



Land Information
New Zealand
Toitū te whenua

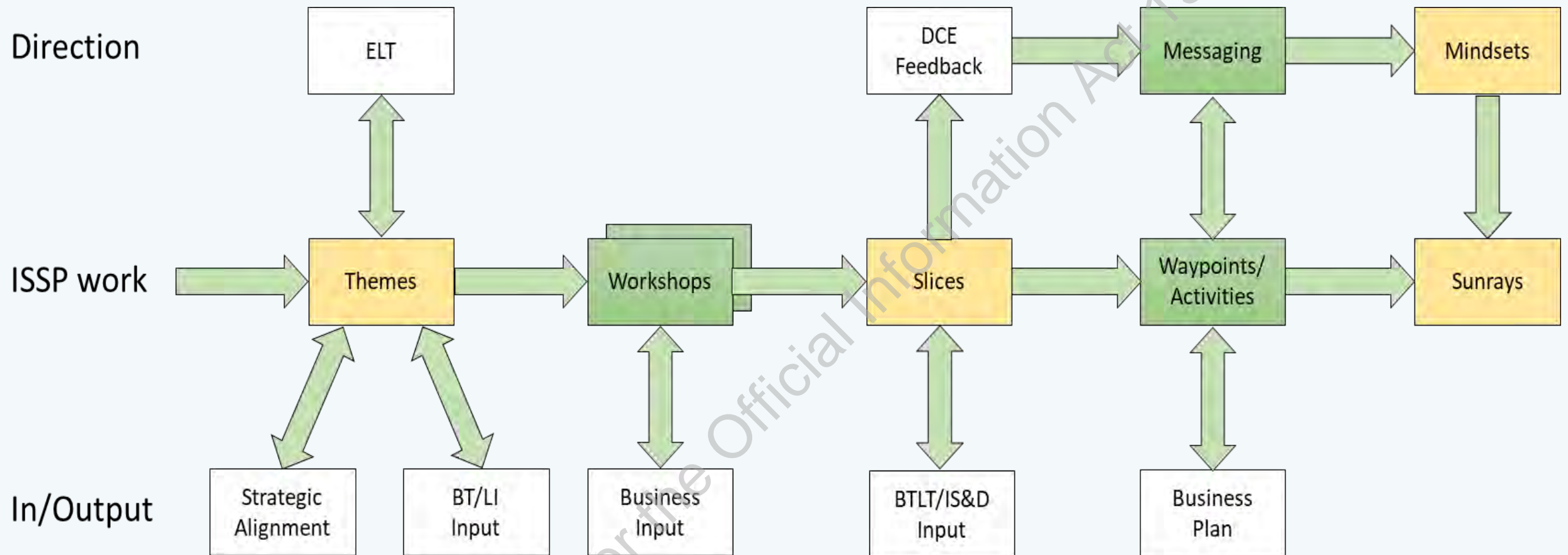
Mahere Rautaki Pūnaha Pūrongo 2021

Information Systems Strategic Plan (ISSP)
Final Presentation

BT Enterprise Architecture

10/05/2021

Process and Deliverables



Deliverable	Description
Themes	Groupings used to plan co-design workshops during the discovery process of information systems and technology drivers
Slices	Detailed discovery from workshops; delivering the goals, drivers, outcomes and waypoints (i.e. with activities by year)
Mindsets	Views based on assumptions, learnings, understandings and experiences, that are portraying the high-level messaging
Sunrays	Radial grid used to depict all planned activities by theme for each year of our information systems strategic plan

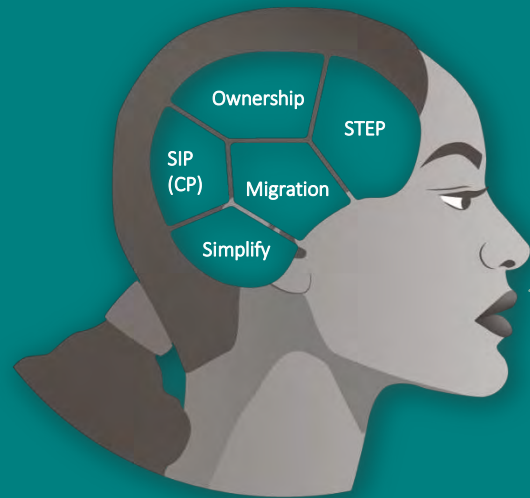


MINDSETS – TALKING HEADS

Mahere Rautaki Pūnaha Pūrongo 2021

(information technology strategic plan)

Application mindset



We leverage large application programmes to contribute to our technology foundations

We improve application ownership practices with training and assigning responsibilities, which leads to application simplification, modernization and cloud migration

Data mindset



We treat data as our strategic asset, which only reaches its potential once we increase the level of trust and value

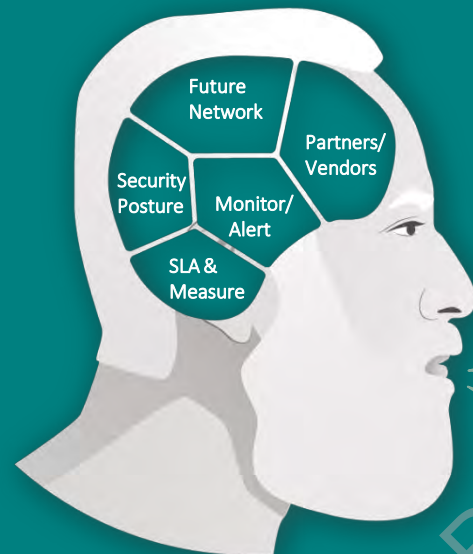
We ensure that data delivers strategic value by improving our data governance and data management practices

We keep data about our customers and people in accessible data lakes

Our Purpose

Understanding, developing and caring for whenua, moana and arawai.

