DEPARTMENT OF CONSERVATION

Information Systems Strategic Plan

2015–2019

Department of Conservation
Te Papa Atawhai

Our nature is fundamental to who we are. It has always been our natural advantage to our identity as Kiwis and to our economy. Conserving it lies in all our hands.

Our nature will thrive when each of us engages our hearts, hands and minds in helping conserve our unique environment.

It's *our nature* to love or lose.

Toi tu te marae a Tangaroa, Toi tu he marae a Tane-Mahuta,
Toi tu te tangata.

If the land is well and the sea is well, the people will thrive.

Walkers on Mount Sunday, Rangitata Valley. *Photo: Brian Dobbie, DOC*

VISION

New Zealand is the greatest living space on Earth

Kāore he wāhi i tua atu i a Aotearoa, hei wahi noho i te ao

PURPOSE

Our Nature – conservation leadership for what makes New Zealand special.

Enjoying the scenery at Pell Stream, a valley near Lewis Pass.
Photo: Hugh Van Noorden

Director-General's foreword

Protecting our nature, our treasure

All over the country community groups and DOC's partners play an active role protecting and treasuring the natural landscape which defines us as a nation.

To focus our effort and move towards our vision for New Zealand to be the greatest living space on earth, the Department of Conservation has clear targets for how we ourselves will contribute to conserving New Zealand's natural environment – our biodiversity, fresh water, and marine environments, as well as managing our historic heritage, tourism and community engagement activities.

In our conservation work we increasingly rely on high performing information, communication and technology (ICT) systems, services and enterprise information knowledge management, to co-ordinate our efforts, volunteers and tourism activity.

Information communication technology (ICT) at DOC is about ways information and technology are used to deliver better services more efficiently to enhance our conservation effort – about doing the right things at the right time for the right result – about being quicker, faster, smarter, and making it easier for our people to do their work.

This Information Systems Strategic Plan 2015-2019 will enable transformative change aligned to government direction for our ICT at DOC. It will enable a more mobile workforce, enhance the ways we manage relationships with our business and social partners, and support improvements to how we manage our biodiversity data.

" In our conservation work we rely on high performing information, communication and technology (ICT) systems, services and enterprise information knowledge management. "

LOU SANSON

This Information Systems Strategic Plan is forward looking and will introduce more coherence into our ICT systems planning to support our conservation effort.

Lou Sanson
Director-General

From the CIO

A guiding systems strategy for DOC

This Information Systems Strategic Plan (ISSP) is the guiding strategy for planning and implementing new information communication and technology (ICT) initiatives for DOC, and the highest level planning document for ICT across our organisation.

The State Services Commission (SSC) says: "the ISSP guides and informs decisions on any changes to technology and is an integral part of an organisation's future focus".

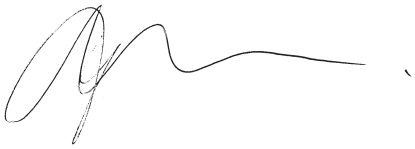
DOC's ISSP is a keynote document and publicly available on our website to all DOC's key stakeholders, business and social partners, interest and community groups, volunteers, and ICT suppliers.

This ISSP is a strategic view of the future for DOC's IT systems and support and will help us understand the investment DOC intends making in its technology. This will be followed by a detailed programme of work once the level of investment has been determined. The specific details about the proposed programme of work forms part of our business planning cycle, supported by technology and services roadmaps managed and delivered by a portfolio office that is being established.

Our thinking and planning to refresh this latest ISSP for DOC developed following discussions about our organisation's ICT needs and intentions, aligned to the DOC's Four Year Business Plan, along with extensive discussions with key internal stakeholders over their aspirations and needs for how they wish to transform their businesses.

From our analysis of business feedback and discussions we concluded there should be strategic ICT emphasis in DOC on four themes and roadmaps outlined here later. We expect to refresh this ISSP in October 2015, strengthening it to further reflect our business and partner needs.

Meanwhile, we will continue to endeavour to be responsive to the needs of our clients, customers and business partners, and continue to refine the information and technology direction of the Department of Conservation.



Ashley Mudford
Chief Information Officer
April 2015

Executive Summary: Transforming DOC's information systems

This Information Systems Strategic Plan (ISSP) is the information communication technology (ICT) component of DOC's business strategy and the foundation strategy for DOC's Four Year ICT Work Programme.

This ISSP 2015 -2019 refreshes, and repositions the direction for DOC's information landscape for the next four years, incorporating outcomes aligned to the government's ICT strategic direction, and recognising its implicit requirement to enable DOC to achieve its conservation vision.

DOC's investments in ICT must respond to and align with the direction set by the Government ICT Strategy and Action Plan to 2017, to unlock the value of government information and harness technology, delivering better, trusted and more open public services.

To achieve this, DOC's ISSP puts focus on to four key themes for enabling conservation, based on feedback about DOC's business intentions and requirements that will achieve its vision.

The four ISSP themes support:

- **Mobility** – an empowered mobile workforce.
- **Data and analytics** – support for intelligent conservation information, data and analytics.
- **Customer and client relationships** – relationships with our stakeholders, social and business partners, community groups and volunteers are well co-ordinated, managed and supported.
- **Productivity** – information systems and services support workforce efficiency and productivity.

These four ISSP themes are enabled through four strategic technical roadmaps.

This ISSP to 2019 will enable transformative changes to raise productivity across the DOC by introducing more coherence and cohesion into our ICT planning. It supports a customer focus, for example, transformative work to improve the customer experience for people wishing to make online bookings of DOC and operator products, and also time recording efforts.

This ISSP will be reviewed every six months by DOC's Information Systems and Services business unit to ensure that we are on the right track doing ICT work for the right outcomes, and if the work programme needs to change, the ISSP will be refreshed accordingly.

We take a four year view to 2019 but because technology changes so quickly, we will only plan for a two year horizon and update the plan for the second two years later.

Progress with the ISSP will be monitored and evaluated through a quarterly reporting cycle managed by the Information Systems and Services (ISS) business unit through its Portfolio Office and reported to the wider organisation.

