative AI.

The Data and Analytics value stream is made up of the following capabilities:

- **Data Acquisition**
- **Data Curation**
- **Data Consumption**
- **Data ROI**



Transformation Approach

The agreed approach is to build foundations and to rationalise, simplify and modernise the current complex data pipelines and technologies into a composable architecture over 3-5 years. This is achieved by hollowing out existing systems, removing duplication, simplifying data pipelines, tools, practices and operating model.



Current State BMI View

The Data & Analytics and Enterprise Reporting platforms high BNZ Modernisation Index reflects the high number of legacy (Contain & Exit) assets with low architectural & functional fitness. Achieving target state drastically reduces BMI.

[\[link to BMI - Applications\]](#) [\[link to BMI - ITComponents\]](#)



NAB Alignment

In general, BNZ and NAB align on data strategy (including publishing Data Products as reusable data assets) and future state operating model approach, with minor differences to allow for the different scale between the Two banks.

Roadmap



Proposed Journey
February 2025

1

Strategy: Develop Modernisation Delivery & Execution Plan
FY25 Q3

2

Foundations & Capability Uplift
Build foundations, define Operating Model. Discover workloads on exit technologies FY25-FY26

3

Modernisation: Build and adopt reusable data products, embed governance by design, DataOps *FY25 – FY26+*

4

Rationalised & Optimised Delivery:
Simplified, automated and optimised data ecosystem and practices on target state technologies *FY26+*



Scale delivery of target state centred around “Discoverable, reusable data products”

* This is a draft view of a [proposed transition roadmap](#), Further refinement is required to understand prioritisation and resourcing for delivery, based on the agreed funding envelope.

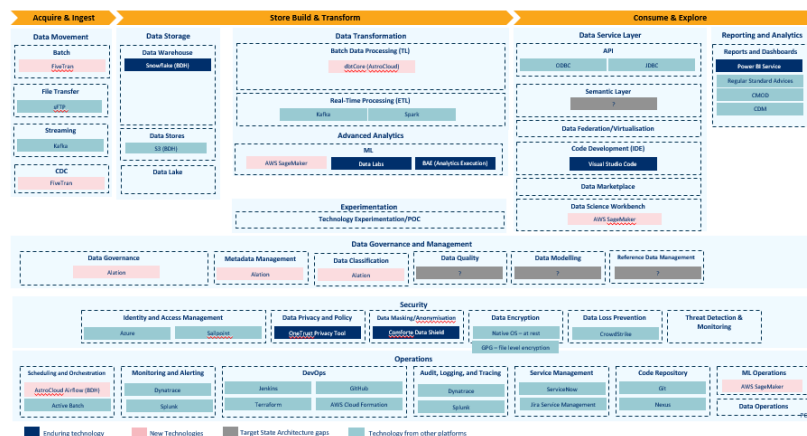
Published Target State: [Data & Analytics and Enterprise Reporting](#)



Data & Analytics and Enterprise Reporting

The target state aims to transform data into actionable insights that drive business value across strategic pillars; **Self-Service, Data quality and governance, Advanced Analytics, Security & Compliance, Performance & Reliability, Visualisation & Insight**

Target State Overview



[Link to Target State diagram](#)

Key Points

- Standardise on BDH** Core data and analytics capabilities standardised and rationalised in the cloud.
- Augment & Integrate**
 - Expedite and automate** the data by implementing a self-service data ingestion framework
 - Build **data products** across well defined data domain, with consistent tooling and standards.
 - Establish tooling that enables **integrated and automated data management and governance capabilities**
 - Implement cloud Data Science workbench to support **self-service data experimentation**
- Exit Legacy technology** discover and hollow out workloads from monolithic, duplicative systems to modern, intuitive technologies in the target state
- Grow capabilities** by developing skills and mindsets and looking into gaps in enterprise Observability, Test Data Management, Data Quality, Reference Data management, Semantic Layer, Data Modelling

Challenges and Issues



DataOps Practice Maturity: Low level of DataOps maturity across the teams leading to inconsistencies in tools, standards and practice adoption, including the way we automate and embed governance across the data lifecycle.



Blind spots Complex data pipelines operate across legacy and modern technologies, without shared context and intelligence. This means we do not have end-to-end visibility across the data eco system and makes it complex to move from current to target state.



Resources & Skills Training and support to develop skills required to adopt new technologies and deliver business value. A need to partner for specialist skills, to advance technology adoption and exit where required.

Technical Focus Areas

Accelerate Operating Model & Practices

- Establish a fit for purpose operating model coupled with clear ownership and accountability models
- Align operating model with cross functional teams across the business, DAP, DD&A and Core Technology teams
- Build expertise across domains to own, manage and deliver data products

Stack Simplification

- Focus on the rationalisation of technologies in the Data & Analytics and Enterprise Reporting platforms
- Hollow out monolithic, duplicative technologies such as Hadoop and GDW
- Reduce complexity due to non integrated tools with low functional, technical and architectural fitness.
- Refactor some existing tools and uplift them to utilise automation and orchestration end to end.

Fast track the delivery, through data engineering experience and empowerment

- Work closely with to standardise data engineering practices across the data pipelines (**One Way, Same Way**)
- Data workflow simplification and streamlining to reduce friction.
- Optimise and industrialise existing capabilities like tokenisation in SecureDPS

Scaling and growing capability

- E.g. SageMaker
- Foundations for AI and Gen AI
- A risk that the current centralised model is not sustainable in the long term. And, focus on the centralised model could mean that that we miss the opportunity to upskill across the organisation as we mature in the data journey.



Platform Overview

Target State Summary



An **intuitive** data ecosystem that enables **self-service** and **discovery**



A **trusted and compliant** data ecosystem that is secure by design with embedded regulatory and risk controls



Consistent use and reuse of data with focussed, curated and ready to use **Data Products**



Operating Model maturity, to provide guidance and support in the use and re-use of data



Uplift data products capability in the enterprise domains in emerging enterprise domain model



A shift from **legacy monolithic, duplicative systems** to consolidated capability on automated, innovative technologies.



Reduced technical debt by transforming workflow to modern technologies (rather than a one for one replacement of technology) and decommission of exit and contain technology assets.



Eliminating data silos through improved collaboration and discoverability across data assets



Advanced Analytics uplift through maturity in **Data Science and Machine Learning Ops**, supported by modern Data Science workbench technology

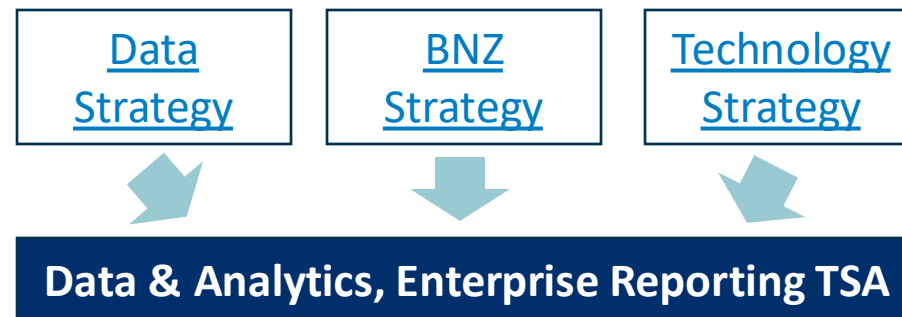
Scope, Vision & Purpose

The Data & Analytics and Enterprise Reporting platforms provide a trusted copy of enterprise data, making data more accessible and useful across the organisation. It includes capabilities for data and analytics enabling scaled data sharing and improved use of data for insights and analytics. BDH's target state technology, Snowflake is adopted as the target state to consolidate legacy data warehouse systems, facilitating the shift towards data that is more freely available and accessible with appropriate controls.

The vision is to transform data into actionable insights that drive business value for BNZ, across strategic pillars:

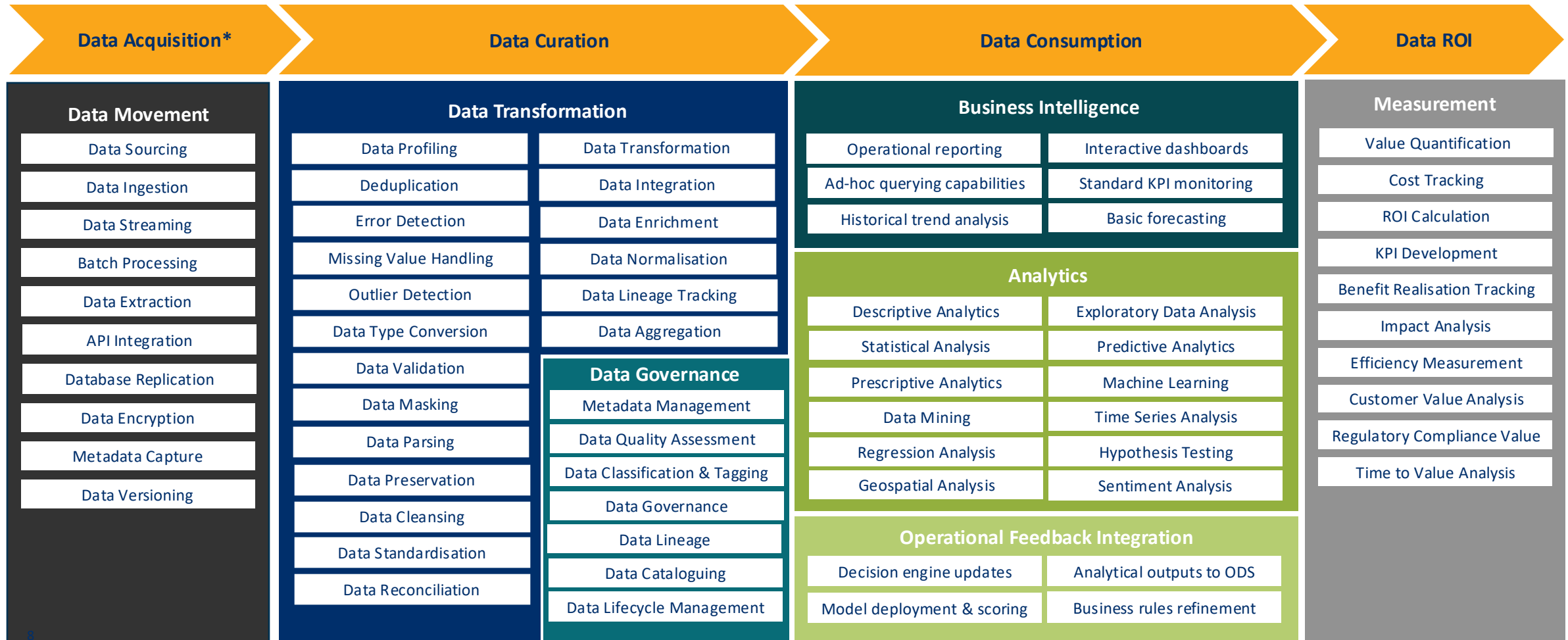
- **Self-Service** - Enabling business users to access, analyse and visualise data independently
- **Data Quality and Governance** – Automated data quality and validation, clear ownership and stewardship, embedded data governance and compliance
- **Advanced Analytics** – supporting a wide range of analytics capabilities, machine learning model deployment and monitoring, tools for advanced analysis
- **Security & Compliance** – Robust data security by design and embedded regulatory compliance
- **Performance & Reliability** – Always available, high performing, setting and meeting SLAs for critical data pipelines
- **Visualisation & Insight** – Data that is understandable and actionable for decision makers, through effective presentation and exploration tools.

The target state for Data & Analytics is informed by strategies, customer expectations, and industry trends.



Data & Analytics Value Chain

The Enterprise Data & Analytics, Enterprise Reporting platforms provide trusted data, enables data collaboration across BNZ and improves data used for insight, reporting and advanced analytics. The Data & Analytics value chain describes the full data lifecycle from acquisition (from operational systems internally and external systems) to analytics and consumption.