Support mindset



Closer collaboration with our partners and vendors improves our support

Technical and security decisions are made iteratively, incrementally and early (shift-left) to reduce risk and rework

Agile DevOps squads get support that is flexible and enables shared responsibility

Shared capability mindset



Our technology services are leveraged with clear ownership and established support

Shared capabilities for development, business analytics and integration increase our flexibility and maturity

Mahere Rautaki Pūnaha Pūrongo 2021

(information technology strategic plan)

Application mindset

STEP

- STEP delivers on our outcomes and introduces new ways of working and technologies which will be leveraged

Ownership

- Improved application ownership practices and training will strengthen our portfolio

SIP LPAMS

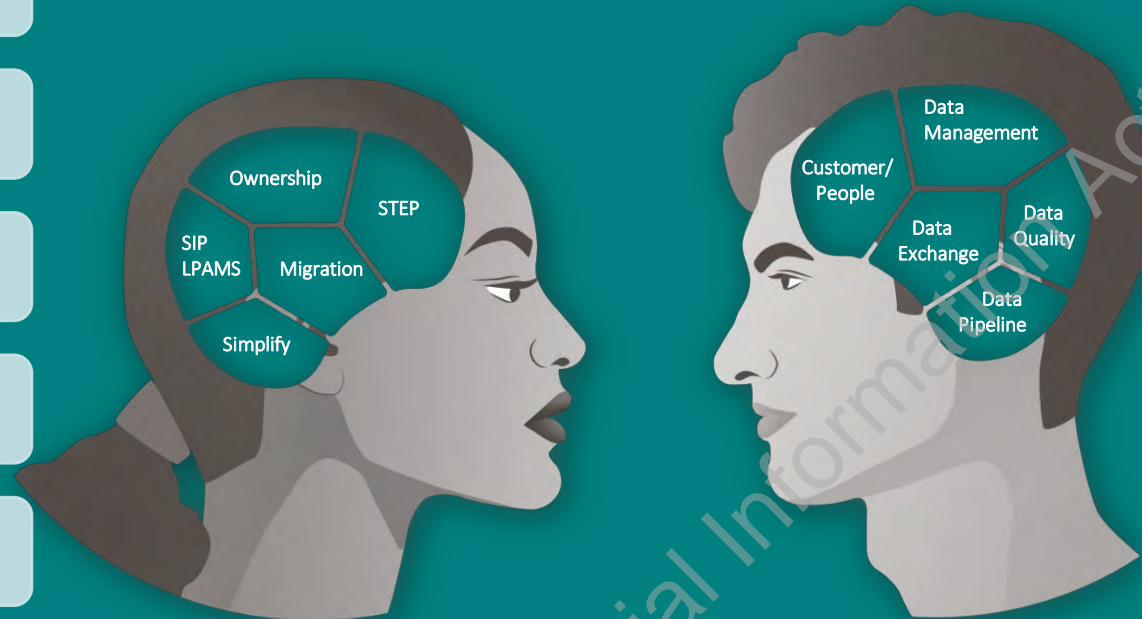
- SIP and LPAMS deliver on our outcomes and can explore additional technologies that can be leveraged

Migration

- Migrating our applications into public cloud will improve agility and reduce cost

Simplify

- Simplifying our applications has the potential to increase reuse and lower redundancy and cost



Data mindset

Customer/ Person

- Insights based on customer and person data contributes to our customer centricity

Data Management

- Building data management capability and governance delivers on our outcomes

Data Quality

- Improving our data quality is beneficial for our reputation as spatial information provider and leader

Data Exchange

- Standardised and secure data exchange mechanisms will improve our external data relations

Data Pipeline

- Standardised data processing and lineage tools stops further duplication and reduces cost

Support mindset

Partners/ Vendors

- Collaborative relationships with our partners and vendors will improve support

Future Network

- Transition to a secure internet-based network to improve our technology foundations

Security Posture

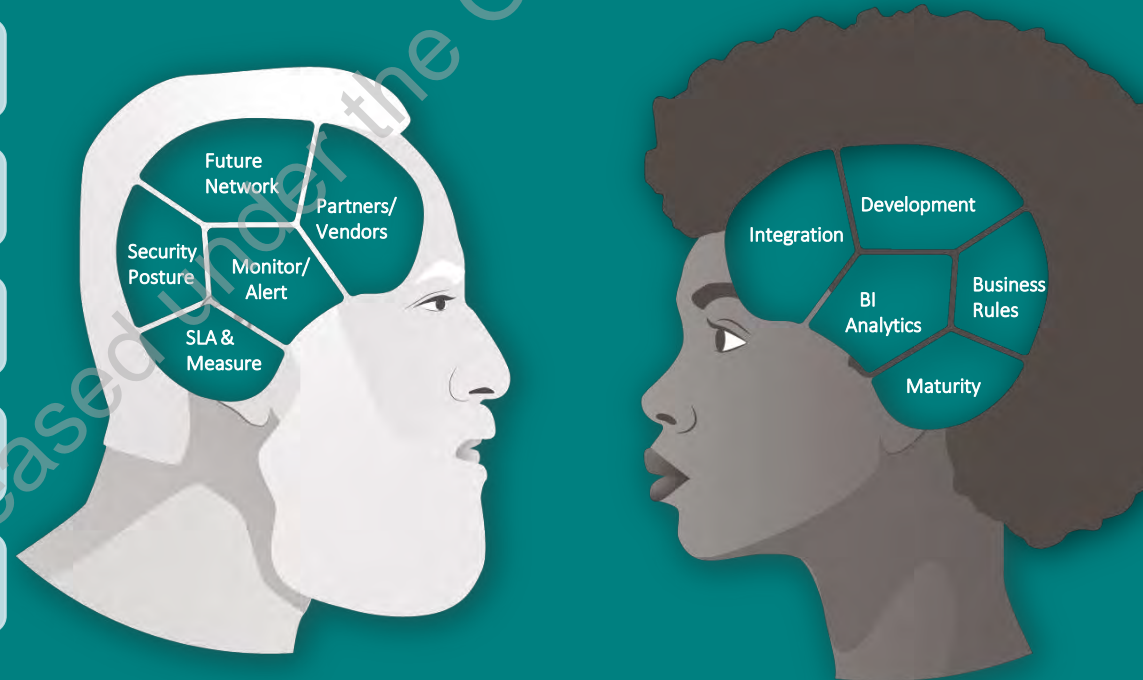
- Incorporating security early (shift-left) and following it through improves our posture