Strategic oversight will be provided by the ICT Strategy and Architecture team with a view to regularly testing and adjusting DOC's ICT strategic direction when appropriate,

A newly-established strategic oversight group acting as a board will provide governance feedback on the strategic direction and balance of the work delivered by the ISSP, ensuring that the mix of work is right.

Information Systems Strategic Plan – Year 1

1. Our strategic direction for our information systems during the first year of this ISSP (2015-16) will be to establish strategic foundations and optimise the systems we have. We will consolidate and integrate these existing systems, ensuring our ICT is stable and supported to provide a solid base foundation.
2. We will provide some enhancements and get applications stabilised, coordinated and fit for purpose.
3. During this first year, we will untangle systems, and importantly, make it easier for people to do their work. We will concentrate on simplifying business processes.
4. We will improve our mobile ways of working and be mobile by default.
5. We will minimise paperwork. We will be digital by default.
6. We will rationalise our ICT architecture and applications.
7. We will remove duplication and by doing that we will introduce better efficiency.
8. Important strategic projects will continue, such as work enabling improved collaboration with others, and effort to create more useful digital media storage.
9. We are constrained by budget and capacity, so we will do work where the benefits are clear, understood and measured.
10. The campaign Battle for our Birds taught us that in DOC we will always need ICT contingency, so we will always allow for emergency core capacity funding.

Information Systems Strategic Plan – Year 2

11. In Year 2 of DOC's ISSP, we will be still working on much of the same projects as in Year 1, but the benefits will starting to be realised. Our work packages will leverage process and technology.
12. We will have a roadmap of information systems and solutions for addressing emerging business requirements across DOC.
13. We will be more engaged with business groups and we will have a far greater understanding about their needs.
14. We will know what the ISSP roadmap needs in terms of planning, capability, and resourcing.
15. We will all understand how we are going to deliver the ISSP and the technology roadmaps, we will monitor our progress, and evaluate at every refresh.
16. By the third year our ICT ecosystem would have enabled better collaboration among ourselves and with our partners and customers.
17. By June 2019 at the end of this planning horizon, we will evaluate progress over the four years, make refinements, and begin planning again.

Table of Contents

1 Purpose of this ISSP

DOC's *Information Systems Strategic Plan* (ISSP) 2015-2019 will:

- outline the direction developing DOC's information systems for the next four years, building on the platform created in the previous ISSP
- link to DOC's capital investment intentions plan over four years and form the indicative business case for our yearly work programme of projects
- describe how the technical vision for DOC will be realised, by demonstrating links to DOC's Four Year Plan and business group plans
- be recognised as the key guidance document for the Information Systems and Services (ISS) business group.

2 How we developed this ISSP

In framing up this draft ISSP we reviewed the important strategic external and internal strategies and plans, engaged our internal stakeholders and received feedback, and moved to align our business planning with DOC's business strategy. We reviewed the:

- Performance Improvement Framework (PIF) Report, State Services Commission
- DOC Statement of Intent (2014 – 2018)
- DOC Four Year Plan
- DOC Destination Management Framework
- DOC Business IT capital intentions 2015
- Expectations of the Minister of Conservation.

We needed to understand DOC's operating context, business requirements and operating functions to ensure the desired ISSP. The following describes the steps developing this ISSP:

- review and consult with our business stakeholders about enterprise requirements
- establish operating principles to guide and inform the partnership in our consultation with the business groups
- analyse in depth business requirements and existing systems that support the current demands of the business and qualify options for the future
- build a series of roadmaps of information systems and solutions for addressing the emerging business requirements across the DOC
- evaluate the needs of the ISSP in terms of capability resourcing and costs

The following diagram describes the process:

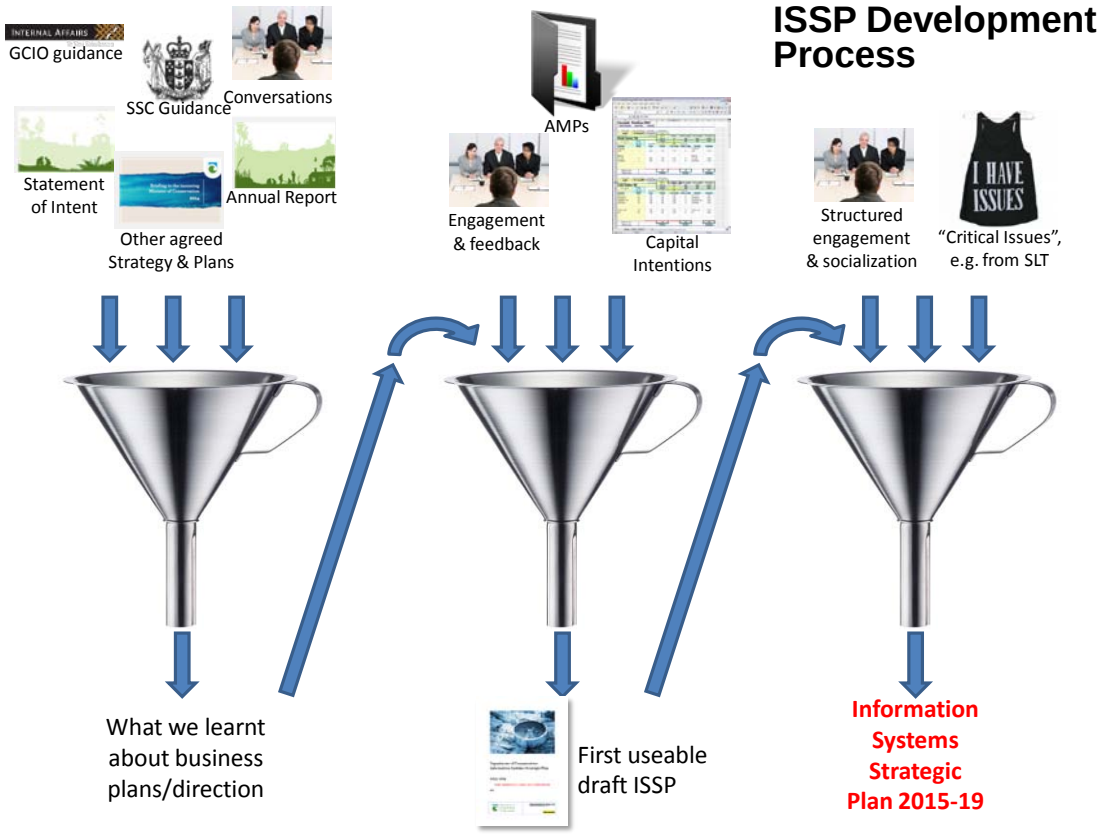


Diagram 1: Process for developing DOC's Information Systems Strategic Plan (ISSP)

3 Government ICT strategy

DOC's ISSP is directed by the government approach to investment in ICT, informed by authoritative information and a system-wide approach, overseen by the Government Chief Information Officer (GCIO) within the Department of Internal Affairs.