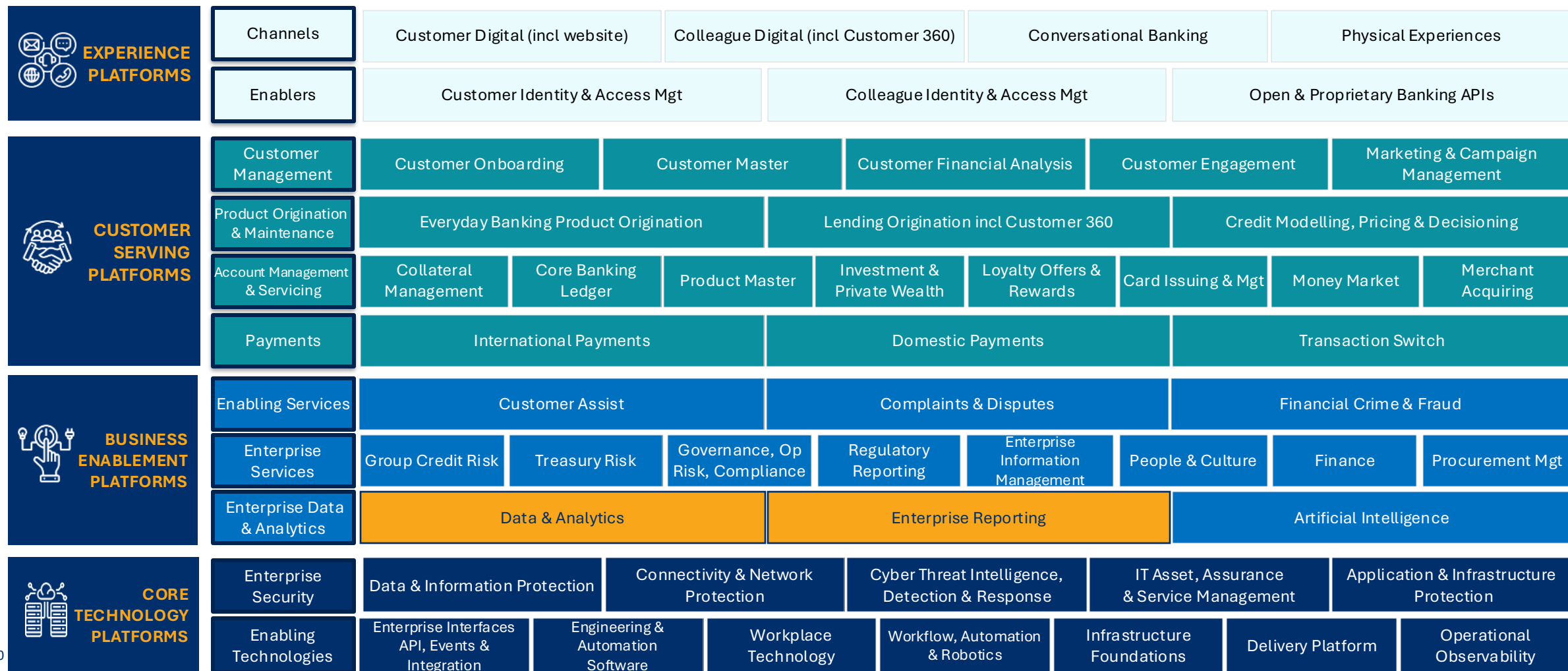


Notes: The Data & Analytics value chain delivers to both Data & Analytics and Enterprise Reporting BNZ 'platforms'

* Data Acquisition from any source, internal or external

Platforms @ BNZ

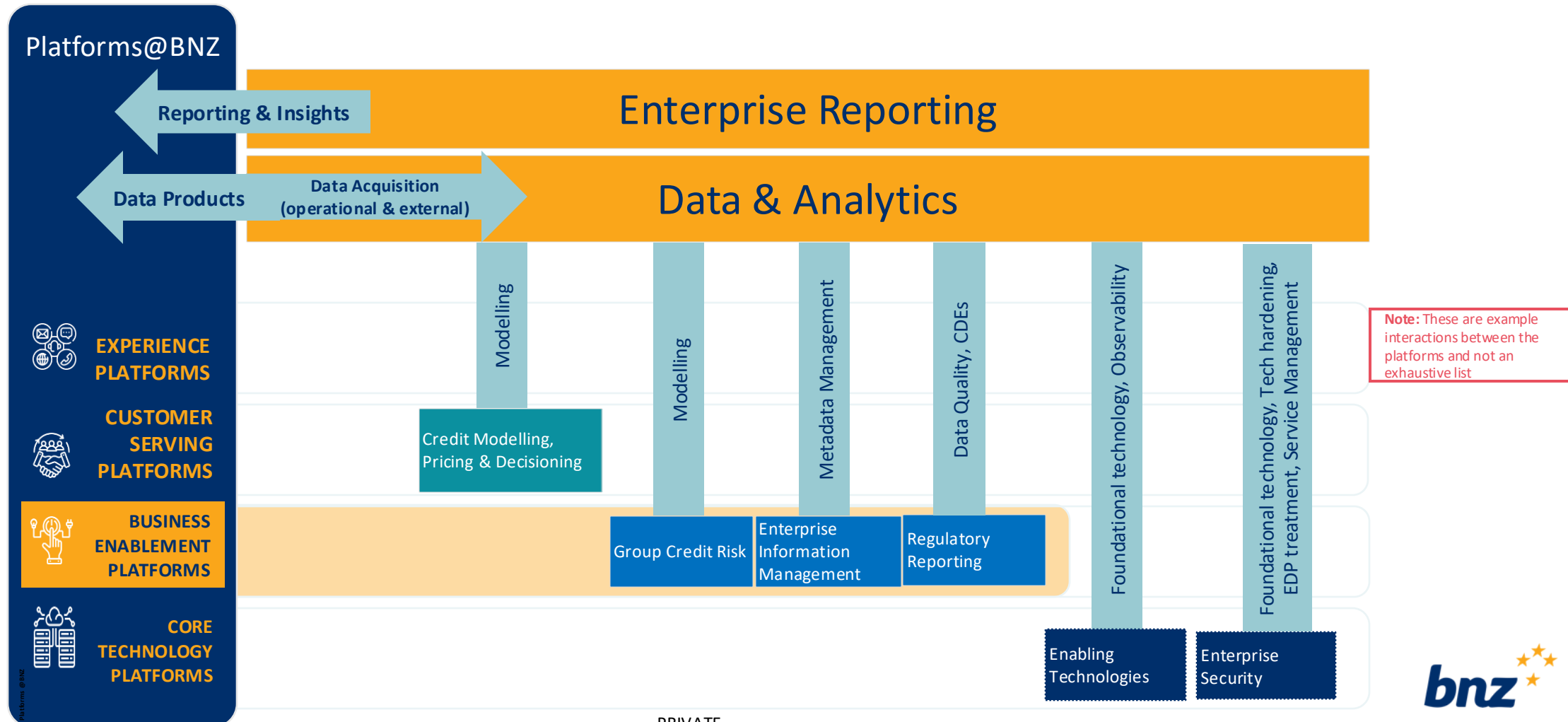
A key theme of the bank's [Technology Strategy](#) is to adopt a [platform mindset](#) that will help transform the bank with our intentional modernisation approach. The **Data & Analytics** and **Enterprise Reporting** Platforms are in **Business Enablement Platforms**.



High Level Platforms Context

On its own, the Data & Analytics and Enterprise Reporting platforms cannot deliver the Value Chain. It is both **dependent** on many other platforms in BNZ and **a dependency** for other Platforms in BNZ. The Core Technology platform is the primary upstream dependent and Business Enablement Platform components the primary downstream dependents.

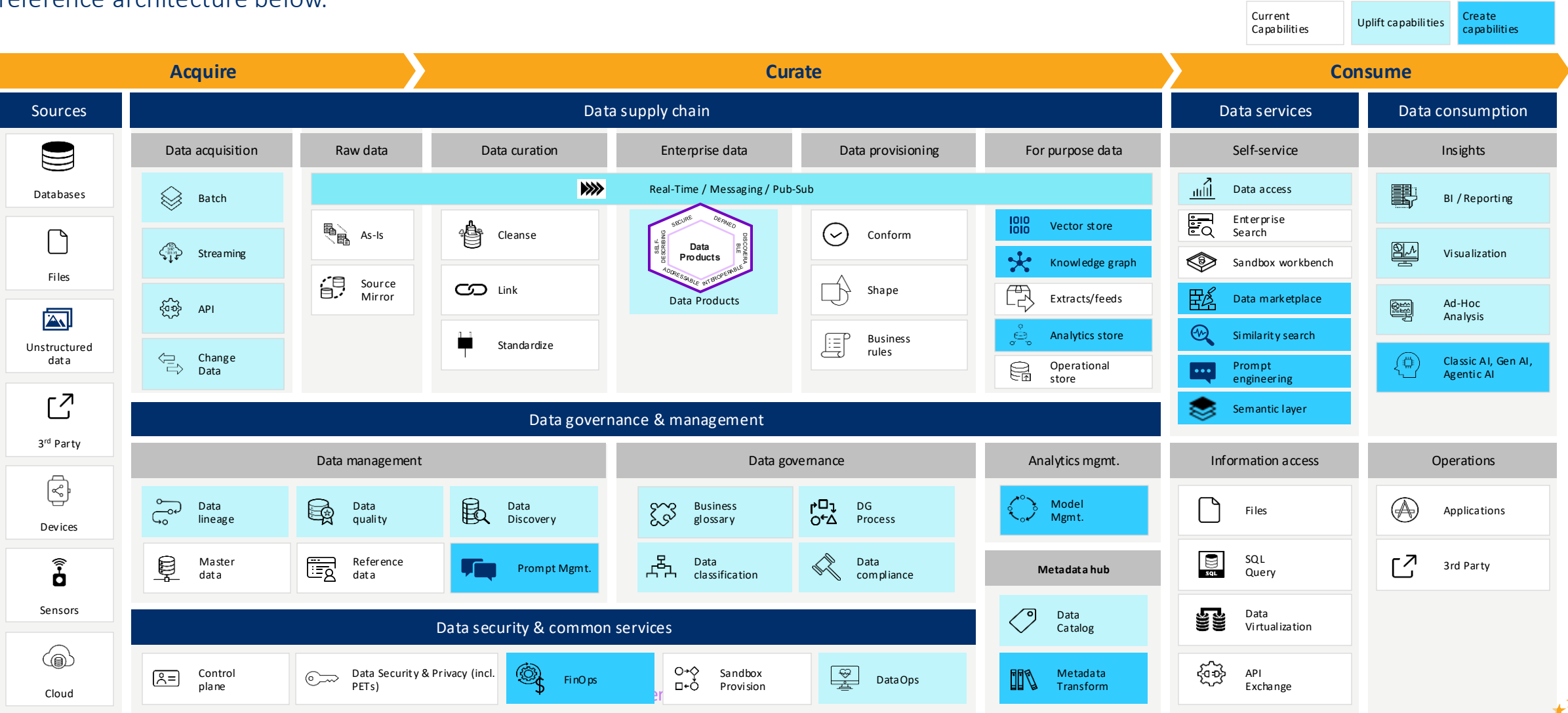
The future vision is to acquire data from all Platforms in BNZ to publish Data Products (as Data Assets) for consumption across the organisation.



Reference Architecture

The L2 capabilities for Data & Analytics and Enterprise Reporting (and future ambitions for AI enablement) have been highlighted in the reference architecture below.

Note: The reference architecture is higher level than the functional capabilities in current and future state slides. We are yet to land on which capability model to use in the Data & Analytics platform but this looks like a good starting point.



Lifecycle Status

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BMI Score

This slide represents lifecycle status, a key component of BNZ Modernisation Index (BMI).

The Data & Analytics and Enterprise Reporting platforms high BMI reflects legacy (Contain & Exit) assets with low architectural & functional fitness.

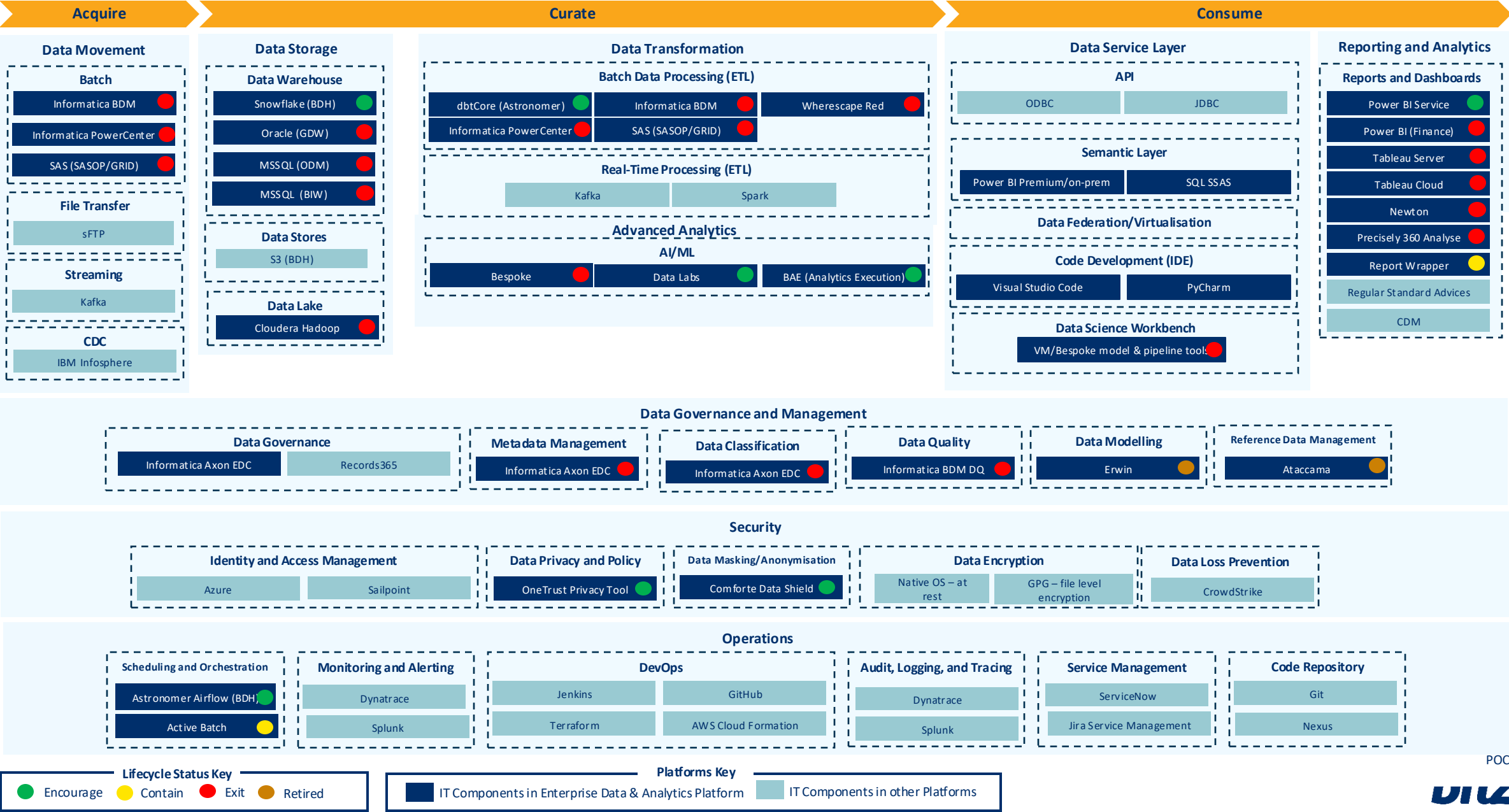
[BMI - Applications](#)