Monitor/ Alert

- Capture enterprise logs, then monitor system and platform activity, and provide alerts

SLA & Measure

- Establish actionable measures in service level agreements to ensure they can be met



Shared capability mindset

Integration

- Enterprise integration practices will benefit our technology, agility and customer centricity

Development

- Establishing a development capability contributes to our agility and technology drivers

Business Rules

- Uplift STEP business rules to an enterprise capability, then leverage for agility and controls

BI Analytics

- Natural growth of data lake and reporting practices into intelligence and analytics

Maturity

- Mature outlook on ownership, resource and budget enables our ambition to be agile



Released under the Official Information Act 1982



DISCOVERY – THEMES & SLICES

Strategic Alignment

ICT Strategic Plan – Strategic Drivers



- LINZ is taking an increased leadership role in geographic and property information
- LINZ is becoming a more flexible and agile organization
- LINZ is becoming more customer centric
- LINZ is building strong technology foundations

Five Themes

Themes	Description
<ul style="list-style-type: none">• Application Simplification• Application Ownership	Simplify by reducing application numbers and enhance maturity of application management
<ul style="list-style-type: none">• Data Foundations	Improve data and information foundations to deliver secure and connected data
<ul style="list-style-type: none">• Operational Support	Evolve our ICT sourcing and operating model to get the right people, processes and tools in place
<ul style="list-style-type: none">• Enterprise Services	Deliver strong digital foundations through co-design and co-creation of enterprise class services
<ul style="list-style-type: none">• Shared Capabilities	Shape common capabilities across Toitū Te Whenua LINZ with the aim to pool or share resources

Application Simplification

GOALS

Modern hosting options & automation pipelines are in use

Applications are consolidated & standardised where possible

Applications have modern design & delivery

Why is this important?

Our applications have grown organically over time and some are using legacy technology and delivery models which put them at odds with public cloud deployment. We will actively leverage public cloud and modern delivery models to gain savings, efficiency and flexibility.

The functionality of our applications sometimes overlaps resulting in inefficiency. We aim to consolidate applications where it makes sense.

The use of infrastructure as code and practices of continuous integration and continuous delivery/deployment (automation) will reduce manual errors. Once automated it will free up people to do work that contributes more directly to our outcomes.

The benefit of modern design is that applications don't have expensive updates, but rather keep evolving incrementally.

Application Simplification

Start Now

Next Initiative

Future Plan

The journey for Toitū Te Whenua LINZ

2
Integration discovery

4
Data exchange

7
Application design pattern

9
Move to cloud

1
Customer apps

8
Assess application design

10
Automated testing

3
Increase integration

5
Reduce Tools

6
Consolidate applications

Outcome Areas

Narrative

Integrated – Integrating our application landscape more tightly and strategically will simplify by smoothing some of our business process flows and making us more efficient

Consolidated – Moving different business areas doing similar functions onto common platforms simplifies and usually decreases total cost of ownership. This reduces the number of apps we use and increases efficiencies in managing and using the applications.

Modernised – Improving and modernising designs through appropriate patterns, combined with automated building, testing and deployment will make us more agile and reduce complexity, while making us cloud-ready. It is of strategic importance that we ensure that our app landscape is mostly cloud-native.

Current State

Mastering is sometimes illogical / inconsistent. Our business processes get complicated by lack of integration and modern integration patterns

In a few areas, there are various tools / applications used by pockets of people, that perform the same/ similar functions

Some applications increase complexity when moved to the cloud or become dysfunctional, accentuating the need to modernise

Future State

We have an integrated application and data landscape supporting smoother business process flow and optimising information consistency and availability when and where it matters

Reduced number of applications, making us more agile and efficient / effective. This reduces overhead caused by complexity through management and support of point solutions

A modernised cloud-native application portfolio with flexible hosting options, optimised engagement models and support that is consistent with the engagement model and the hosting method / place

Waypoints

1. Match and link customer applications
2. Complete integration discovery phase and define integration architecture, strategy and governance
3. Increase integration through API management and developing new APIs
4. Improve data exchange / processing
5. Review and classify tools and then reduce number of tools
6. Review applications for overlaps and then consolidate applications that fulfil the same business function
7. Develop modernised application design pattern
8. Assess applications against pattern and recommend improvements
9. Move hosting to public cloud
10. Increase use of automated testing

Application Ownership

GOALS

Application ownership practices are fit for purpose and applied consistently

Knowledge about our applications is joined up and accessible

We are agile in our response to change

Why is this important?

Applications ownership contributes directly to better strategic outcomes by delivering value both internally and externally. Although we are all about data, the applications are the vehicle to capture and manage data, so if we manage our applications well and ensure their future through roadmaps, it enables us to better achieve our strategic outcomes for years to come.

In-depth knowledge and understanding of our applications will enable us to more meaningfully manage our applications as a portfolio. This will lead to more proactive planning.

Being more agile in our response to change will mean we're better placed to rapidly react to environmental & government changes.

There is further alignment with Organising Ourselves through aligning our practices across business units.