DOC's Information Systems Strategic Plan informs the government ICT investment plan that identifies aggregation opportunities, reduces duplication, and allows ICT investment to be prioritised to deliver smarter public services and cost savings.

The *Government ICT Strategy and Action Plan to 2017* sets a course to transform government ICT service delivery using digital self-service channels, unlocking the full economic potential of government's information holdings.

The government ICT strategy proposes a services-based model where non-core or commodity ICT assets are removed from the balance sheet, and government agencies buy operational functions through 'as-a-service' expenses. Direct financial benefits are recognised and re-invested into the system to drive further change. This is what we are aiming to do at DOC.

Investment is targeted toward technology assets that directly support the unique functions of government, with rigorous focus on reducing unit costs. A coordinated system-level investment plan and Government Common Capability Roadmap is maintained.

Under this model, ICT spending is predictable, assets are supported, government can leverage scale, and duplication and fragmentation are reduced. Governance and assurance is established, there is return on the investment and benefits are realised. A mature risk assurance framework directs investment priorities, and with other improvement programmes, delivers savings and necessary service delivery enhancements. The diagram below represents this model.

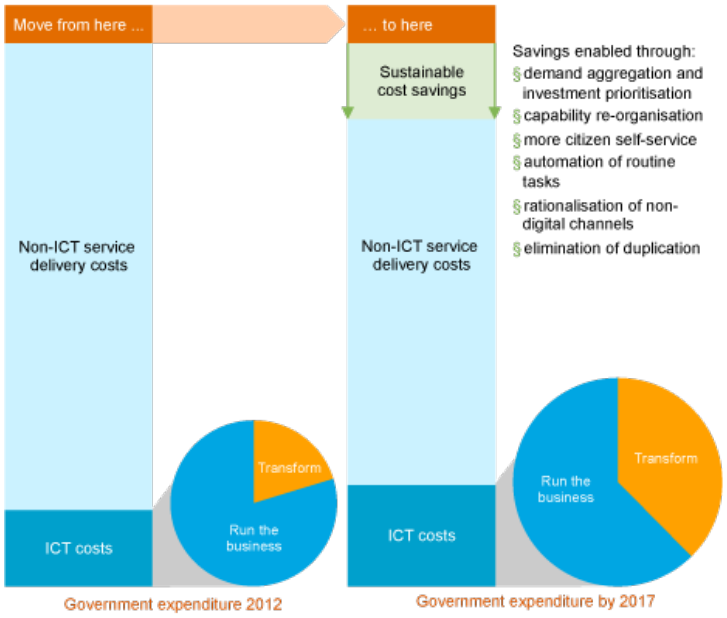


Diagram 2: Driving sustainable cost savings in ICT: the government ICT expenditure model, 2012-2019

3.1 Guiding principles

The strategic direction of DOC's information systems will be aligned to the government ICT direction as follows:

Collaborative: Centrally led, collaboratively delivered.

Customer-centric: Customer insights inform our service design and delivery and customers are shielded from DOC's internal complexities.

Trusted: We continue to build public trust and confidence in DOC's ability to maintain accuracy, privacy and security of information, and this underpins our use of digital channels.

Simplified by design: We remove complexity, fragmentation and duplication, and re-engineer business processes end-to-end.

Shared by default: Capabilities are shared by default rather than by exception.

Open and transparent: Non-personal information is a public asset that is open by default for economic and social benefit.

3.2 Common government capabilities

The Office of the Government CIO, under Cabinet direction, anticipates significant opportunities to reduce the cost of delivering ICT services and to increase the range and quality of services. Common capabilities are shared building blocks which agencies adopt to improve service delivery and better manage their ICT portfolios for lower cost.

Common ICT government capabilities will be accelerated through an integrated system investment plan and a new government ICT operating model, reprioritised based on aggregated agency demand and the delivery of system-wide benefits.

By 2017 significant transformation can be expected across government and for DOC, with investment focus on business and service improvement, reducing the cost of building and operating technology assets, and by taking a consolidated, holistic approach. Diagram 2 below represents the Government ICT transformation model.