[BMI - ITComponents](#)



Current State Architecture

Current State



POC



Current State – Business Risk

The following GRACE risks relate to the Data & Analytics and Enterprise Reporting platforms:

Risk Summary	TSA Impact Description	TSA Impact to Risk profile
RSK-1300 Data Management Risk The risk that data/information/records is incomplete or incorrectly used. This risk applies to internal use of data.	Capability uplift with the modern data technologies, alongside operating model uplift improves this risk profile through improved: <ul style="list-style-type: none"> - Discoverability: Data is easy to find, we know where the data has come from and how it has changed over its data lifecycle (Data Catalog, Data Products Marketplace) - Access: Consumers can search, identify, request and be granted access to data assets (Data Catalog) - Description and Context: Data is accurately described and grouped into logical data domains (Data Catalog) - Ownership: Consumers know who is responsible for the data because the data stewardship model is applied and shared (Data Catalog, Data Products Marketplace) - Timeliness: Data is available to consumers in timeframes appropriate and consumers know the timeliness of data assets (Data Movement, Data Catalog) - Trust: Data (especially CDEs) is assessed and scored for data quality. The scores are available to data consumers (Data Catalog, Data Quality) - Data Protection: Data is automatically classified and protected as close to source as possible, consumers have access only to the data required to do their job (Data Catalog, DataShield) - Security : Modern data platforms build in security by design, exiting legacy platforms that do not support modern security patterns 	<div>Improves risk profile</div>
RSK-6 Stat, Reg & Reporting Risk The risk that external financial, tax and regulatory reporting contain errors, are misstated and not completed in a timely manner as a result of inaccurate or incomplete source data, untimely data, errors in processing, incorrect interpretation of data, human error and incomplete or untimely review of external reports. This risk applies to the use of internal data to report externally.	TSA impacts per RSK-1300	<div>Improves risk profile</div>
RSK-166 Data Loss This risk focuses on unauthorised access to BNZ data in electronic or physical format (Customer, employee and any intellectual property) resulting in loss or disclosure of BNZ confidential information.	This risk relates and will be covered in more detail Data Protection TSA with uplift in Data & Analytics contributing to improved risk profile: Data Protection: Data is automatically classified and protected as close to source as possible, consumers have access only to the data required to do their job (Data Catalog, DataShield)	<div>Improves risk profile</div>
RSK-158 IT System Failure The risk focuses on the failure to properly manage BNZ Information Technology (IT) assets (infrastructure, applications, systems) and effectively respond to IT incidents resulting in service outages and disruptions.	The TSA contributes to minimisation of this risk by shifting of workload to fewer target state technologies, reducing the number of technologies and environments to manage and maintain.	<div>Improves risk profile</div>



Current State – Issues & Challenges

Complexity & duplication

- Overlapping technologies for single capabilities and some technologies have been used in ways they weren't intended.
- Complexity in the data ecosystem, data is duplicated across (& within) legacy and new platforms with overlapping data pipelines
- Inconsistent point-to-point solutions adopted
- Data is difficult to find and use, leading to duplication of data pipelines and data sets in legacy data warehouses
- The will to modernise is often overwhelmed by the complexity in legacy integrations
- Business rules are not applied consistently across the bank, different data repositories have different interpretations of the same rules applied
- When preparing to migrate data from legacy systems, we need to understand data ownership, data quality and trust. This means either spending the time to understand the legacy data or starting from scratch.
- Time to recover in the event of a major incident due to complexity
- Poor data quality in operational systems

Technology obsolescence

- Significant time and investment spent managing and maintaining exit and contain technologies.
- Historic lack of priority, investment and commitment to exiting legacy technologies, there are more contain and exit technologies than invest and innovate.
- Non-compliance and security risks of legacy platforms
- Lack of visibility in legacy systems (eg. GDW), no holistic view of data lineage

Cost

- Waste incurred by not getting intended benefits from some technologies (e.g. Atacama & IDMC). These have now been exited.
- Increase in storage, compute, scalability and integration required to support our platforms
- The cost of running both exit and innovate technologies concurrently are high but are required while we shift to future state. We expect this to decrease as we mobilise our decommissioning programme.
- The cost and effort of the duplicated data that exists in contain and exit systems

Uplift

- We are close to achieving intended target state in BDH , progress has been slower than anticipated due to necessary reprioritisation calls to support other areas of investment (e.g. right of way initiatives)
- Challenges in adoption of modern, innovative technologies to deliver business value
- Lack of Operating model, guidelines, principles and patterns alongside technology to deliver business value
- Lack of observability – the ability to understand, monitor, and gain insights into the state and behaviour of the data platform.

Resource & Skills

- It has been difficult to recruit and retain the resource and skills required to support some contain and exit technologies (eg. Informatica)
- The demand for skilled people and advanced data capabilities keeps growing
- No expertise developed within enterprise domains
- Risk that the centralised model is not sustainable in the longer term and that we miss the opportunity to upskill across domains along the way



Target State Architecture

Target State Overview

Providing trusted, predictable and continuously available data across the enterprise.

We will do this by building up and leveraging BDH target state to uplift the current capabilities, by augmenting and adding capabilities for future requirements with focus on speed, including automation and scale required to deliver business outcomes.

Standardise on BDH

Core data and analytics capabilities that can be standardised and, in some cases, rationalised on Cloud native services to provide efficiencies in costs.

Augment and Integrate

- **Data Ingestion Framework:** Expedite and automate the data by implementing a self-service data ingestion framework across the BDH ingestion tools. Include a front-door to support requests and approval workflows with well defined Ingestion patterns.
- **Data Products:** Supported by well defined implementation of a data domain. Build data products with consistent tooling and aligned standards, ability to federate search and development access for personas (e.g. data engineer, business user, data science team)
- **Data Management and Governance** – Implement Data Governance, Data Catalogue and Metadata management tooling as part of BDH to enable integrated and automated data management & governance capabilities.
- **ML Uplift** – Implement Cloud based ML workbench to support self-service data experimentation.

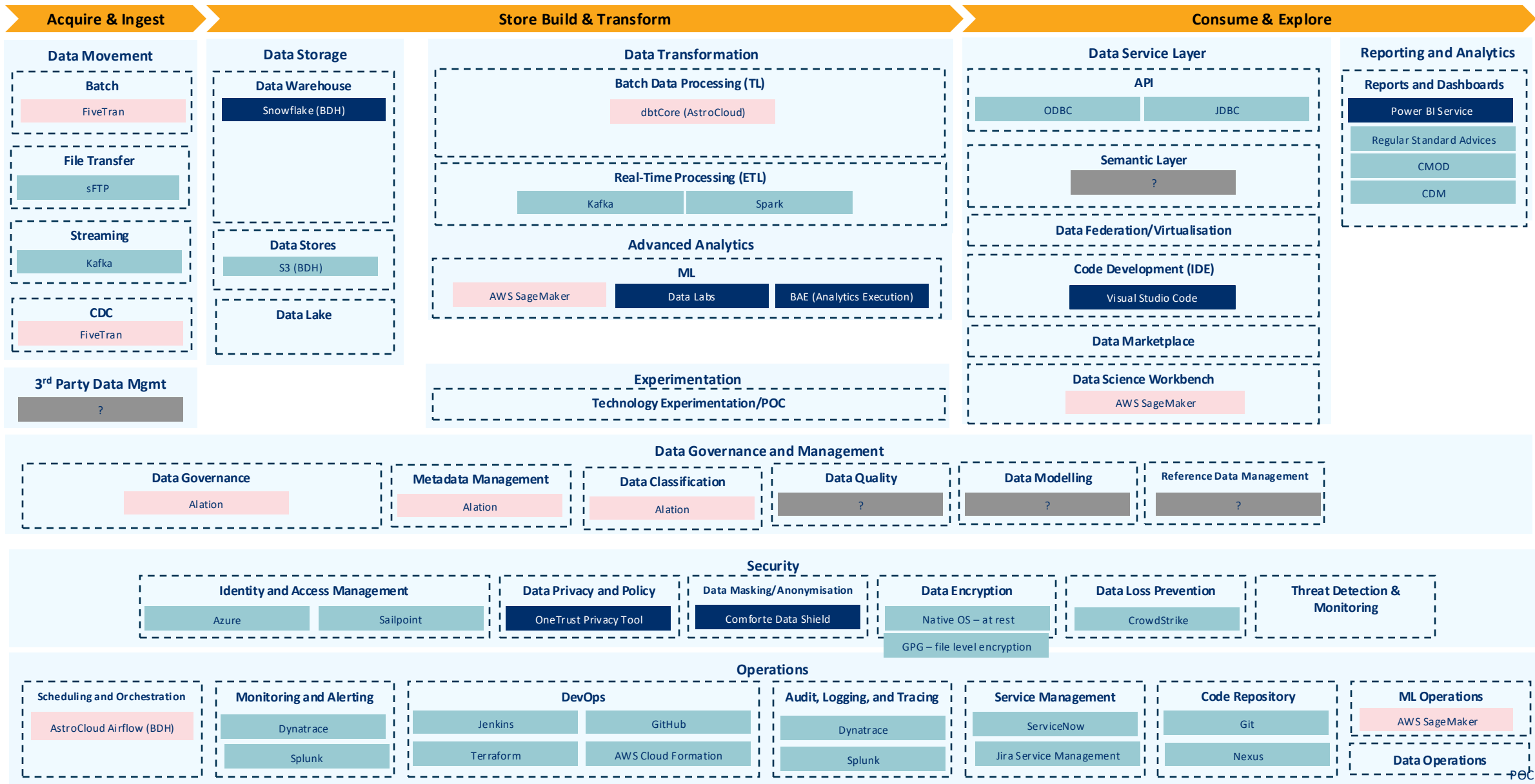
Grow Capabilities

- Observability
- Test Data Management
- Data Quality
- Reference Data Management
- Semantic Layer
- Data Modelling
- AI / ML, Gen AI / LLM
- Develop skills and mindsets

Exit legacy technology

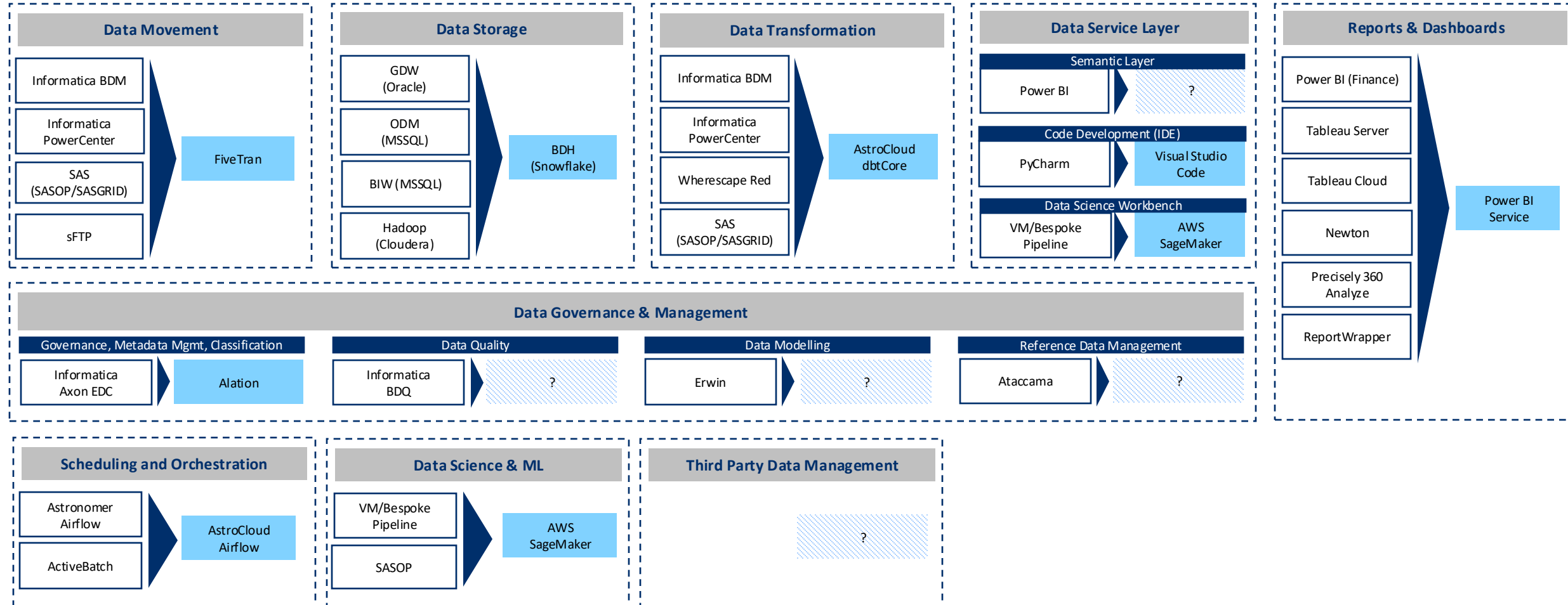
Adopt innovative tech

Target State Architecture



Target State Treatment Strategy

Achieving target state requires capabilities transitioned to target state technologies rather than one-for-one technology replacement.



Target State Challenges

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BDH

BDH uplift is key as it drives the shift away from fragmented and duplicative data repositories to one coordinated eco-system that makes data available and readily accessible to all BNZ business areas. BNZ will enable scaled data collaboration across the bank, leading to better use of data for insights, reporting, advanced analytics.