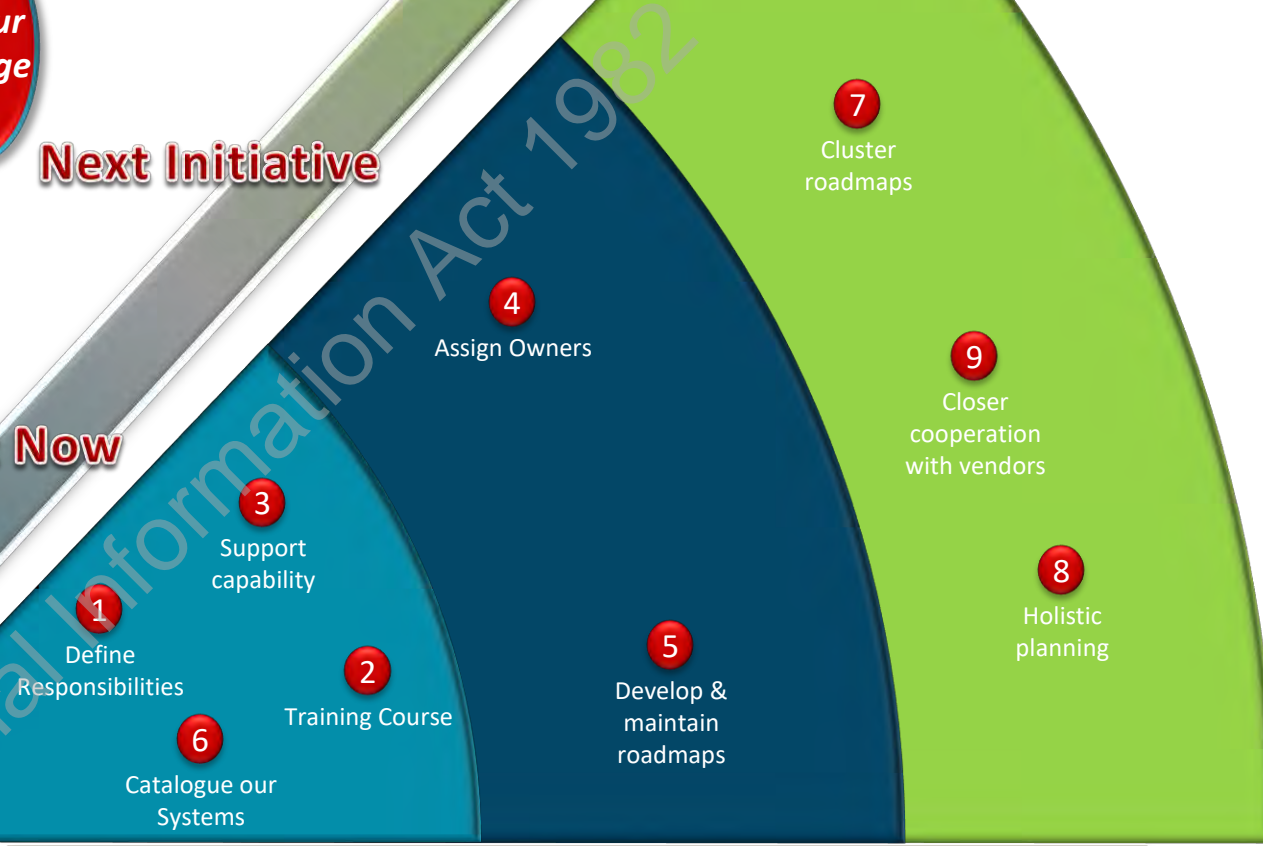
Application Ownership

Start Now

Next Initiative

Future Plan

The journey for Toitū Te Whenua LINZ



Outcome Areas

Narrative	Current State	Future State	Waypoints
App Ownership – This addresses business ownership, and we need to ensure that applications remain fit for purpose over their lifecycle and that risk is managed appropriately. We need to do this consistently across Toitū Te Whenua LINZ.	Inconsistent training and understanding of app ownership responsibilities, variable handover. We have a dated framework and it isn't well-communicated	Training and support provided for application owners; responsibilities are shaped in line with various influencing factors such as engagement model, platform, app technology.	<ol style="list-style-type: none"> 1. Define app ownership responsibilities (multiple sets) 2. Develop & present training material 3. Put ownership support capability in place
App/system knowledge – Business and technical owners require knowledge about applications and how they work together with other applications to deliver value. A strong shared understanding is required in order to proactively manage our applications as a portfolio.	Application and system knowledge and understanding is centralised and variable across Toitū Te Whenua LINZ.	We have centralised ownership for logical clusters of apps and tools. Development/maintenance and socialisation of application information is in place. Creation of systems models to assist systemic understanding – how all the component applications work together to deliver on our value chains.	<ol style="list-style-type: none"> 4. Define logical clusters of apps and align ownership 5. Embed regular production/revision of application roadmaps 6. Develop / maintain an application catalogue containing key information
Change – Change in our app landscape and IT delivery model has many drivers, e.g. security updates, upgrade to access new features, product end of life and external factors. We need to be agile in our response to change across applications to ensure our value chains don't break, but rather evolve.	Frequency and quantity of change has increased, is disruptive and change is often unexpected and responding to it is usually expensive	We can't avoid change, but we can be better prepared and schedule and execute it so that it's less disruptive. We have well thought-out roadmaps that show us the road ahead and where possible, we combine changes to reduce overhead for individual projects. We have closer strategic relationships with vendors.	<ol style="list-style-type: none"> 7. Create cluster roadmaps for associated applications 8. Plan more holistically across Toitū Te Whenua LINZ 9. Schedule regular catch-ups with vendors, understand and influence their strategies/roadmaps

Data Foundations

GOALS

Enterprise data management capability established

Mature data governance is in place

Data is valued, trusted and used as a strategic asset

Why is this important?