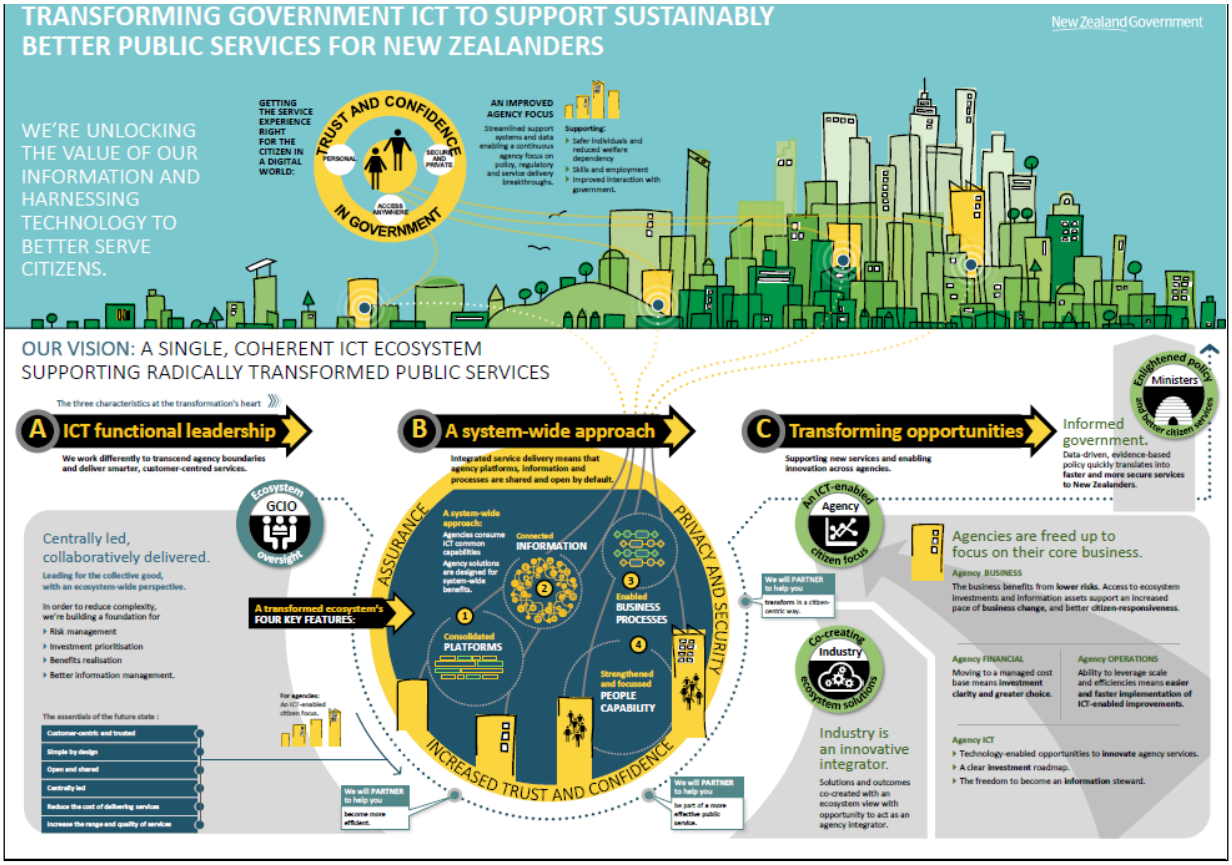


Diagram 3: Transforming government ICT to support sustainably better public services

Strategic alignment with the all-of-government ICT strategy means that:

- Services are digital by default
- Information is managed as an asset
- Investment and capability are shared
- Leadership and culture deliver change
- System assurance.

3.3 Collaboration across government and with others

In future DOC's ICT systems need to open up opportunities for greater collaboration with other government agencies, private sector organisations, business owners, volunteers, visitors and New Zealanders who are interested in conservation, by shifting to more open, external-ICT- facing systems enabling, increased access to DOC's information.

For DOC's Information Systems and Services (ISS) business group and other business groups in DOC, the government ICT strategy offers:

- benefits from working in a more coordinated way with other agencies and the GCIO

- a greater focus on strategy, planning, information management, service chain management and supply management, with less focus on developing and operating ICT assets. Projects will often be smaller and at lower risk.
- ability to source capabilities from, and supply expertise to, other agencies; and improved access to scarce specialist expertise, for example, information security, architecture, and analytics
- greater access to standard platforms and tools for digital service delivery
- faster and more cost-effective procurement through supplier panels
- greater opportunities to work with and within other agencies.

3.4 Efficiency and effectiveness

Lowering the total cost of owning ICT systems means working closely with other agencies and all-of-government providers to capitalise on work done by others, we standardise business processes, evolve the ICT infrastructure to support increased mobility, and consolidate legacy applications.

A particular focus for DOC early in this four year strategy will be reviewing its current operating landscape and footprint across the suite of its applications and databases. The analysis will form the basis for developing the efficiency and productivity theme, which is intended to consolidate and enhance the utility of DOC core applications suite.

Integrating mobile and desk technology and then enhancing Wi-Fi connectivity for DOC staff and visitors centres across the country enables the technology platform upon which we can provide secure access for our stakeholders to the rich data that DOC is custodian of. As well, this will transform the way we engage with New Zealanders and visitors who are committed to interacting with the conservation landscape.

4 Information systems to support DOC's stretch goals

In 2015 DOC developed a set of 'stretch goals' to focus effort on achieving our vision. These challenging stretch goals set clear targets for the next 10 years to 2025, concentrating effort on improving conservation outcomes for New Zealand's biodiversity and fresh water environments, on marine protection, on this country's historic heritage, on tourism and the way we in DOC engage with communities.

Our aim is to work with others to inspire and deliver world-leading conservation and our ICT will support that aim.

DOC's information systems and services will support DOC's effort delivering the following:

Conservation

- half of New Zealand's natural ecosystems will benefit from pest management
- all public conservation land is managed

- all New Zealand's most threatened species benefit from conservation action
- DOC engages with others assisting management of 20% of non-public conservation land
- the goal of Predator Free New Zealand is achieved by 2025 and 10% of New Zealand is predator free
- key habitats (on private and public land) that typify New Zealand's uniqueness are managed to retain their values
- key performance indicators are established for regions
- a national science roadmap for conservation and environment is established by 2017
- 50 freshwater ecosystems are restored
- a nationwide network of marine protection is in place which is representative of New Zealand's marine ecosystems
- the stories of 50 or our most historic icon sites are told and protected.

Engaging others

- New Zealanders' lives will be enriched through connection to our nature; and half of international visitors will come to New Zealand to connect with our natural places.
    - DOC will embed Healthy Parks/Healthy People
    - A 'Volunteer Army' for conservation
    - New Zealanders' environmental knowledge will be lifted.

The ISSP will support DOC's business groups to achieve their conservation priorities, directed by the Senior Leadership Team, where resource focus and allocations will be placed, and also outline future direction.

DOC's ICT will be successful when our internal and external customers and partners are successful.

This ISSP supports the work of DOC and recognises its supporting and enabling contribution to this vision.

Context

ICT goals are linked to business strategy and stay relevant.

Creative

New and innovative ideas are introduced into our IT strategy.