Reduce complexity & duplication

- Adopt future state technologies and develop operating model, guidelines and principles alongside technology to deliver business value
- Build simple data pipelines and reusable data assets - shifting from ETL to ELT – one trusted copy of data, curated for consumption
- Discoverable, trusted, protected data assets to underpin analytical data use cases

Minimising cost

- Look for opportunities to deliver business benefit within our existing data platform
- Prioritise technology selection when we have the maturity, commitment and available resource to deliver business value
- Monitor costs by team, product and feature and measure spend against business value on an ongoing basis

Uplift

- Plan future state for gaps, including Data Quality, Semantic Layer, Modelling and Reference Data Management
- Continue adopting BDH, including data hydration and a focus on creating data products
- Adopt target state technologies to support the workloads on exit technologies to allow exit
- Traditionally, reporting and analytics output was intended for human consumers, for decision and action. The modern use cases drive operational systems as consumers of analytics output, e.g. the output of risk models to input to credit risk decisions and the modern data platform must allow for this
- DataOps Practice Maturity: Low level of DevOps maturity across the teams leading to fragmentation and inconsistencies in terms of the adoption of the desired “shift governance and security left, and consistently everywhere across the data lifecycle”
- No capability in target state for Third Party Data Management
- Address Data Quality in operational systems e.g. missing data, evolving data models etc

Resource & Skills

- Training and support for new technologies to develop skills to adopt and deliver business need
- Partner for specialist skills, to advance technology adoption and exit where required

Address technology obsolescence

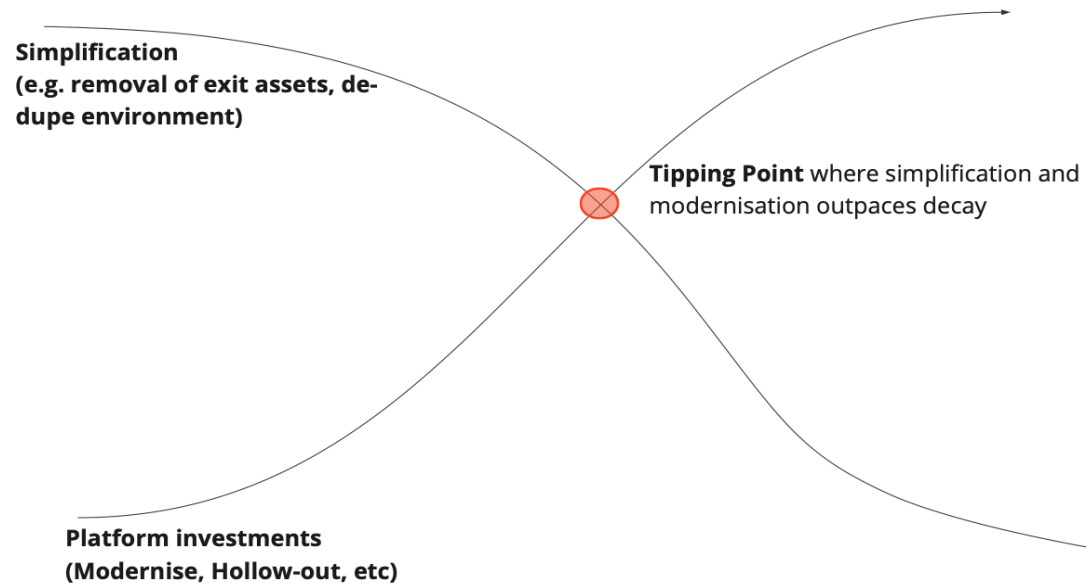
- Prioritise, invest, commit and plan for exiting legacy technologies
- Plan for exiting legacy technologies with cost profile in mind. A conservative exit approach will cost more in the long run.

Modernisation Tipping Point

Two forces need to be at play to modernise legacy environments:

- **Simplification** - actively planning for the removal and replacement of ageing assets
- **Modernisation** - large scale transformation across the enterprise, on major platforms that offer a cohesive approach to experiences, products and service offerings.

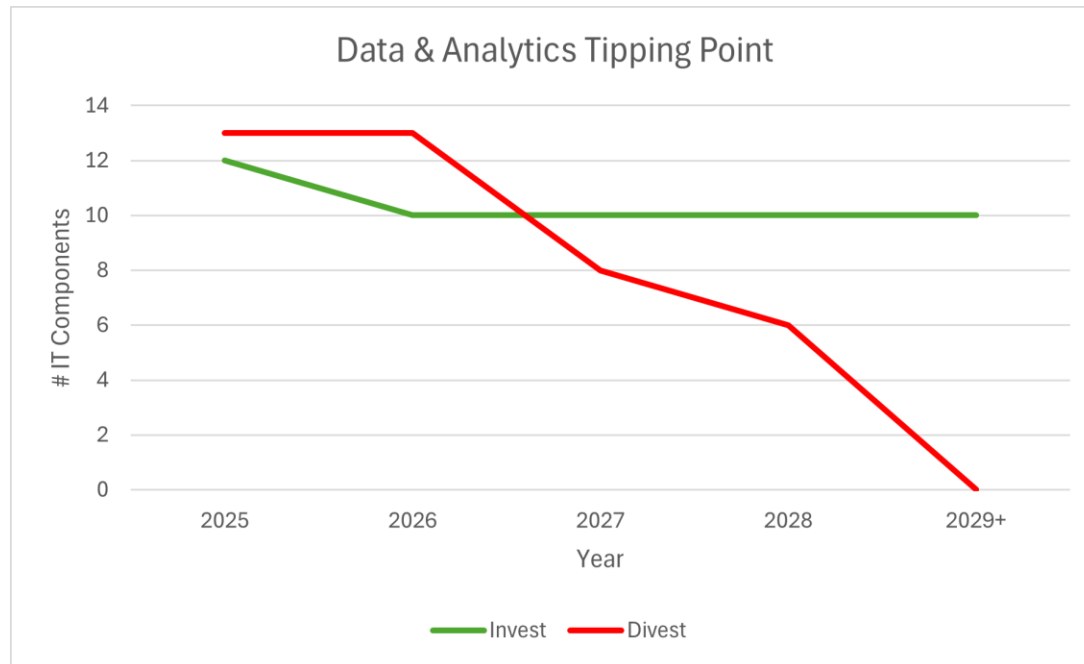
Once we get to a point where enough legacy removal is complete, investment can focus on modern & contemporary platforms, which are supportable and resilient. As a result, we will be able to execute with more ease, and services will be more resilient, secure & safe for customers and colleagues.



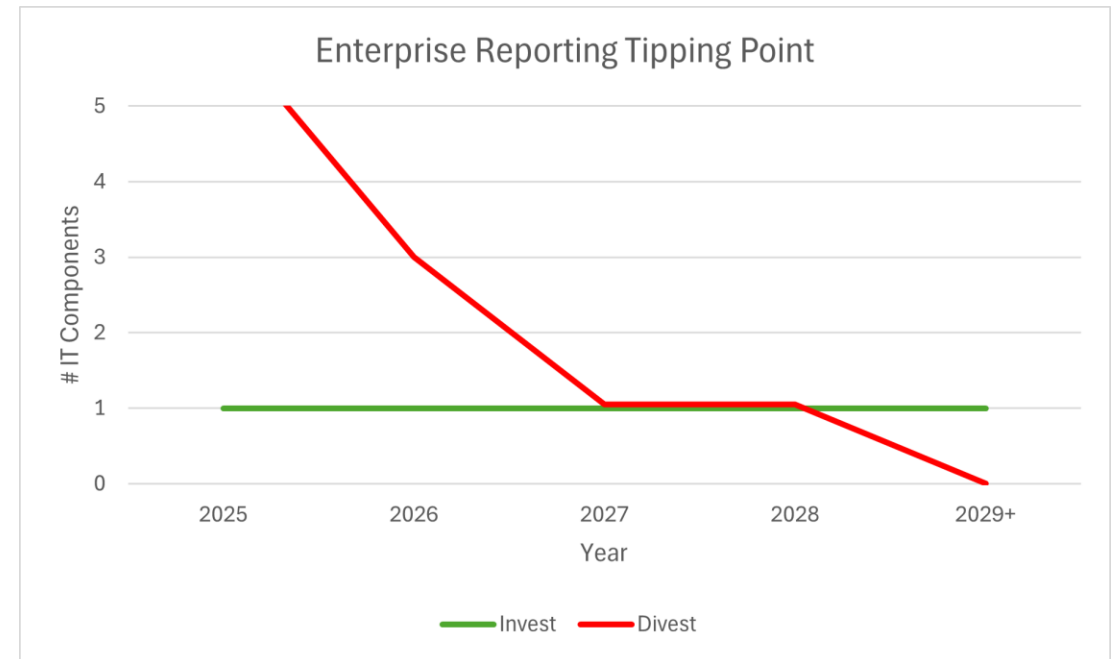
Tipping Point – Data & Analytics and Enterprise Reporting

The tipping point is where the rate of platform renewal outpaces the rate of legacy asset decay, based upon current initiative plans and a continued investment in Simplification. Many of BNZ's current investments are multi-year journeys toward modernisation - there is risk that major investments slip, which will mean a movement in the tipping point date. While we will continue to have modernisation investments beyond FY28, focus will shift from legacy to contemporary systems

2027 is the indicative tipping point* for Data & Analytics



2027 is the indicative tipping point* for Enterprise Reporting



NAB Alignment

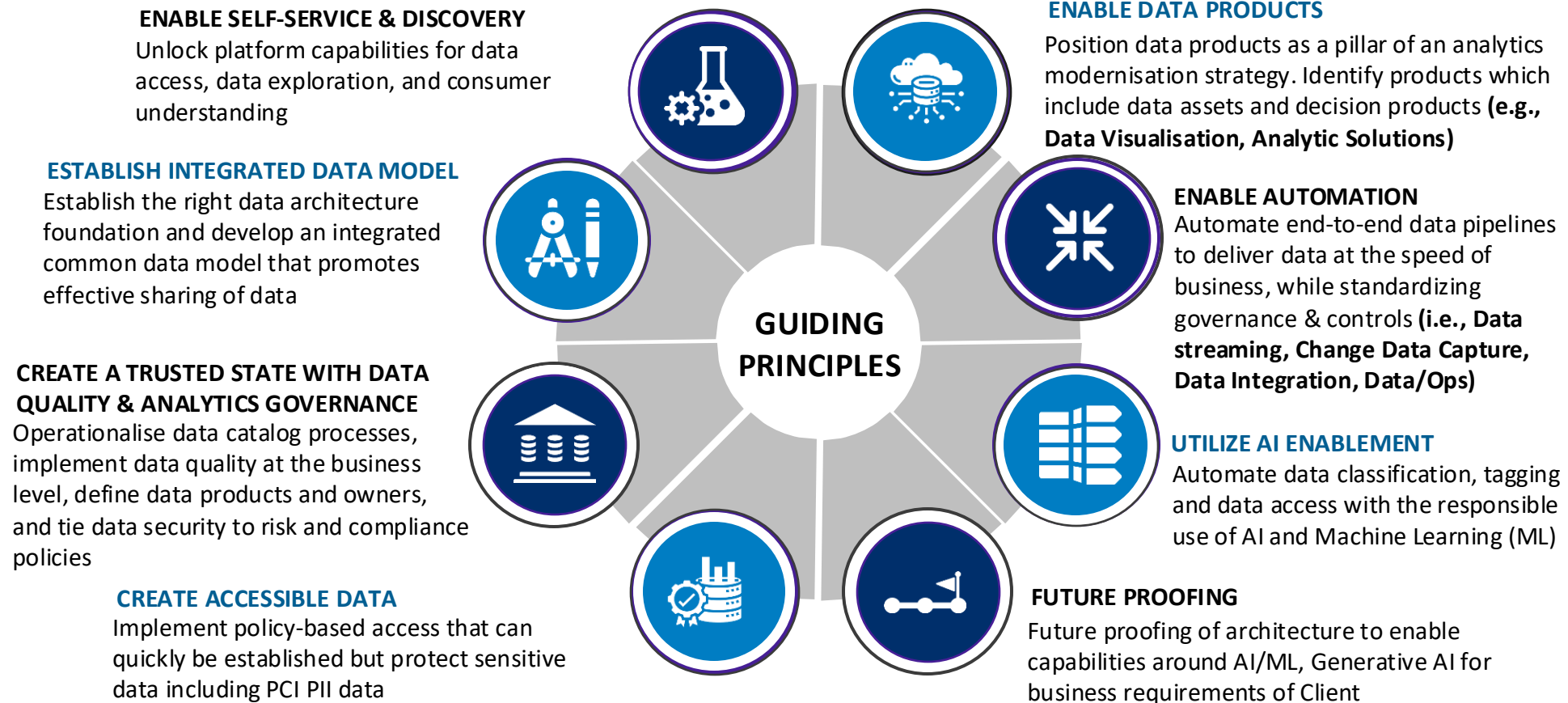
In general, BNZ and NAB align on data strategy (including publishing Data Products as reusable data assets) and future state operating model approach, with minor differences to allow for different scale between the Two. *

NAB	BNZ	
NAB includes Data & Analytics, Enterprise Reporting and AI in a single TSA	The Enterprise Data & Analytics and Enterprise reporting are included in this Target State Architecture	AI is included in the Business Enable platform at BNZ, but included in a separate Target State Architecture
NAB adopted Collibra as Data Catalogue	BNZ future state includes Alation Data Catalogue	While Collibra was considered, the price point was too expensive to deliver the business need. Alation delivers similar capabilities for less cost.
NAB adopted Databricks for Data Storage for the trusted copy of data	BNZ retain Snowflake on AWS	BNZ originally followed NAB NDH path in selecting Snowflake as target state. NAB have moved on from Snowflake NDH to Databricks ADA but the benefits of changing from Snowflake to Databricks didn't justify the cost and effort at BNZ.
² NAB Data Quality was Informatica BDM, intended future state is Collibra (though BDM, Collibra and PowerBI used currently)	BNZ Data Quality is achieved in exit technology Informatica BDM.	Target state Data Quality at BNZ not confirmed, Alation doesn't include Data Quality capability out of the box. Currently, NAB DQ rules are entered in Collibra (as a central repository), then coded and executed in Informatica BDQ and reported in PowerBI.
NAB adopted Databricks for model development and deployment	BNZ adopted AWS SageMaker for model development and deployment	Databricks (ADA) includes Data Science workbench model development and deployment capability out of the box. Snowflake (BDH) does not.