Data Management needs to be led centrally in order to coordinate multiple investments in data, provide enterprise alignment and establish reusable data capabilities.

Data is at the core of what Toitū Te Whenua LINZ does. When we govern our data well over the lifecycle, we increase the trustworthiness of our data. This enables us and our customers to make solid data/information-based decisions.

Treating data as a strategic asset will contribute directly towards enhancing our public image as a data provider. Many organisations rely on us, and they need to know that they can trust the data we provide.

Data Foundations

Start Now

- 1 Data management capability
- 2 Improve metadata
- 3 Data catalog
- 4 Linked data approach
- 5 Data lifecycle
- 6 Data standards
- 7 Governance
- 8 Data lineage
- 9 Data quality

Next Initiative

Future Plan

The journey for Toitū Te Whenua LINZ

Outcome Areas

Narrative	Current State	Future State	Waypoints
<p>Data-management capability – We need to connect data sets where we currently have boundaries preventing it. We need to ensure data is available where and when it is needed. Boundaryless information flow across Toitū Te Whenua LINZ. Controlled and managed flow to and from our customers and partners.</p>	<p>Data is not yet connected. Mastering is inconsistent and often illogical. Data / information is not always available. We are lacking an enterprise approach</p>	<p>We have connected our data, not just spatial, but also across the enterprise. Data mastering makes logical sense and is rolled out. Data is available via modern integration methods and is optimised for when and where it is needed.</p>	<ol style="list-style-type: none"> 1. Establish enterprise data management capability 2. Define linked data approach 3. Collaboratively create a data catalog 4. Improve metadata across our data catalog
<p>Governance – Through proper governance we ensure that data is managed throughout its lifecycle. We need to define what data ownership means for us, and then delegate and action the responsibilities. Data standards need to be defined, communicated, actioned and governed.</p>	<p>We don't currently adhere to well-defined data standards. Our governance processes are immature and not consistent across Toitū Te Whenua LINZ.</p>	<p>Our data standards are agreed and actively adhered to. Our data governance processes are well-defined and communicated, mature and fit for purpose. We understand and ensure that we share data appropriately and consistently.</p>	<ol style="list-style-type: none"> 5. Mature the data lifecycle process 6. Achieve adherence to data standards 7. Establish cross-organisation governance
<p>Strategic asset – We have to improve around our data quality management throughout the data lifecycle. Our data needs to be trustworthy and provide actionable insights for decision support.</p>	<p>Data is not always trusted or even discoverable when needed in Toitū Te Whenua LINZ.</p>	<p>We have a mature state of data supporting virtually everything we decide and do at Toitū Te Whenua LINZ. Data is trusted, available, of high quality and linked to create value. Our approach to data is at a higher level of sophistication.</p>	<ol style="list-style-type: none"> 8. Capture data lineage to increase level of trust in our data 9. Design and implement a data quality management framework

Operational Support

GOALS

Collaborative relationships and an agile mindset

Operations aligns to our new ways of working

Shift-left is achieved to avoid unnecessary hand-offs

Why is this important?

As we bring more support services in-house and more actively take on the role of system integrator for our systems, we increase our knowledge and understanding of our systems. This will serve to increase our agility, as it is a lot easier to innovate around our offerings when we better understand the technology behind it.

We can reach our new ways of working goal by re-aligning our support operating model, while we are changing our hosting and engagement models.

The shift-left term is used to promote making decisions earlier in the lifecycle, which will speed up our support response, reduce unnecessary handovers and introduce self-service options.

Operational Support

Start Now

Next Initiative

Future Plan

The journey for Toitū Te Whenua LINZ



Outcome Areas

Narrative	Current State	Future State	Waypoints
Vendor/partner relationships – In order to align our operational support with an agile organisation and cloud-centric deployment model, we need to refine the way in which we interact with vendors and partners.	Partner relationship structures are defined for traditional hosting. We often use partners as intermediaries and don't have direct access to vendors.	Partner relationships are regarded as strategic by both us and our partners. The ecosystem is established and starts to operate to support an evolving information and communication technology (ICT) landscape.	<ol style="list-style-type: none"> 1. Improve collaboration with ICT partners 2. Communicate expectations to ICT vendors
Operational Framework mindset – We need to decide on where the boundaries of being system integrator/owner lie for us. We also need to change our mindset to accommodate our next generation of ICT operational delivery.	System integrator role is not well-understood and implemented broadly enough.	We have good definitions for our boundaries and have operationalised this through roles and responsibilities, spread across Toitū Te Whenua LINZ, our vendors and our partners. This is done with an agile approach around how our ICT services are sourced and hosted, and how they change over time.	<ol style="list-style-type: none"> 3. Bring more Operational Support in-house where it makes sense 4. Optimise management of non/pre-prod environments for public cloud-delivery 5. Optimise public cloud-specific sizing and licensing models 6. Synchronise and harmonise delivery of DevOps and 'Other'Ops (e.g. cloud, net, sec)
Shift-left – This is a state for a support organisation that is aligned to what is required for public cloud where we are agile in our response to disruption, both positive and negative. It focusses on problem prevention rather than detection, and when something still slips through to production, we have monitoring in place that gives early warning of things going south	Systems are sometimes put into production with minimal handover documentation	Operational Support has been aligned to our agile / DevOps ways with best practice processes, structures and responsibilities defined and operating. Support people are involved in the process early on.	<ol style="list-style-type: none"> 7. Establish monitoring and alerting within public cloud 8. Review security posture with move to cloud 9. Review governance practices and communications models for operations

Enterprise Services

GOALS

Existing investment is leveraged to create enterprise services

Improved maturity of ownership and support for enterprise services

Enterprise services are widely adopted

Why is this important?

Most of our themes have a more direct impact on achieving our outcomes. Enterprise services however are a part of good technology foundations, amplifying benefits from other initiatives and goals that establish strong technology foundations.