Aligned

ICT strategy aligns to development and execution

5 DOC's architecture principles

Architecture principles capture the fundamental truths about how DOC will use and deploy ICT resources and assets. This ISSP is supported by DOC's ICT enterprise and data architecture principles:

5.1 *Data Architecture Principles*

DOC's data architecture principles, independent of technology, provide the driving concept for organising DOC's data in a standardised way and at the required level of protection and quality. The data architecture principles apply to all aspects of data use in DOC and are the reference criteria for new systems and review of existing systems. The data principles ensure that data in DOC's information systems is managed as an asset and is:

- available, protected and accessible
- understandable and trusted
- usable, re-usable and shared
- at a price, which is either reasonable or free
- These data qualities will assure that DOC data is a robust resource upon which a business value will be derived
- phases of the data value chain are represented below.

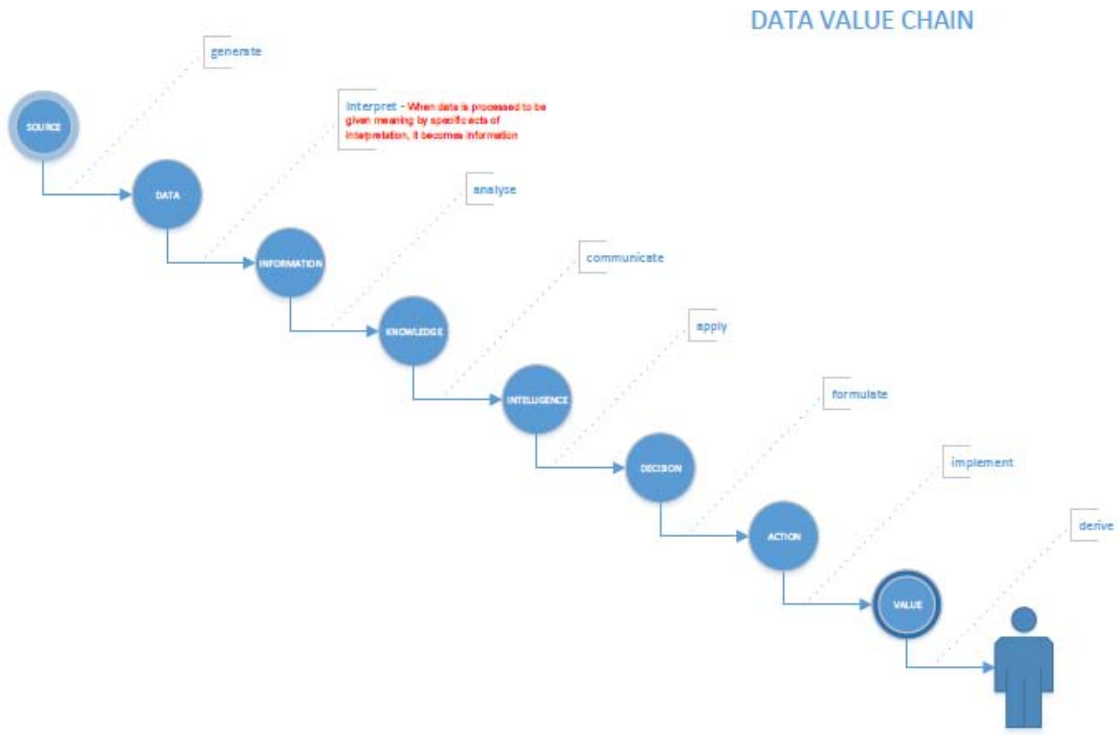


Diagram 4 – Deriving value from data – phases in data transformation from source to business value

5.2 Enterprise Architecture Principles

DOC's Enterprise Architecture Principles are the enduring general rules and guidelines that inform and support the way we achieve our ICT vision and purpose. These Enterprise Principles are summarised below:

System access is not restrictive: Conservation workers – and our system users – come from both outside DOC and within.

Cloud first: DOC will lease ICT services, not procure or extend ICT assets.

Simple, sustainable solutions: The Department will actively select, deploy and manage systems with simplicity, sustainability and environmental concerns as a priority, and will promote thin client applications, virtualization of our infrastructure, and the application of active capacity management.

Secure by design: Our solutions will be designed from the ground up to be secure. Security will not be an afterthought or add-on.

Data, information and knowledge are valuable shared assets*:* Data, information and knowledge are valued as Department assets to support productivity and innovation, enhance service delivery, and accelerate decision making. They are shared resources and can't be owned by a group, team or individual. Data definitions and vocabularies will be consistent throughout the organisation.

Any user, anywhere, with any device: Systems should be independent of users' locations. Solutions will be targeted primarily toward mobile devices, with desktop devices supported as a secondary priority. To support the DOC vision of engaging the community in conservation, systems will be built to be used by people external to DOC.

Innovative, agile, and responsive: The Department's architecture will readily support incorporation of new technologies to support business and technology innovation. A hybrid agile approach to system development will be adopted to promote rapid, less resource intensive, lower risk investment in capability.

Economic pragmatism, not perfection*:* Architectural decisions will maximize the overall benefit to the Department by balancing the following criteria: cost, accessibility, and consistency, diversity of business needs, flexibility, functionality, manageability, precision, risk, scalability, security, supportability and value.

Data > Functionality: The architecture of the Department will prioritise the protection and preservation of data over functionality when designing solutions.

Accessibility: Information and services will be made available easily, widely and equitably for the benefit of the people of New Zealand.

Online, offline, at office, in the field: The Department's key systems will be accessible through multiple robust delivery mechanisms, regardless of connectivity, location, device or environment.

Reuse and open standards: When deciding on architecture to implement, the Department will reuse before buy, buy before create, and create reusable components.

5.3 *Building on previous DOC ISSP strategies*

ICT at DOC is about generating innovative ways we can use technology for conservation gain and making it easier for our people to do their work. It's about how our information systems can deliver better conservation services protecting nature in New Zealand, while enhancing the trust and confidence people have in DOC's caretaker conservation role.

DOC last refreshed our Information Systems Strategic Plan four years ago for the period 2011 to 2014.