The Data Uplift Journey

Data Uplift Principles



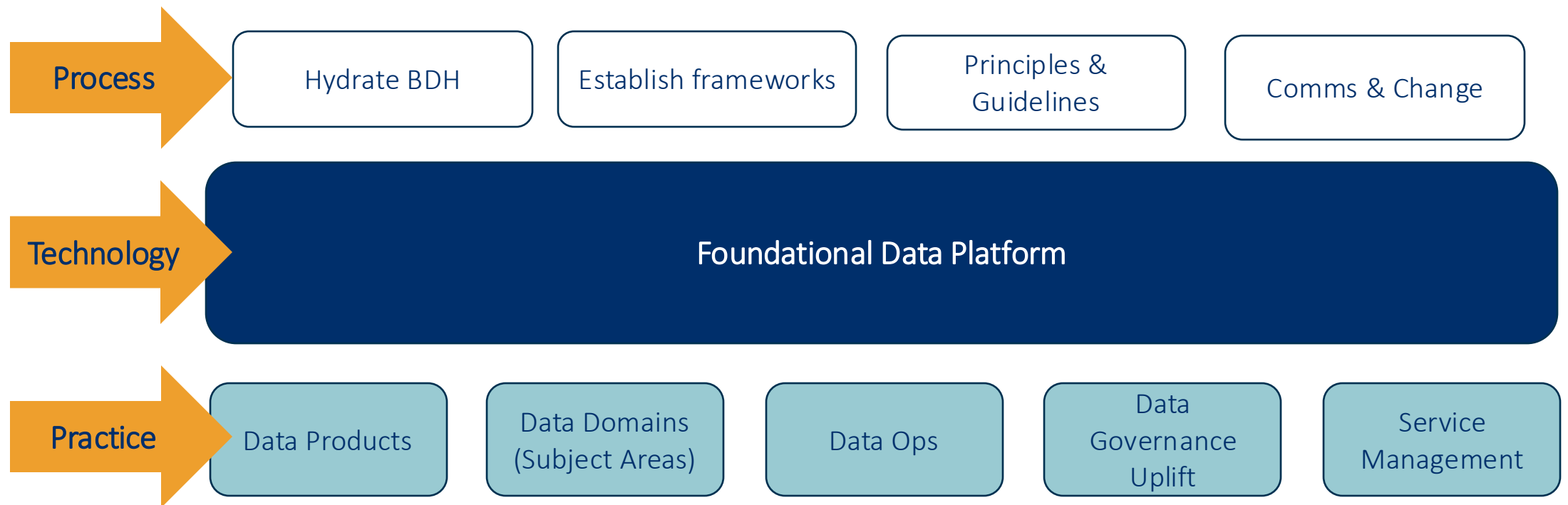
Business Value

BUSINESS VALUE

Achieving business value outcomes is the underpinning principle guiding the target state capabilities & tooling requirements. This includes support for our decision makers to understand and use analytical outputs effectively.

Target State Uplift at BNZ

BNZ are on a journey to modernising the data ecosystem by transitioning to a unified, scalable platform to enable simplified operations, cost efficiency, and improved governance. The journey is not just (or all) about Technology.



BDH – The one stop shop for trusted data at BNZ

The BDH platform seeks to be a one stop shop for trusted data at BNZ. Enabling BDH drives a shift in approach away from fragmented and duplicative data repositories to one coordinated eco-system that makes a trusted copy of data available and readily accessible to all BNZ business areas. BDH will enable scaled data sharing across the bank, leading to improved use of data for insights, reporting and advanced analytics.

The BDH platform includes capability for:

- **Data and Analytics** - Centralised repository of data & data enrichment capability
- **Enterprise Reporting** - Manages the creation and distribution of reports
- **Data Governance and Privacy by design** – Built in management, measures and controls
- **Enterprise services for Machine Learning**

And, is expected to scale for Artificial Intelligence and Generative AI capability in the future.

The target state technology of **Snowflake** that underpins BDH is implemented and being developed at BNZ. Much effort over many years is required to consolidate the legacy of data warehouses to the BDH platform.

Data Products

Data Products form a critical part of the uplift journey. They help to ensure that the platform delivers **reusable, high-quality, and business aligned data assets** across domains.

Data Products are data & analytics assets that are produced & offered as a packaged, reusable, self-contained product to service a data consumer's needs



That means that our data adheres to seven guiding principles...

1. Valuable: data is relevant and aligns to strategic business goal
2. Discoverable: data can be easily found and accessible
3. Addressable: data is simple to be consumed
4. Trustworthy: data is reliable, accurate, complete, consistent and up to date
5. Self-explainable: data is easily understandable
6. Interoperable: data can be easily combined
7. Secure: data adheres to security standards



...our data producers/providers improve their ownership of re-usable products...

Adopt a product thinking mindset to focus more on the value of data

Actively engage with consumers to capture their data needs

Manage consumer feedback to continuously improve Data Products



...and that the delivery of reusable Data Products is accelerated

Collaborate to set up the Data Product portfolio

Align on ownership & accountability of Data Products

Deliver reusable Data Products

Data Domains (Subject Areas)

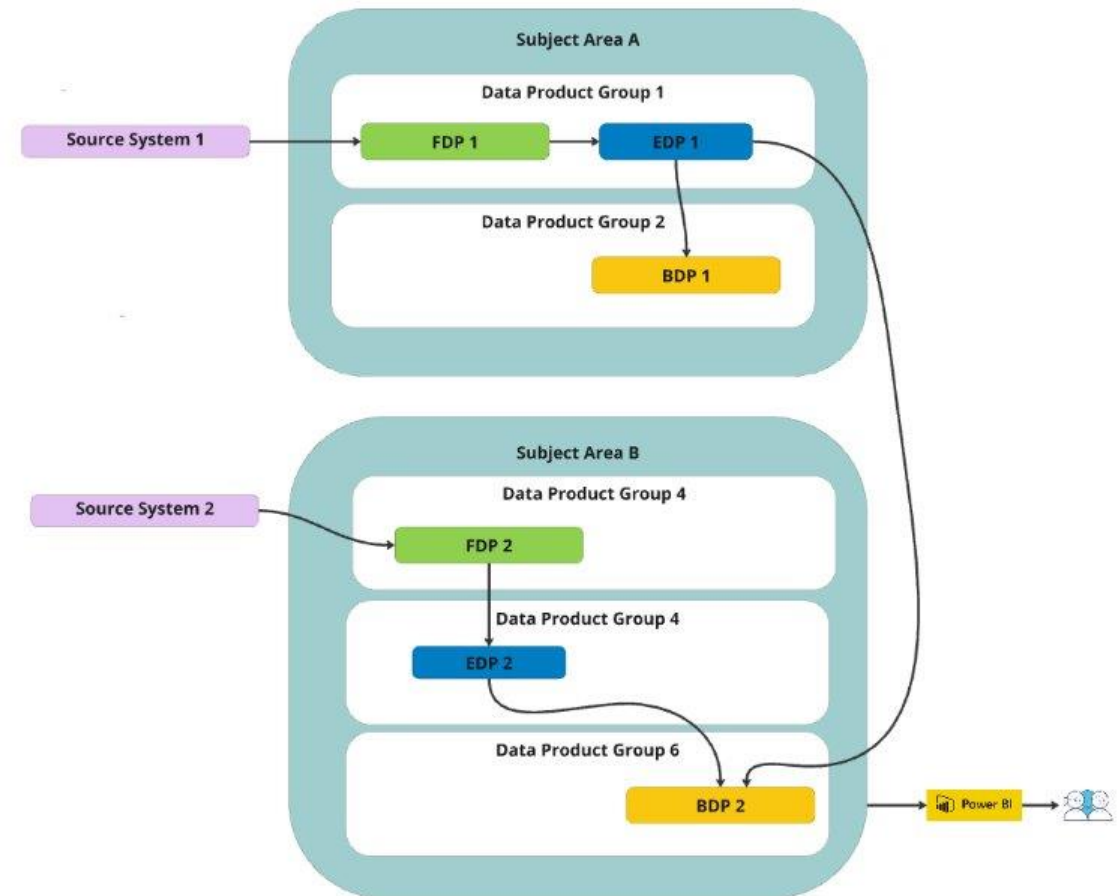
Subject areas allow data to be logically organised into Data Domains and informs the way data is organised in BDH. They ensure simplified responsibility and ownership for the related Data Products and guides Service Management (Monitoring and alerting).

Subject Areas

The conceptual boundaries that separate the delivery & management of data products from one another. Subject areas align to business value streams and outside of BNZ are often known as “data domains”. They are the same as the current BDH tenancy.

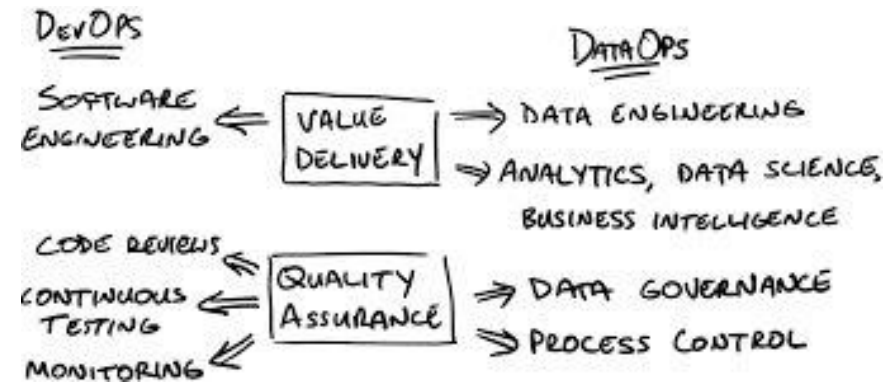
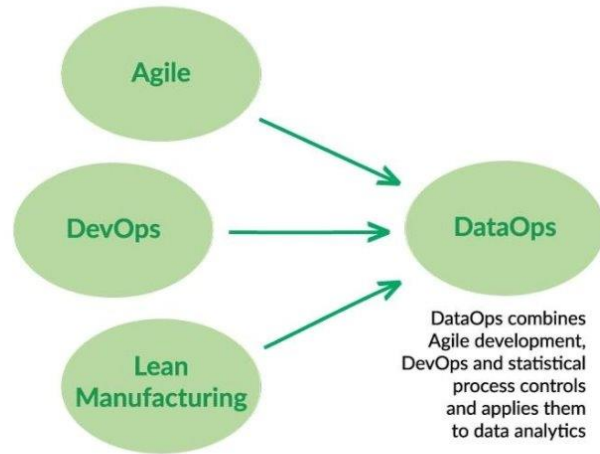
Data Product Groups

Lower level of granularity than the Subject Area, Data Product Groups will contain multiple schemas that support one or more related data products



Data Ops

The shift from **DevOps** to **DataOps** builds in automation, security and privacy by design, CI/CD and Service management. Empowering users to collaborate on and consume data while ensuring governance and controls are enforced consistently.



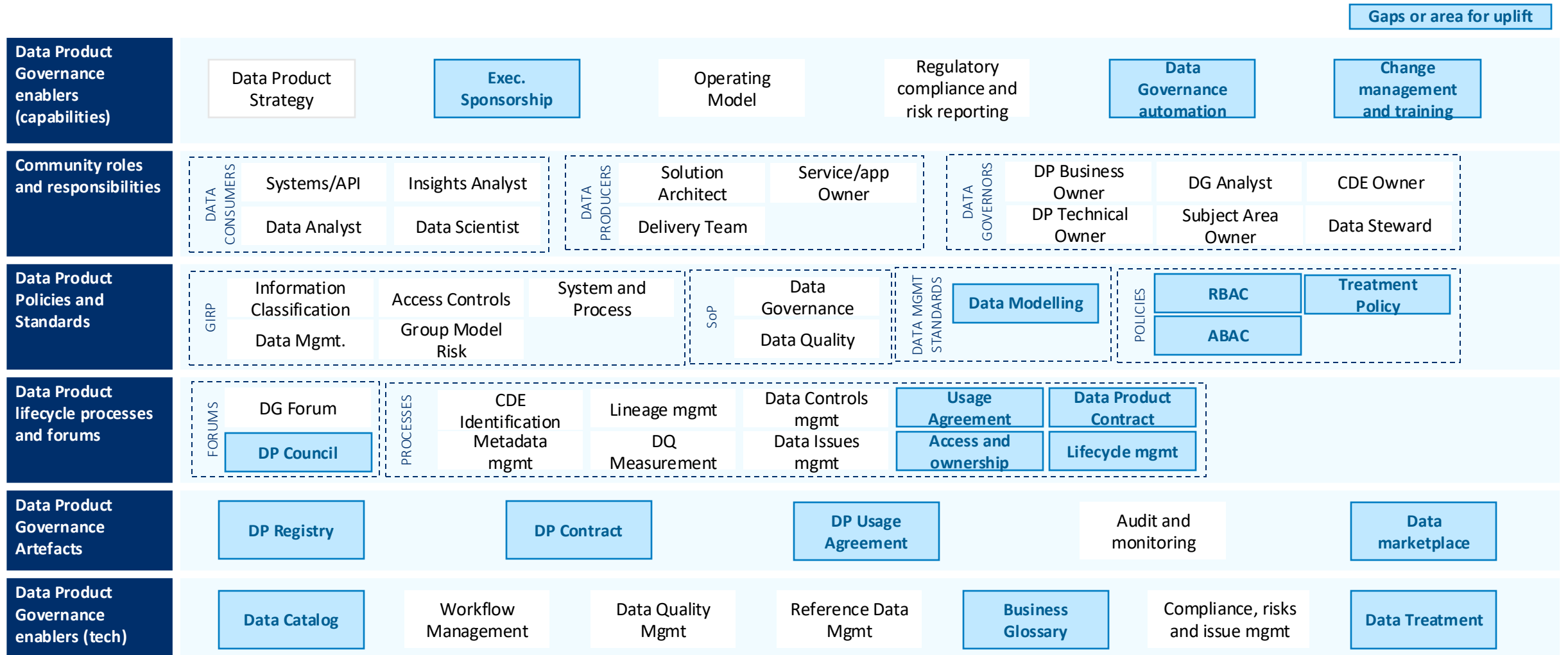
DataOps incorporates:

- Agile ways of working and DevOps CI/CD processes
- Automated data quality
- Automated metadata management (Lineage, Data Definitions, Data Usage)
- Data Privacy and Compliance by design (RBAC, Masking Policies)
- Collaboration and Self-Service – Empowering users to consume data while ensuring governance and controls are enforced consistently.