A key problem with enterprise services is the lack of ownership, and it is difficult to get any commitment beyond the business unit. Successful enterprise services require more than just technology.

It ties in with OrgOurselves from a technology perspective, as these services will bring different areas of Toitū Te Whenua LINZ together around sharing technology. Using the same technology for supporting different business functions / processes, will mean that our workforce would become more agile.

Enterprise Services

Start Now

Next Initiative

Future Plan

- 1 Digital identity
- 2 Investigate Event streaming
- 3 Implement event streaming
- 4 Ownership & governance
- 5 Modernise network
- 6 App policies
- 7 Data lake
- 8 Software/ infrastructure pipeline

The journey for Toitū Te Whenua LINZ

Outcome Areas

Narrative	Current State	Future State	Waypoints
<p>Leverage STEP/LI – STEP & LI have stood up some services which could potentially be rolled out at an enterprise level in Toitū Te Whenua LINZ. There are also some services other parts of Toitū Te Whenua LINZ uses that STEP/LI could benefit from.</p>	<p>There are currently very few services that are shared across STEP/LI and the enterprise.</p>	<p>More services shared between STEP/LI and Toitū Te Whenua LINZ enterprise, providing economies of scale, reduced operational costs and simplification.</p>	<ol style="list-style-type: none"> 1. Investigate digital identity concept and develop blueprint 2. Investigate and architect event streaming; e.g. Kafka 3. Design and implement event streaming
<p>Maturity – We need to grow our maturity in the enterprise services space through better-defined and executed ownership, support and governance for services. We also need to get better at communicating about what enterprise services are available.</p>	<p>Not all our current services have ownership assigned. This negatively impacts adoption, operation, support and development of the services.</p>	<p>Ownership is defined, supported, assigned and actioned for all enterprise services. We have a modernised public cloud internet-ready services.</p>	<ol style="list-style-type: none"> 4. Improve service ownership, support and governance 5. Modernise our network (proxy, edge, SD-WAN, interconnectivity and zero-trust)
<p>Enterprise-wide adoption – We are aspiring to stand up more enterprise services and have them adopted and actively reused across Toitū Te Whenua LINZ.</p>	<p>There are currently very few services that are shared and actively used across Toitū Te Whenua LINZ.</p>	<p>We have more enterprise services deployed, owned, supported and actively used across Toitū Te Whenua LINZ.</p>	<ol style="list-style-type: none"> 6. Simplify apps with policies at platform level 7. Enhance data lake to match reference data architecture 8. Centralise software/infrastructure pipeline

Shared Capabilities

GOALS

High-value datasets are managed and available

Data and information-related capabilities are shared

Shared development capabilities are established

Why is this important?

We have a number of high-value geographic, property and business datasets. These need to be well-managed and made available for people to use to make well-informed decisions about things that matter to them.

Shared data capabilities are valuable due a broader impact, by optimisation and alignment of efforts. Effects of sharing capabilities are elimination of duplicating effort, increased consistency, better controls and freeing people up.

In centralising capabilities, we will gain efficiencies and achieve better alignment across the enterprise. The proposed capabilities under this theme are a starting point, more could be identified that would benefit all of Toitū Te Whenua LINZ.

Shared Capabilities

Start Now

Next Initiative

Future Plan

1
Customer management

2
People dataset

5
Analytics

4
Data pipeline

3
Secure data exchange

7
Development

6
Workflow & rules

The journey for Toitū Te Whenua LINZ

Outcome Areas

Narrative

Business data capabilities – We need to take an enterprise approach to People (internal as well as customers) data & processing.

Shared data/information capabilities – Any capabilities that can be shared widely across Toitū Te Whenua LINZ involving e.g. data ingesting, processing, analysing / egesting.

Development capabilities – Development capabilities backed up by toolchains that automate the process from coding to release, reduce errors, increase agility and scale delivery.

Current State

Processing of people and customer data is ad hoc and distributed.

Data handling and reporting/BI is currently distributed, no alignment of approach and technology across Toitū Te Whenua LINZ

We currently have pockets of development across Toitū Te Whenua LINZ, but in an ad hoc and limited way.

Future State

Processing of people and customer data is centralised and systems and processes for handling data are fit for purpose.

We have an established data handling framework and capability, centralised and available to provide services across Toitū Te Whenua LINZ. We have taken an enterprise approach to reporting/analytics for all of Toitū Te Whenua LINZ.

We have a joined-up & shared development capability that is able to provide standardised services across Toitū Te Whenua LINZ.