During those four years we moved our conservation effort forward with a number of geospatial information applications and two other significant information management projects.

- In 2012 the Recreation web, DOCGIS and Geospatial Portal initiatives provided access to geospatial information to DOC staff and all New Zealanders.
- In 2013 operational and Whio application projects provided DOC staff the ability to capture work related activities, whilst the *Discover the Outdoors* project provided the New Zealand public with more geospatial information.
- In 2014 an acclaimed weed management system was introduced giving DOC staff more capability to capture and record their conservation work activities outdoors.

Managing the landholdings with NaPaLIS

In 2011 a joint venture with Land Information New Zealand (LINZ) saw the launch the National Property and Land Information System (NaPaLIS), a huge milestone for DOC and LINZ, and the culmination of more than two and a half years of collaborative effort.

Together DOC and LINZ manage more than 40% of New Zealand's land area so it made sense for both departments to work together to develop the new NaPaLIS system. NaPaLIS provides smarter ways to store, monitor and access information about each department's landholdings.

Better information management

In 2015 DOC became a leader among New Zealand government agencies by introducing one of the first all-of-government enterprise content management systems (ECMS) using Software as a Service (SaaS).

This 21st century information management system, internally called docCM, was rolled out early in 2015. It replaced an outmoded and unsupported document management system that stored more than 1.5 million of DOC's conservation documents when it was only designed for less than a million documents.

The new ECMS was designed as part of DOC's visionary and more expansive Conservation Information Ecosystem (CIE) strategic initiative to enable a new way of working for DOC, partnering with others outside our organisation.

In future, DOC will work much more with external partners to deliver conservation results and our ICT systems need to support the vision of:

"People using shared information ecosystems for conservation gains"

"Pūnaha Hauropi Whakapā"

Everyone who is helping to meet DOC's vision of "NZ is the greatest living space on earth" will in future be able to access and share the information that DOC holds on behalf of New Zealand.

5.4 Current state of core IT systems

The graphic matrix below in Diagram 5 shows where DOC's core software applications fit in terms of their maintenance cost compared to their functionality. Our analysis of this suite of priority applications shows the variable usability and cost to DOC of these software applications. We are analysing the costs and functional fit of other non-critical DOC applications and this analysis will feature in the refreshed ISSP scheduled to be completed in October 2015.

Diagram 5 - Functional fit and cost of DOC core applications

Below is an outline of the strategic approaches required to manage our critical applications for each quadrant.

Low fit, low cost (bottom left) - This quadrant presents applications that are low fit for purpose solutions and which need technology upgrades. However, they are low cost to maintain. These applications should remain in their current state but be upgraded over the medium term.

Good fit, low cost (bottom right) - This quadrant presents applications that are good fit for purpose solutions requiring a low cost of ownership. These solutions should be maintained for now.

Good fit, high cost (top right) - This quadrant presents applications that are a good fit for purpose solution but require a high cost of ownership. These applications should remain in their current state and be upgraded in the medium term, and look at possible cost reduction.

Low fit, high cost (top left) – This quadrant presents applications that are a low fit for purpose solutions and have a high cost of ownership. Issues with these applications should be addressed immediately as they represent the highest operational risk and cost.

The following table summarises the current state of DOC ICT in 2015 and the projected state in 2019 as a goal of this ISS:

Current State of Information Technology in 2015			State of Information Technology in 2019	
Relevant shared systems used by both DOC staff and partners/volunteers.	?%	**Top IT Initiatives** Application Portfolio Optimization Infrastructure/Radio Refresh Mobility for DOC's workforce Data re-architecture and consolidation Contact management, and client relationship management strategies	Relevant shared systems used by both DOC staff and partners/volunteers.	70%
Collaboration maturity	1/5		Collaboration maturity	4/5
User satisfaction with quality of information from internal sources	?%		User satisfaction with quality of information from internal sources	70%
Systems adhering to information standards and definitions	?%	**Top Underlying Beliefs and Assumptions** Limited business change initiatives for duration of this ISSP Primary business focus on stabilizing and embedding operating model Support of partnerships and value exchange approaches is a key focus area Collaboration, both inside DOC and with partners, is a key focus area All of government ICT approaches will continue to be primary government focus	Systems adhering to information standards and definitions	75%
IT spending led by business	?%		IT spending led by business	5%
SLAs at goal	?%		SLAs at goal	70%

t

5.5 *Future state of ICT capabilities and user experience*

Enabled by work on our four strategic themes, DOC's ICT capability, the experiences of future internal and external system users are described in the following user experiences.

User experience	Transformed systems and processes
Devices and access	DOC ICT systems and technologies let us appropriately manage all DOC mobile devices, user identities and access rights to our systems networks. We can authenticate and authorise appropriate access to DOC systems and data, and monitor user behaviour. Systems are safe, secure, reliable and friendly.
Work productivity	It is easier for staff to do their work because our systems and technologies are automated to help staff perform their work tasks more quickly and easily. Staff are more productive and can do more. Across all areas of work, in the field, in the office, through DOC's corporate administration, and by how we manage spatial orientation, we are more efficient and more effective. It is easy to access the information we require. We can be more agile, adaptable and customer-focused.
Unified communication	Systems and technology enable all forms of people communication at work, including voice, text and video communication among DOC staff and with external customers and stakeholders. These systems contribute to more efficient and effective communication, as a specialised set of productivity tools.
Digital evidence	Our systems and technology allows us to create and search digital and digitised evidences to support our work and interaction with customers and stakeholders. This includes all forms of textual and media evidences, collection and storage. Digital systems contribute to efficient and effective search of evidence material, as a specialised set of productivity tools.
Geo-location awareness	Our systems and technology facilitate user spatial orientation. We can provide geo-location information to other systems and for end-user reports. We have advanced GIS applications with the functionality that most people need or want. These systems enable us collect, generate and store location data that can be integrated across all systems, which is easy to use and a centralised record of conservation activities. These systems contribute to efficient and effective geo-location awareness, as a specialised set of productivity tools.
Operational conservation	Our systems and technology enable us to record core operational conservation activities that are managed via DOC's internal and external engagements. Our technology lets us create, maintain, use and share biodiversity ecosystem data and biodiversity data collected by others, for example, systems for species inventory and monitoring, pest control systems, weed control systems and similar.