Data Governance Uplift

PRIVATE

The proposed Data Product Governance Framework developed in partnership with Accenture last year highlights gaps and area for uplift. Underpinning that uplift is the target state data governance and data management technologies.



PRIVATE



TSA Strategic Alignment

Technology Strategy Alignment

This target state is architected in alignment with BNZ Strategic Ambition through Technology Themes and Intentions.



Modernise and Simplify

- Significantly reduced technology landscape to deliver value stream.
- Reduced functional overlap in target state
- Simplified technology adoption, future management and maintenance by adopting SaaS/COTs with no customisation
- Reusable data products, simplified data pipelines
- Adopting technologies that are easy to work with (users), integrate with (systems) and secure and compliant by design (govern).



Agile and Adaptable

- Move from expensive to manage BNZ hosted COTS/builds to SaaS is a common theme through this target state.
- Move from monolithic technology to modern, decoupled, specialist technologies
- Delivering and adopting Data as a Product



Platform Mindset

- Challenges in how to best map capabilities in the Data & Analytics platform. BIAN doesn't break down to a level that is useful and NAB alignment is the next step to explore.
- Questions about how Data & Analytics platform are the same (or different) than AI, with overlap in semantic layer for example.



Resilient, Secure and Safe

- Significant uplift in the resilient, secure and safe delivery of data, through:
- Security, compliance and resilience practices deeply embedded in design and delivery, through automation and reuse of patterns.
 - Ensuring procurement processes & 3rd party due diligence are appropriate, including specifics for SaaS (driven from regulatory requirements).

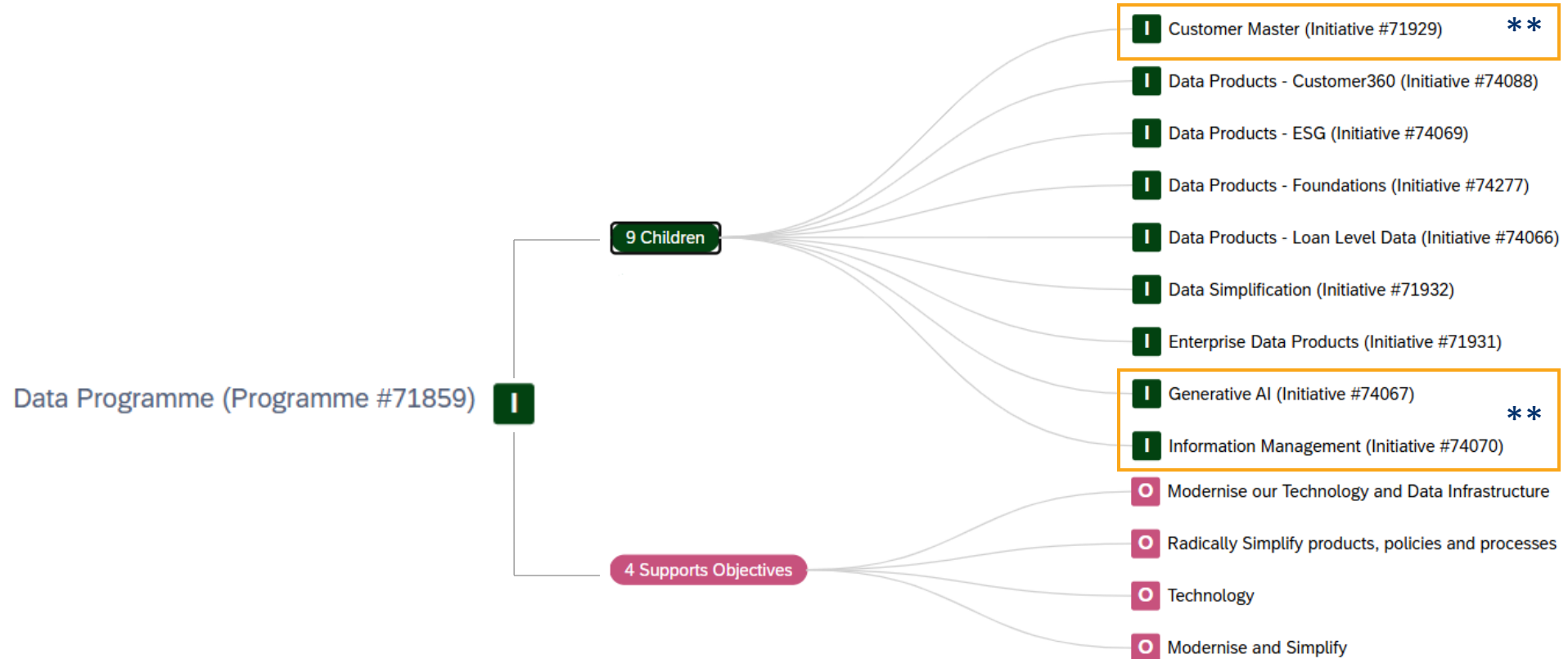


Deeply Digital

- Simplified data pipelines, reducing duplication in data and data processing

Data & Analytics Initiatives & Objectives

Across BNZ, funded initiatives are underway to support the journey to target state.



** Highlights Initiative in Data Programme, impacts outside of Data & Analytics and Enterprise reporting platforms



Roadmap

Data & Analytics Technology Roadmap –Approach

At BNZ, our Data Programme takes an incremental approach to achieving target state, while uplifting maturity in the data ecosystem to achieve business value along the way.

While moving towards Technology target state, the focus is also:

- **Hydrating Snowflake (BDH)** - Trusted copy of data from source.
- **Shift from ETL to ELT** - simplifying data pipelines and loading the data from source once for re-use many times. This approach avoids the data duplication that we see today, caused by ETL jobs that transforms data before it lands and meaning many ETL jobs are loading the same data that is transformed in different ways.
- Publishing **Data Products** for use and reuse across the organisation, providing trusted, timely data.
- **Automated classification and protection of sensitive data.** Simplifying and standardising the way we classify and protect data.
- Making data **easy to find, access and to use**

This approach allows for the maturity in data process and practice to build alongside technology adoption and exit.

This allows for de-duplication of effort over time, fluctuation in priority and investment, but also impacts the speed at which we can exit and the cost of existing legacy technology.

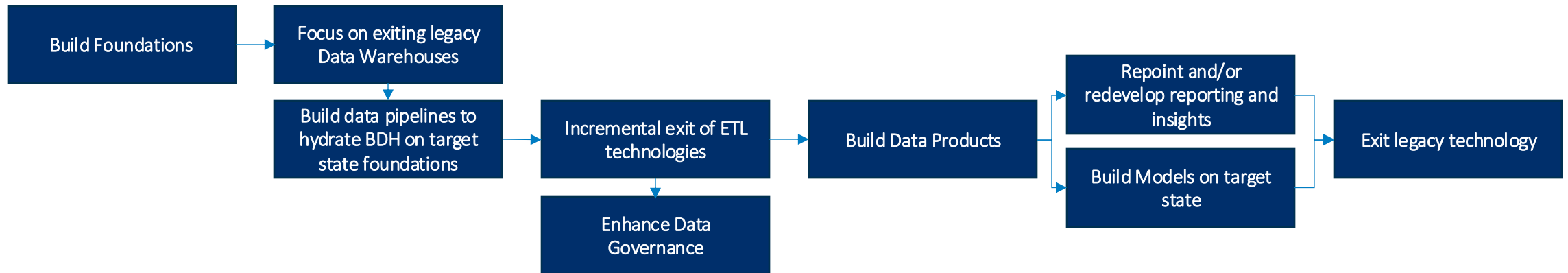
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Data & Analytics Technology Roadmap –Approach

Prioritising the exit of legacy data storage technologies allows the following to be achieved in parallel:

- Incremental exit of legacy data movement and transformation technologies (as we build simplified data pipelines)
- Building in Data Management and Governance by design, including data protection
- Producing, cataloguing and sharing discoverable data products
- Adoption of Data Science workbench, MLOps

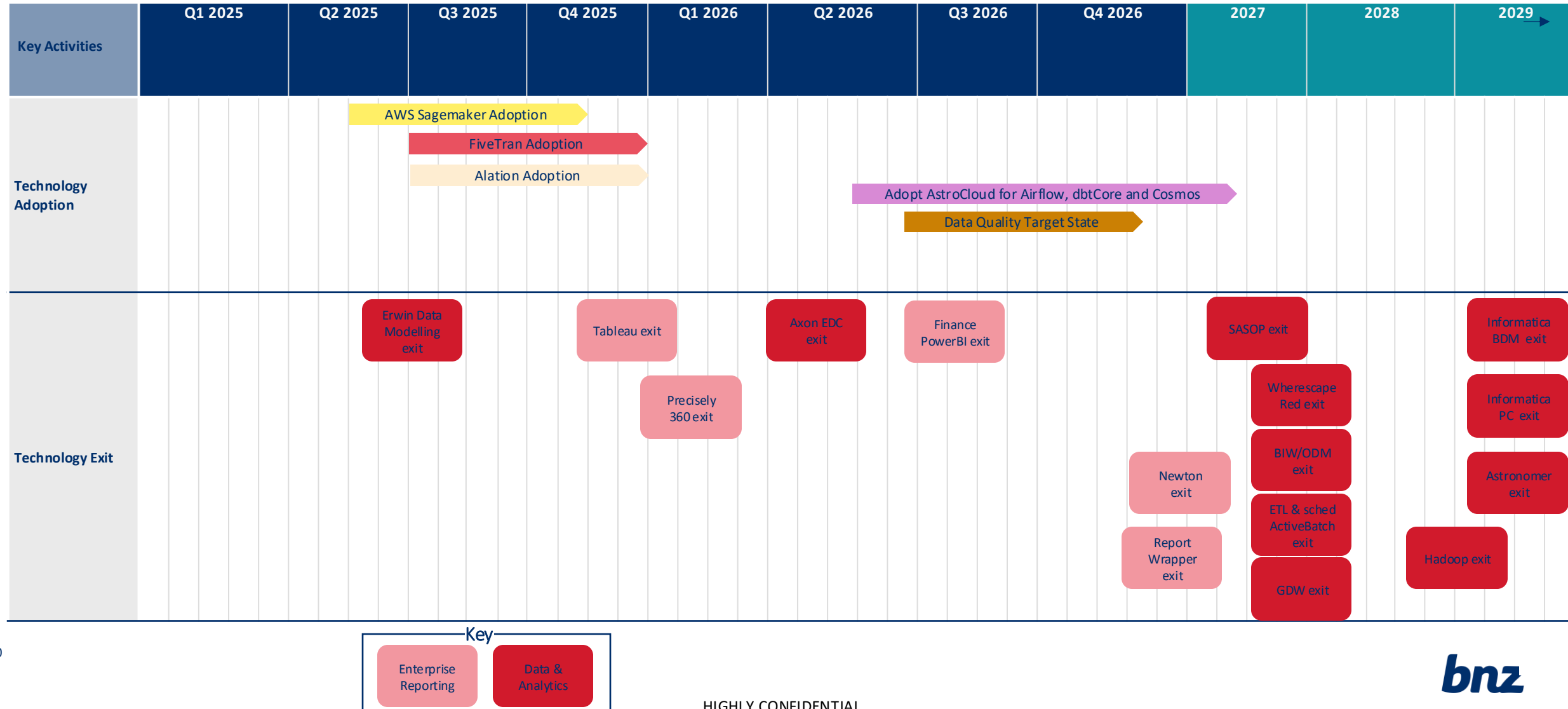
High Level Approach



Other approaches (such as ‘lift and shift’) do not deliver business value along the way. A lift and shift carries forward the issues and challenges of the current state through to target state, with more costs associated with running complex, duplicated processes and data in the cloud.