Waypoints

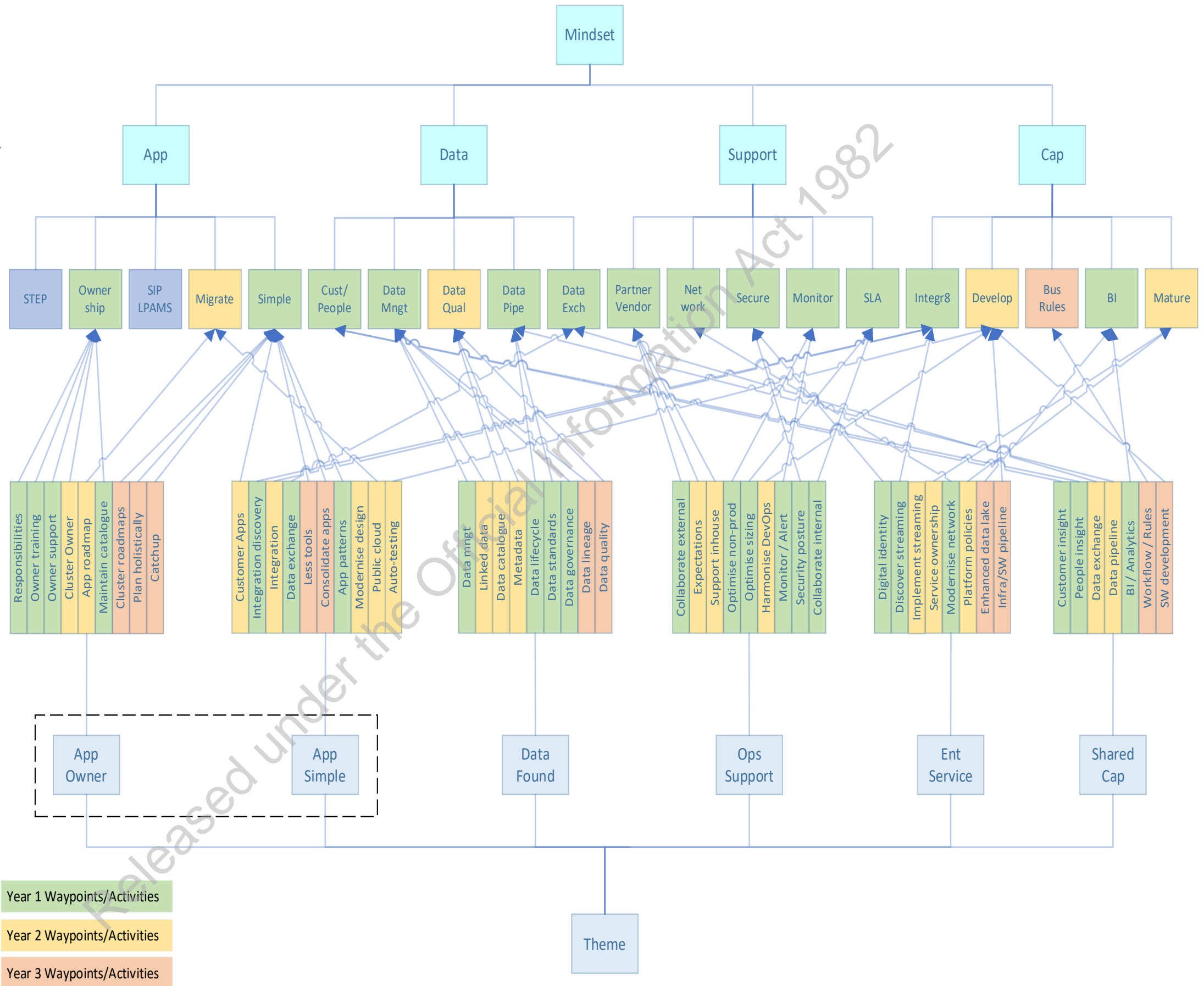
1. Establish consolidated customer dataset
2. Collate people data set and use across Toitū Te Whenua LINZ
3. Implement Secure data exchange capability
4. Data pipeline, data processing and data storage (Move to Data foundations)
5. Establish enterprise reporting, BI and analytics capability
6. Business workflow and business rules
7. Software development capability with open source, low/no code, leadership and governance