User experience	Transformed systems and processes
Destination and recreation	Our systems and technology enable quality destination management decisions and visitor interactions, including recording individual visitor destination and recreational activities of interest to DOC. These systems contribute to DOC's efficient and effective engagement with visitors, as a specialised set of Customer Relationship Management (CRM) tools.
Customer engagement	Systems and technology to facilitate DOC's interaction with external customers and record their individual engagement activities with DOC, for example, permits and concessions. These systems contribute to efficient and effective engagement with customers, as a specialised set of Customer Relationship Management (CRM) tools.
Partner engagement	Our systems and technology facilitates quality interactions with our external business and social partners, stakeholders and volunteers, recording individual engagement activities with them, for example. Community groups, contacts, volunteers, and similar. These systems contribute to efficient and effective data sharing and engagement with various partners and volunteers, as a specialised set of Customer Relationship Management (CRM) tools.
Management support	Our systems and technology support knowledge, intelligence and management activities helping DOC managers at all levels, including supporting intelligent use of data and evidences; and assisting production of reports to be used for operational management and planning. These systems are based on effective and efficient use of Business Intelligence, data and analytics, and may be shared externally.
Decision support	Systems and technology help managers and staff gather the information they need to make informed decisions. They make intelligent use of data and evidence and produce reports, predictive simulations and visual interpretation of data used for strategic planning and decision making. These systems are based on effective and efficient use of Business Intelligence, data and analytics, and may be shared with partners and stakeholders.
Research and applied science	Systems and technology support knowledge gathering, research and decision process for DOC scientists, science community and staff at all levels. We make intelligent use of scientific and biodiversity data and evidence and produce reports, predictive simulations and visual interpretation of data used in applied sciences and scientific reporting. These systems are based on effective and efficient use of Business Intelligence, data and analytics and may be shared with partners and stakeholders and be part of open data initiatives.

5.6 Science and technology

DOC is integral to the science community in New Zealand. Various other science provider agencies such as Crown Research Institutes rely on DOC science capabilities for their own science outputs. They also depend on end-user agencies such as DOC to apply their science research in practical terms, for conservation outcomes.

DOC must work closely with other science-minded agencies to improve science conservation outcomes for New Zealand, to improve how science information is coordinated across science communities, and to ensure that science data is appropriately stored and archived, in all forms.

Emerging technologies hold real promise for a number of intractable science conservation problems, for example, real time measurement of ecosystem services.

We expect that DOC will need to embrace science and technology innovations, and that this will not be optional. While we try to rationalise, consolidate and standardise ICT systems and technology across government, we need to be clearer about what constitutes innovation, as opposed to incremental improvement.

Historically, DOC has incrementally improved its ICT systems based on known technologies. In future, our research and science will be integrated into our organisational ICT systems.

5.7 Planning, operations and ICT

DOC has a methodical approach to biodiversity and recreation management. However, there are opportunities to improve our capability by using more integrated information communication and technology applications.

We create and maintain biodiversity and recreation strategies and plans; and we use applied science methods to ensure terrestrial and marine ecosystem planning. We develop multi-year management programmes and policies to ensure that "the diversity of our natural heritage is maintained and restored".

Our strategic plans, their objectives, and the prescriptions to meet the conservation outcomes are planned centrally using business planning and management systems.

The combined planning inputs from our internal business groups help build the whole-department work programmes. From these we determine what work we need to do in order to achieve our outcomes. Extensive use of the business planning and reporting systems (BPR) and Enterprise Resource Planning (AMIS/FMIS/SAP) management tools are required to integrate all of corporate information. This supports the planning and decision making required for centralised enterprise level planning and delivery at site by our Conservation Services and Conservation Partnerships business group teams.

The Conservation Services planning team and Conservation Partnerships integration teams create business and work plans for the Conservation Services teams, for all work carried out in specific regions. Conservation Services teams schedule and deliver those conservation work plans.