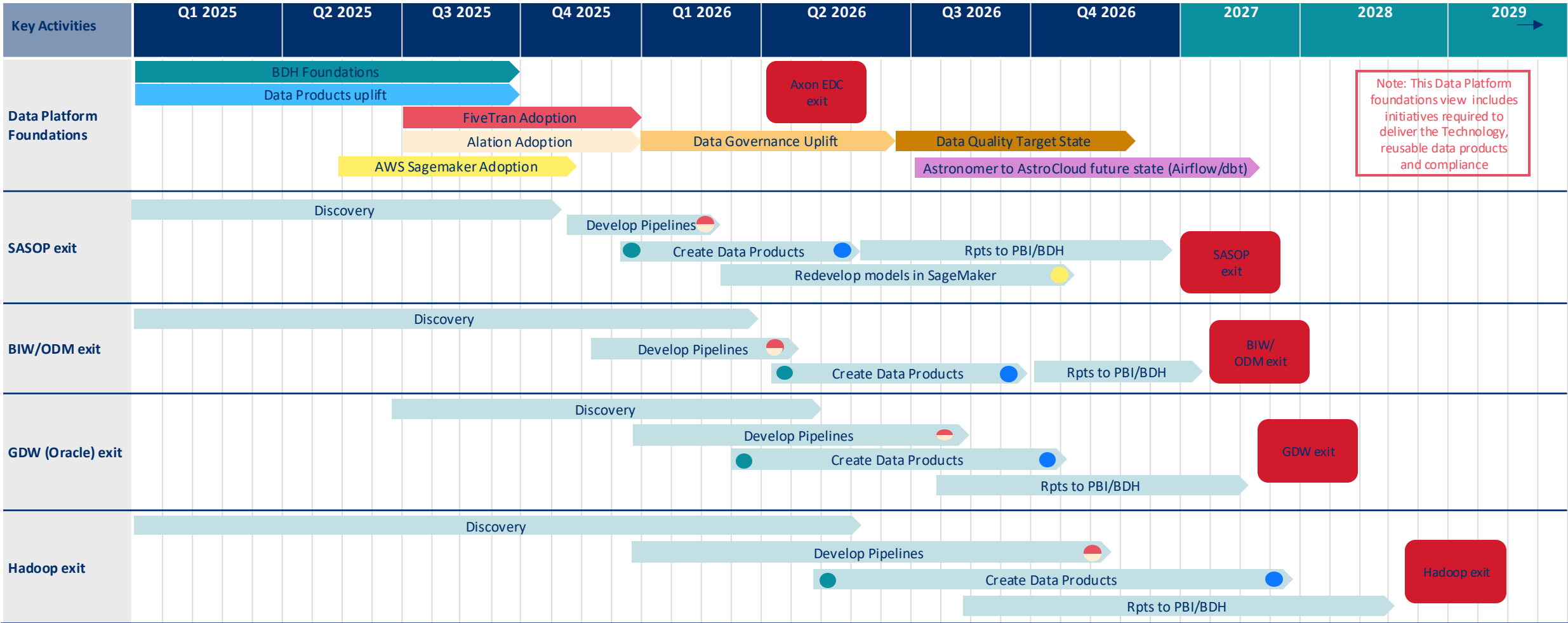
Roadmap – Technology Adoption & Exit High Level

Sequencing, dependencies and high-level time estimates to support the transition from current state to target state, with a focus on Technology.



Roadmap - Data Foundations & Data Storage

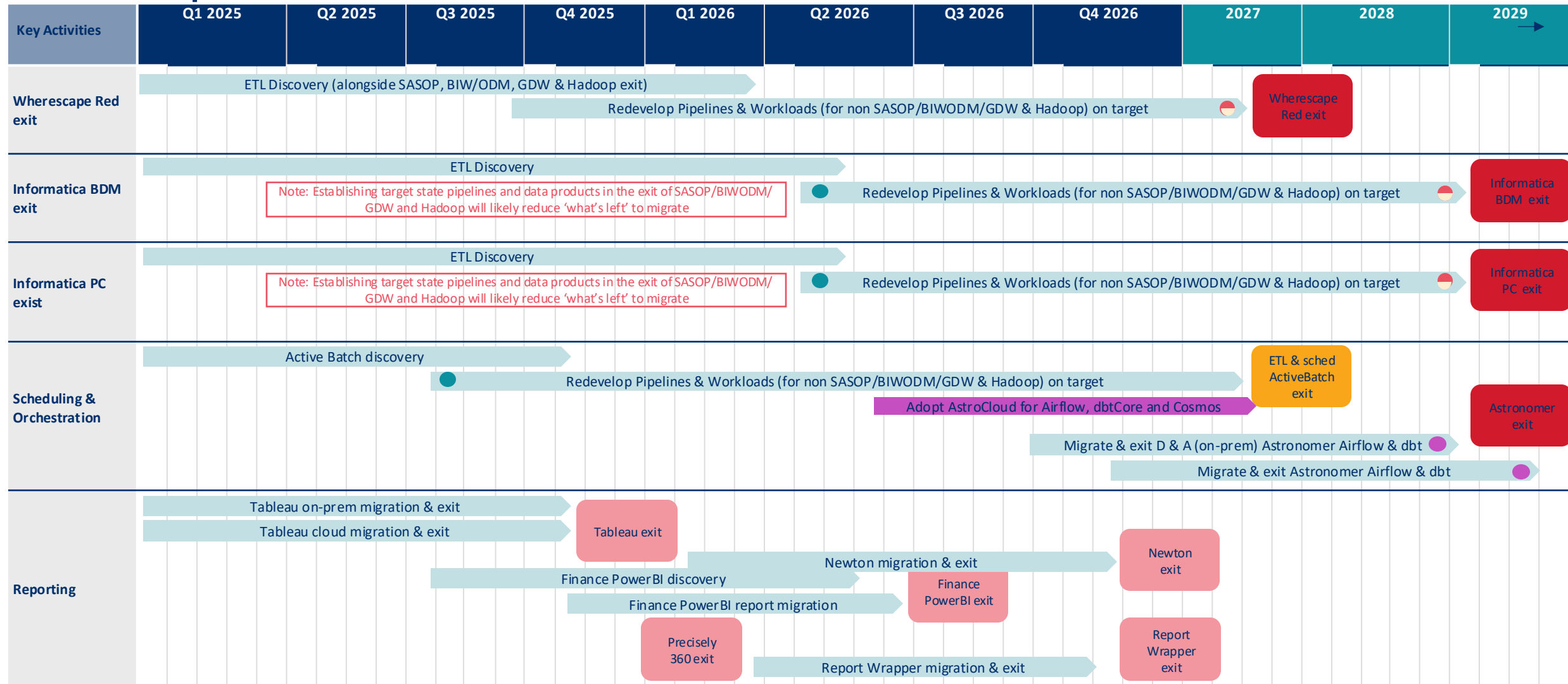
Data Platform foundations includes foundational Technology, data products and governance uplift.



Dependencies Key

- BDH Foundations
- Data Products uplift
- FiveTran Adoption
- AWS SageMaker Adoption
- Alation Adoption
- Data Governance Uplift
- Data Quality Target State
- AstroCloud Adoption

Roadmap continued



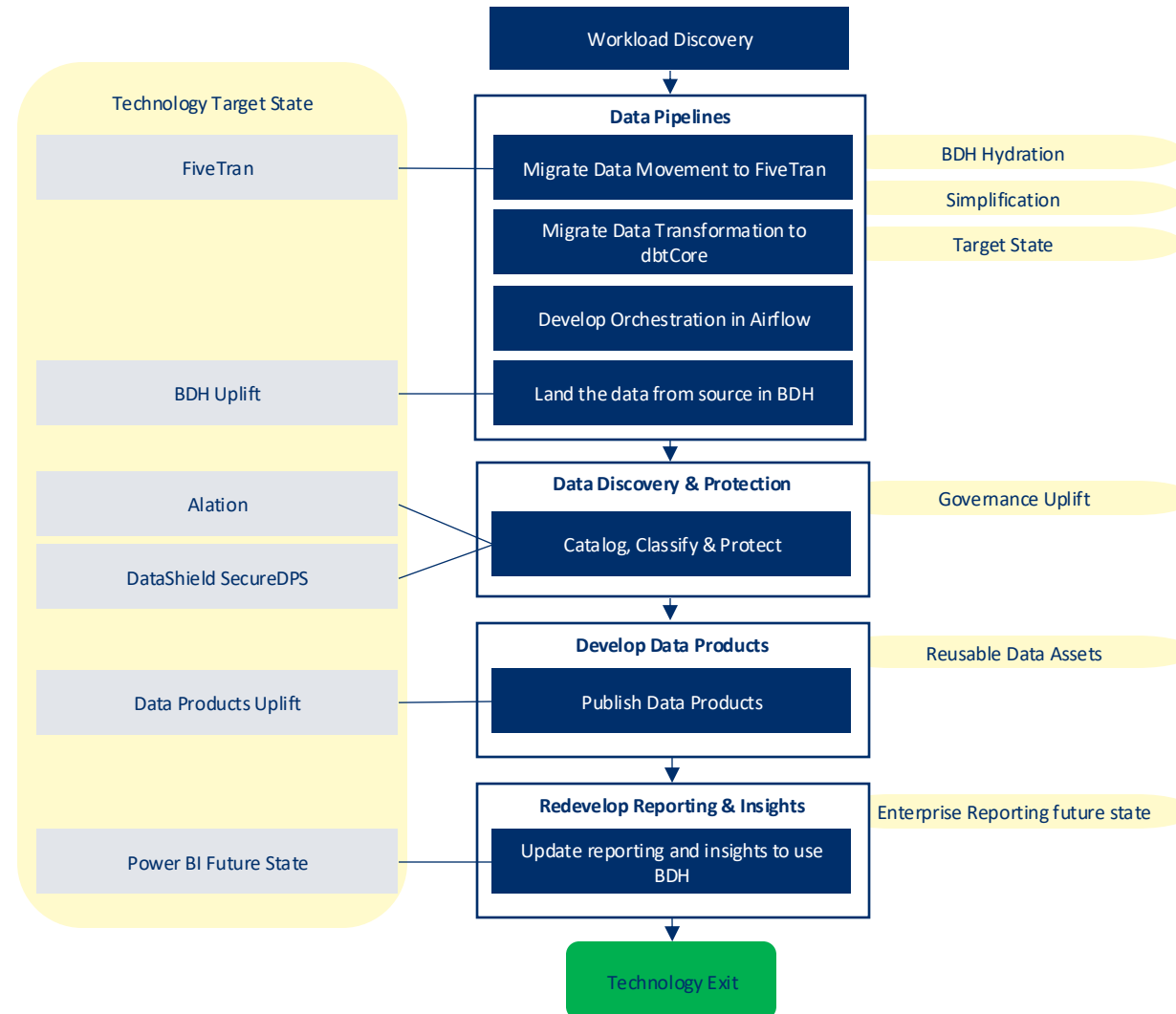
Dependencies Key

● BDH Foundations
 ● Data Products uplift
 ● FiveTran Adoption
 ● AWS SageMaker Adoption
 ● Alation Adoption
 ● Data Governance Uplift
 ● Data Quality Target State
 ● AstroCloud Adoption

Roadmap – Exit Blueprint

A simplified view of what is required to migrate capabilities and exit technologies in the Data & Analytics platform. The blueprint is the starting point for what is required and helps to understand sequencing and dependencies in the Data & Analytics Technology Roadmap.

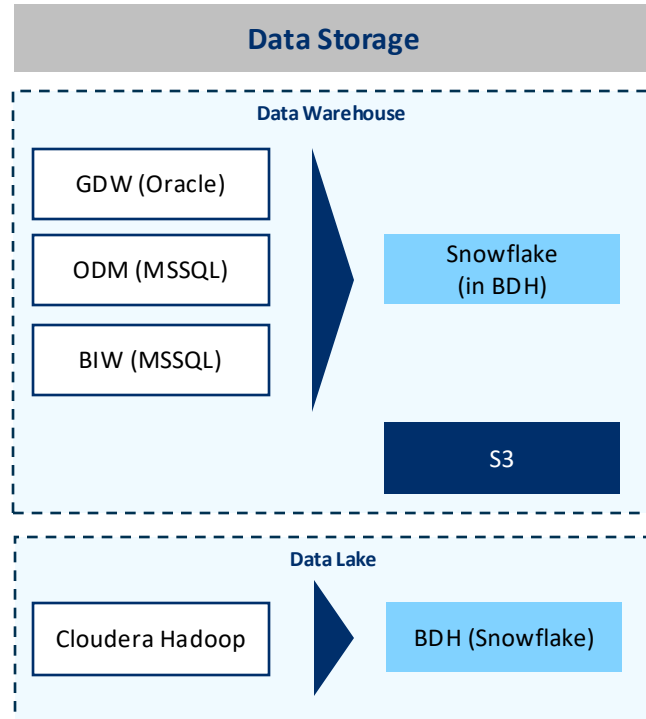
Workload Migration Approach





Focus Areas

Data Storage Target State Treatment Plan

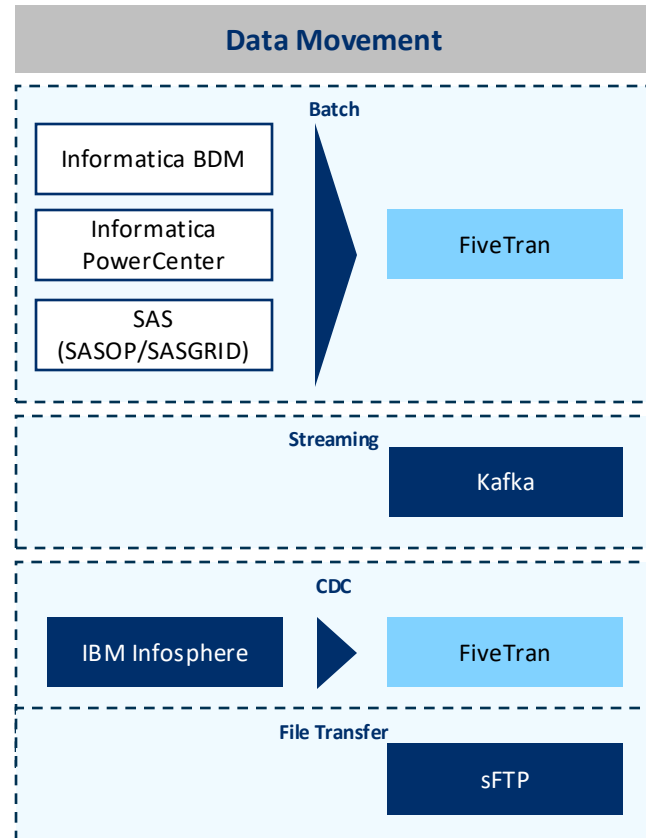


- Exit monolithic, duplicative data warehouses
- Consolidate – shift from siloed data stores to single data warehouse to support data products journey