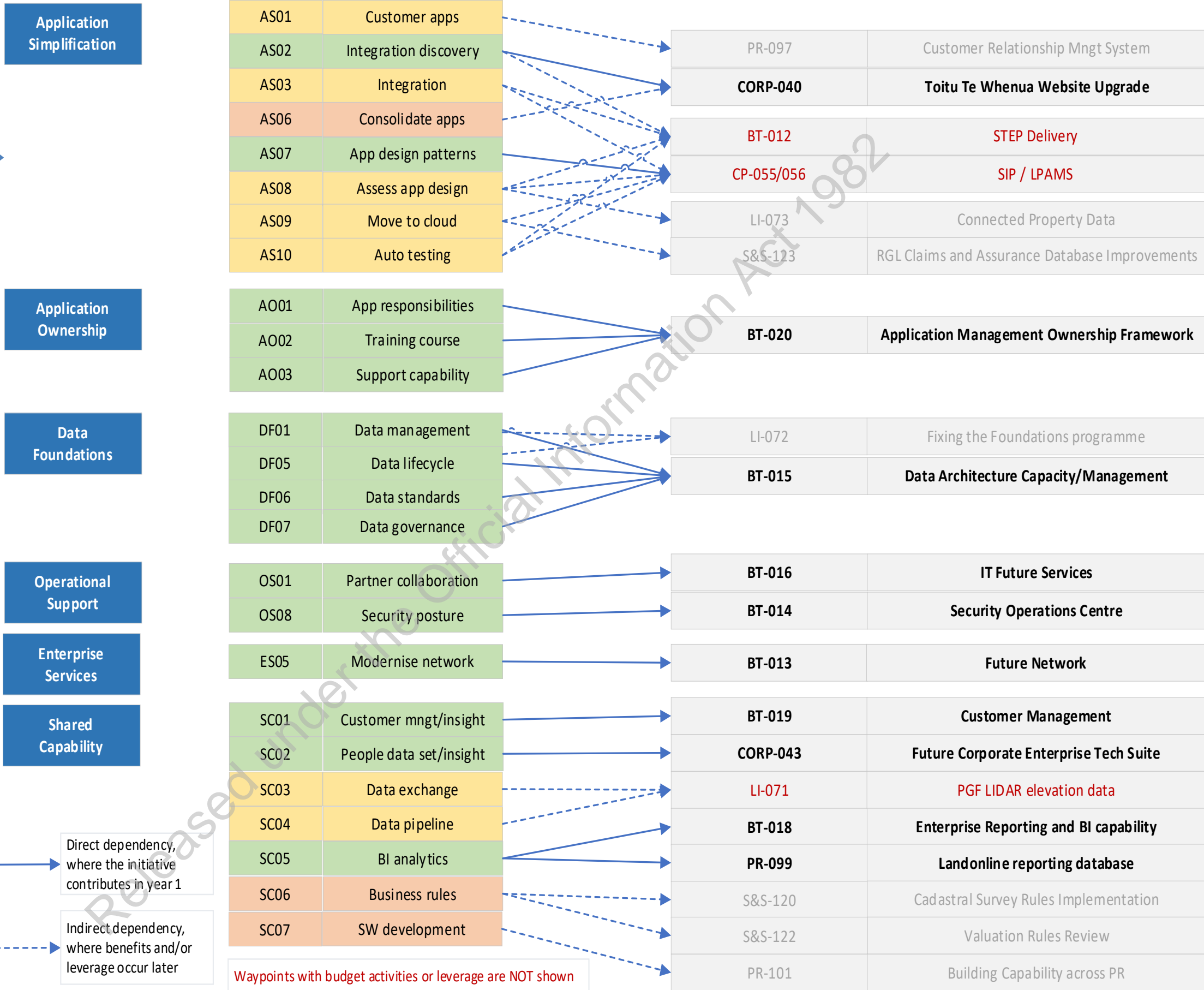
TRACEABILITY MAPPING

Released under the Official Information Act 1982

Mapping Themes to Mindsets



Waypoints to Business Plan Initiatives

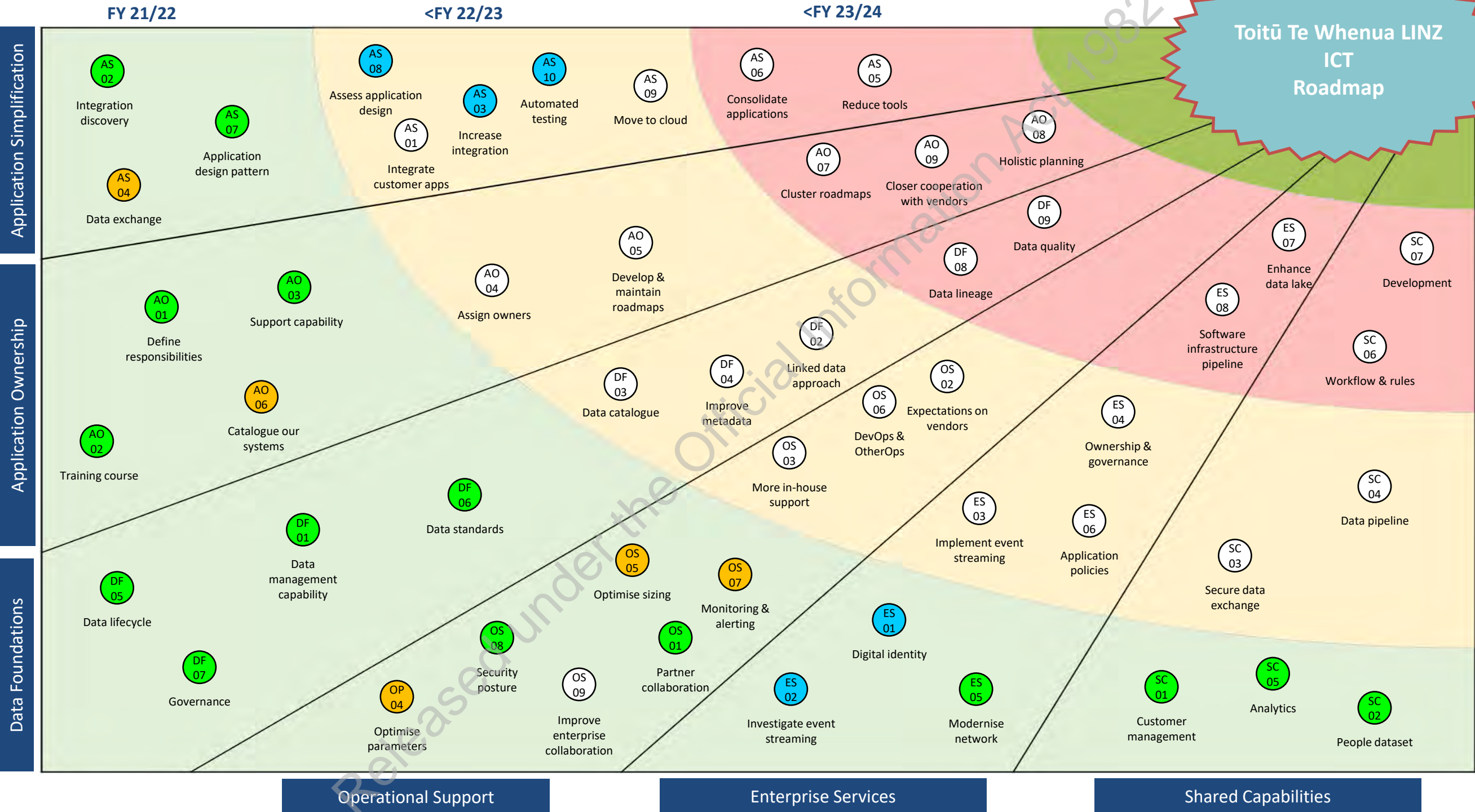




OVERVIEW – SUNRAY

We Have A Plan

IN CONFIDENCE



- Budget initiative
- Budget activity
- STEP/SIP leverage

Direction

- The messaging on mindsets is complete and is supported through the 'talking heads' slides
- The strategic planning is complete and is supported through the waypoints in a sunray diagram (and underlying slices)
- The mapping between mindsets and themes is complete and the relationship between waypoint and budget initiative is complete
- In the first year of the strategic plan most of the waypoints have links to initiatives, activities or are leveraged
- Waypoints that will not receive budget, which were scheduled to start in year 1, will be deferred to year 2
- Budget initiatives without associated waypoints are not shown
- The strategic projects to deliver the waypoints will be defined and managed by ePMO, where possible supported by Architecture

Thank you!

Released under the Official Information Act 1982