BDH uplift:

- Account splitting in Snowflake, to allow GIRP compliance
- Refactor BDH Data Architecture to enable load once, reuse multiple times
- Implement improved RBAC in BDH to improve access control
- Improve Operating Model alongside the technology uplift to realise the benefits

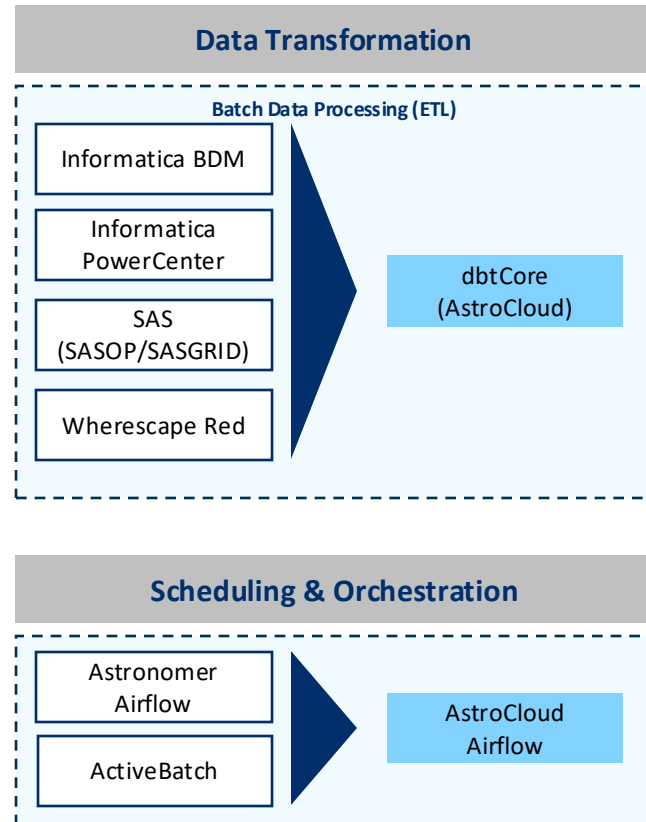
Data Movement Target State



- **Simplification** drives shift from Extract, Transform, Load pattern to Extract, Load, Transform. This means **fewer data pipelines that load once** and transform (in BDH) many times.
- ETL technologies cannot be exited until the last workloads are migrated to future state tooling.
- **Principles for Ingestion** in Data Movement Target State:
Streaming over CDC, CDC over Batch, Batch over File Transfer
- **Interim state** Adopt CDC with IBM Infosphere from to hydrate BDH (Snowflake) from Mainframe zOS

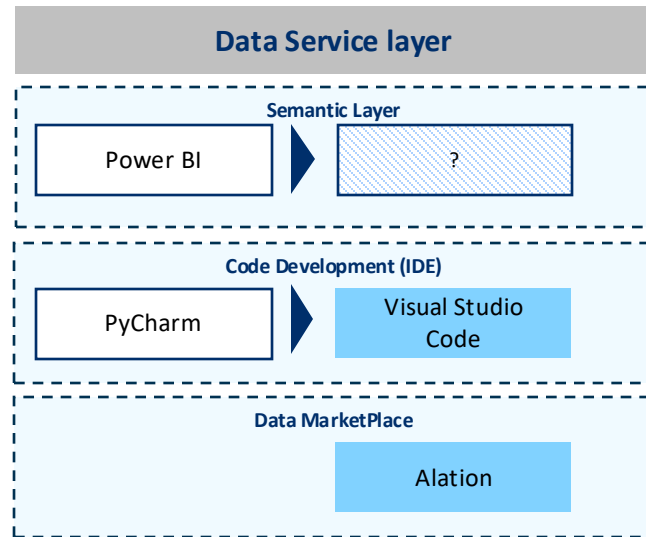
Data Transformation, Scheduling & Orchestration

Target State Treatment Plan



- **Simplification** drives shift from Extract, Transform, Load pattern to Extract, Load, Transform. This means fewer data pipelines that load once and **transform (in BDH)** many times.
- ETL technologies cannot be exited until the last workloads are migrated to future state tooling.
- Standardised data engineering practice uplift for Data Transformation
- Improve Operating Model alongside the technology uplift to realise the benefits
- AstroCloud adoption for Airflow, dbtCore and Cosmos is future state.
- Transitional state option - DD&A dbtCore and Airflow consolidation to Astronomer to reduce management, maintenance and cost.

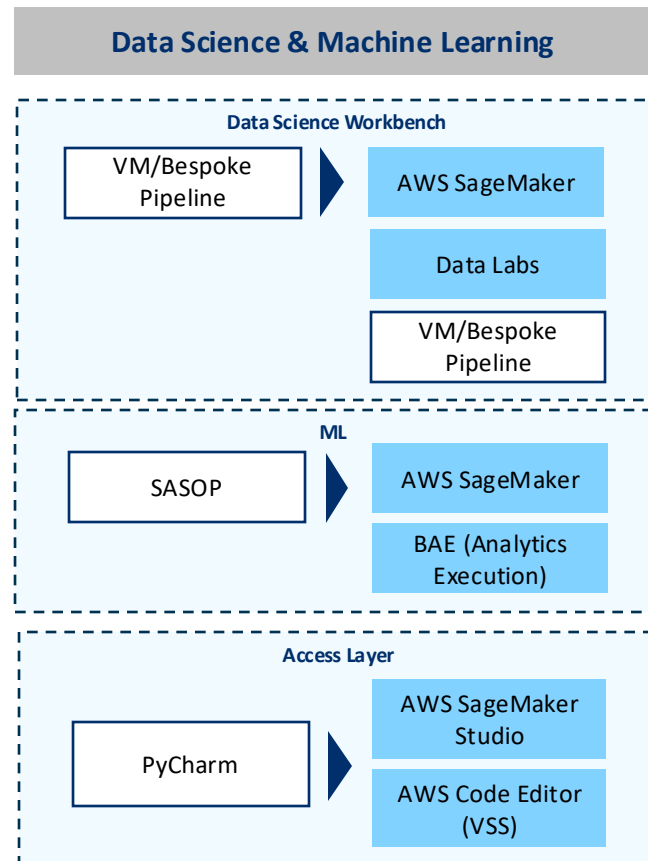
Access Layer Target State Treatment Plan



**Note: Data Science workbench is included on the next slide*

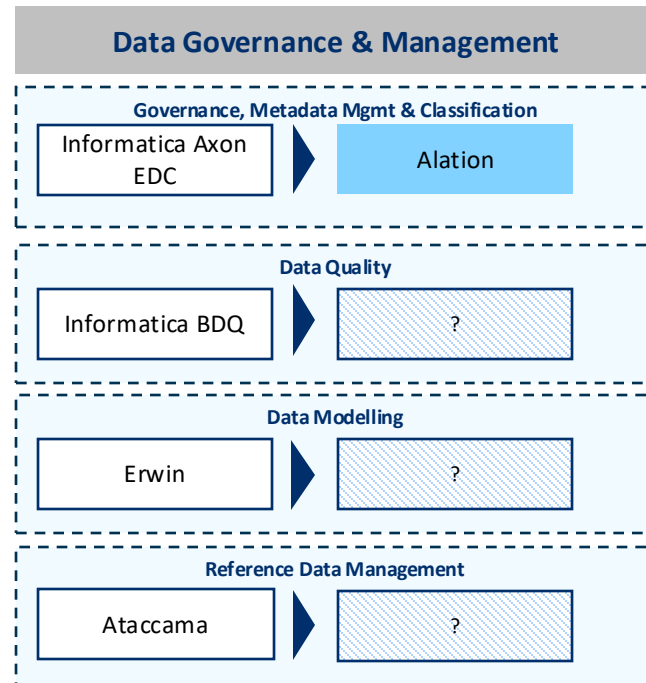
- **Semantic Layer target state is a gap for now.** We know that the future state is unlikely to be solely PowerBI, as this limits use of the Semantics to Microsoft technologies and means that data protection must be applied downstream. A priority for 2025 is to Lean Canvas the problems and opportunities and put together options for Semantic Layer target state.
- Standardising the Code Development IDE across BNZ simplifies access and user experience for data engineers. All new users at BNZ are guided to Visual Studio Code.
- Establishing data marketplace capability is critical to use and re-use of data across BNZ. Data Marketplace allows users to search, discover, maintain, access and consume data products.

Data Science & Machine Learning Treatment Plan



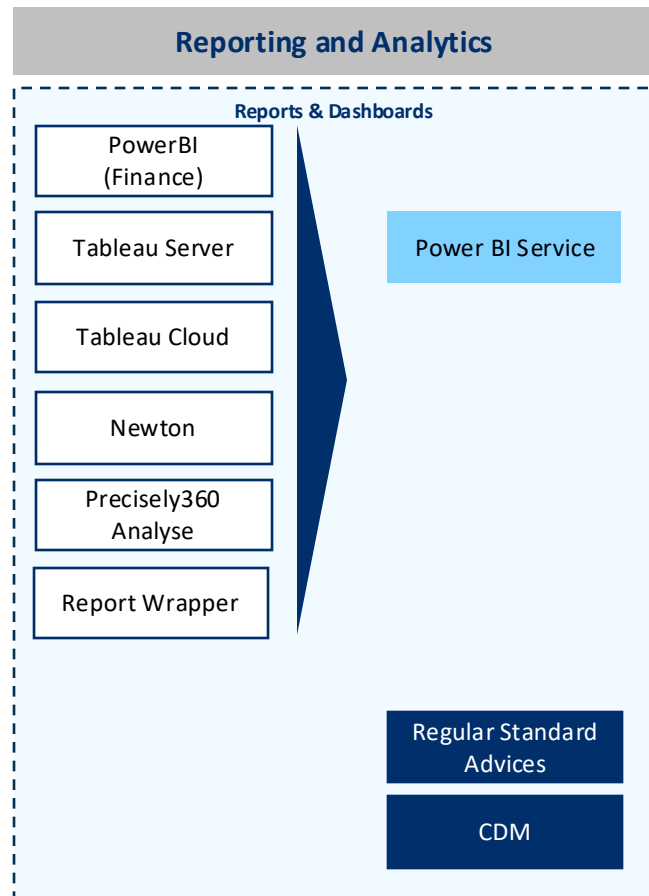
- An experimental approach proved SageMaker is the appropriate future state Data Science Workbench. This will make it more simple to productionise, operationalise and serve ML models and provide a feature complete environment.
- Machine Learning Model deployment – new capability in AWS Sagemaker.
- FinCrime are the sole users of Data Labs and BAE at the moment, but there are use cases from customer master and CCD to be supported. We will review the need for BAE and Data Labs alongside Sagemaker when Sagemaker, with the driver of simplification
- Retain Data Labs as the purpose built analytics platform to provide internal customers with access to real customer data and data science tooling.
- Access Layer: Only one person uses PyCharm, the rest use VSCode

Data Governance & Management Treatment Plan



- BNZ is actively exiting Informatica technologies
- Alation Data Catalogue is foundational and adoption is in progress, expected mid 2025.
- Work required in FY25 to confirm future state for Data Quality.
- Reference Data is aspirational. Ataccama was the previous target state for Reference Data Management however it was not adopted by BNZ.
- Data Modelling technology Erwin is in the 'Good to Leave' process. It was exited because it had few users and wasn't delivering business value. The maturity level at BNZ requires uplift before adopting Enterprise Data Modelling technology.

Reporting & Analytics Treatment Plan



Power BI is the single data visualisation tool for the enterprise in future state.

- Assess to determine which reports are redundant and can be retired on the legacy reporting systems
- Tableau Server and Cloud exit is in progress - exit expected Q4 2025
- Consolidation of PowerBI (Finance) to Power BI service, discussions underway. Finance rely on some processes (like downloading data to desktop) that is unsupported in future state, alternative approach to meet the business need required.
- Consolidation of Report Wrapper to Power BI - discussions underway
- Newton discovery required to confirm Power BI will meet the business need.
- Precisely 360 Analyse will be retired once SAP to Workday is complete.
- CDM is in the Reference Reporting TSA, but we know that future state to be determined, specialist reporting requirements that are unlikely to met with PowerBI. **This will be included in Reg Reporting TSA**
- There are business critical reports with characteristics that may not be met in the Enterprise Reporting platform, to be assessed for future state



Stakeholders

Key Stakeholders

Area	People
Data Platform Architects DAP PMs & PLs	Rodger Donaldson, Paul Dudding Deborah Gill, Jane Eagle,
GM Core Systems Head of Tech – Data & Analytics Platforms	Nic Olivier Damion Riordan
GM Data GM Analytics & Insights Head of Data Risk	Anna Tarasof Alex Dickson Roberta Prentice
GM Technology Strategy & Architecture Heads of Architecture	Shirley McIntyre Tanya Boelema, Angus Cotton, Kim Arnold
Enterprise Architects: EIM FinCrime Platforms Integration Finance Cyber	Hugh Walcott Michael Lomas John Marshall Glenn Ballam Brian Stapleton Francis Kaitano
DD&A Leads	Daniel Williams, Grace Shin, Amy di Benedetto, Anne Irwin
Exec Data & Analytics Exec CIO	Kate Skinner Paul Norman
TAF	2/4/25
SAA	28/3/25

- Key stakeholders were engaged in compiling this TSA, through a series of collaborative review sessions
- Where there are gaps called out, collaboration with key stakeholders is required to align on target state
- Further collaboration with teams such as Core Tech required, to ensure we're aligning on the work in the data programme and in other areas and reducing duplication of effort.



Questions?