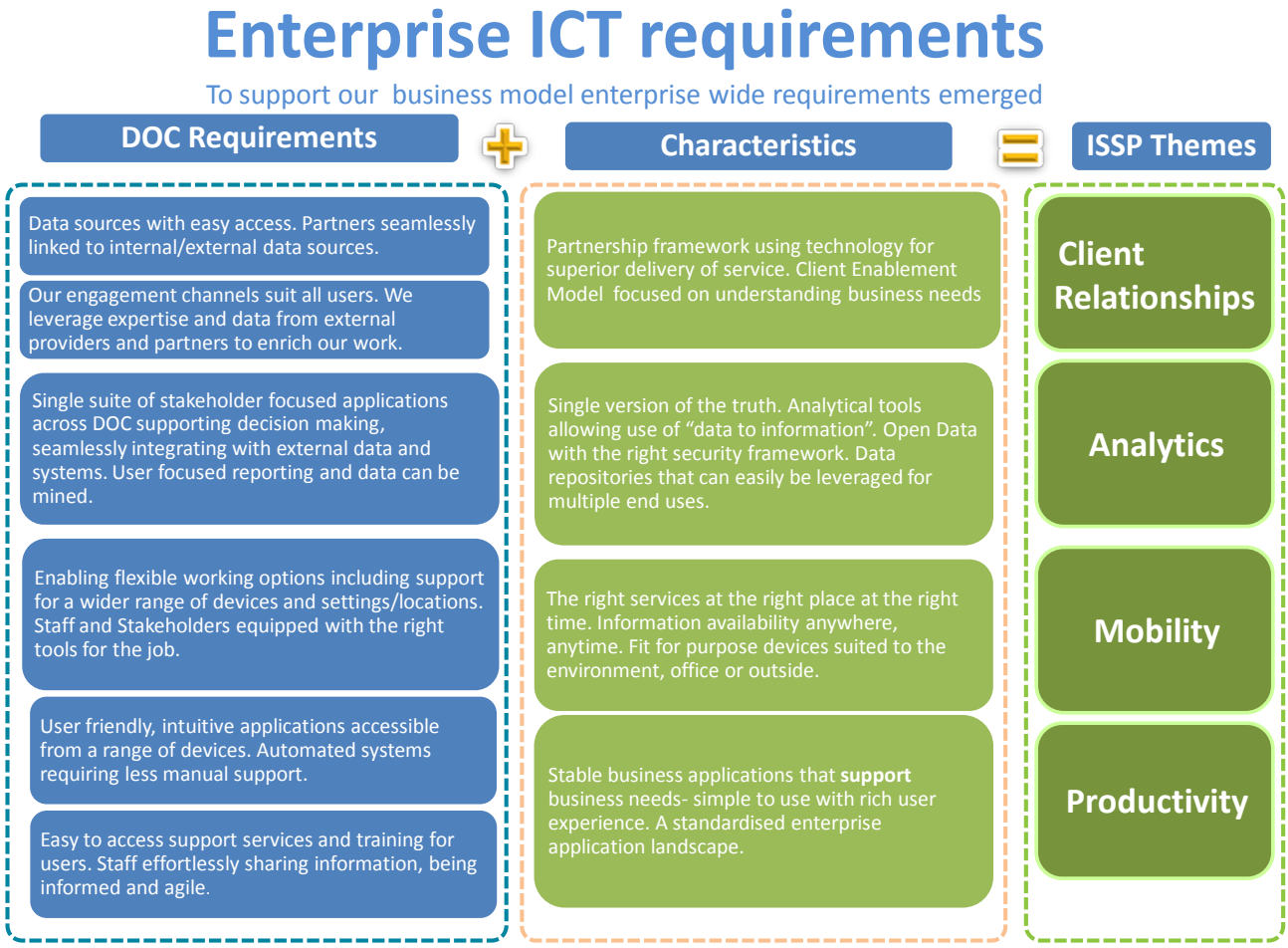
Expanding wider adoption of enabling and unifying technologies across DOC would free up service teams to focus on delivering conservation work on the ground.

6 Enterprise technology themes

In developing this Information Systems Strategic Plan we assessed DOC's current ICT capabilities and the all- of-government requirements, considered against feedback provided through internal business group engagement and high level consultations. Consistent requirements or themes emerged.

The themes are the combination of these interactions as well as input from the existing DOC information technology landscape.

These requirements and characteristics informed the four themes, shown in table below.



7 Technology road maps

The ISSP themes are grouped into a set of technical capabilities described as technology road maps.

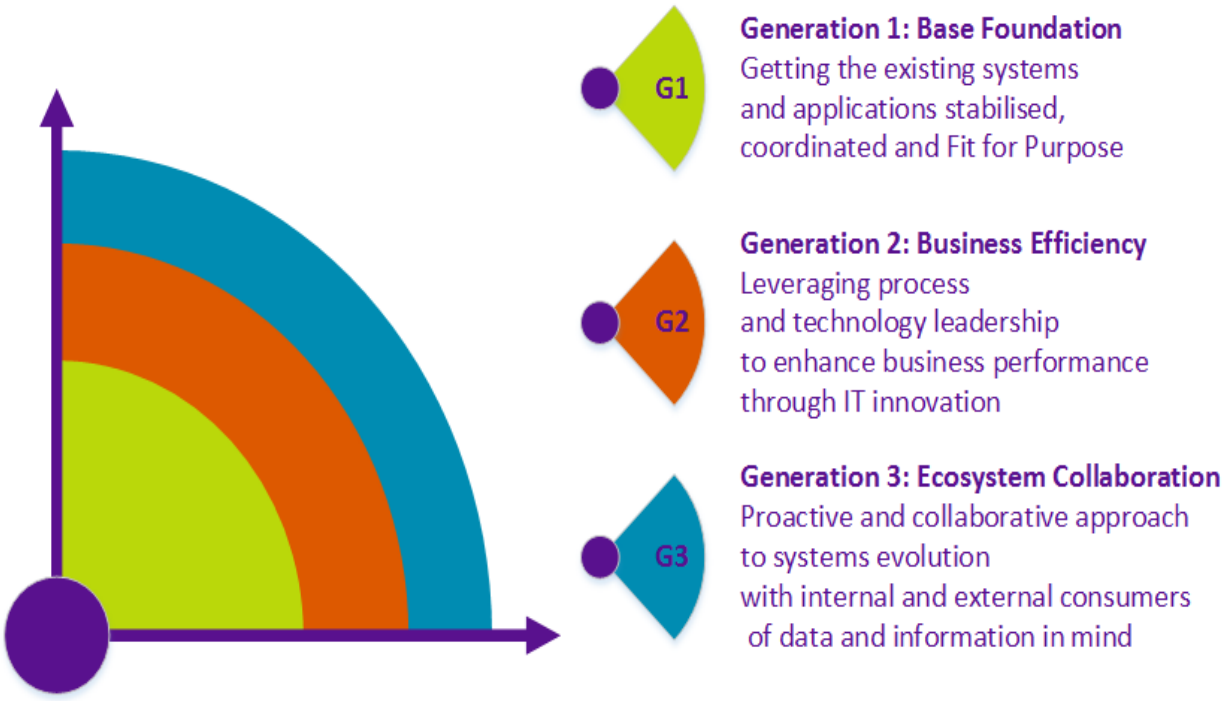
Each of these technology road maps can be delivered as coherent work iterations, or separated to allow more staged development to proceed if constraints, financial or otherwise, change.

Each roadmap is loosely aligned to a four year planning horizon with system capability being the stated end goal.

Achieving the individual goals will occur through a series of iterations or generations intended to be sensitive and responsive to the changing requirements of the business, as well changes or developments in technology.

We recognise that to support these we need to improve and manage stakeholder partnerships with DOC's business groups and external stakeholders who are integral to DOC's success.

These road map themes will deliver a sustainable means of achieving our strategy and are described as three generations of work to achieve the business goals and outcomes. The three generations of effort are not time bound, will be progressively phased, are colour coded and described below.



7.1 Mobility theme

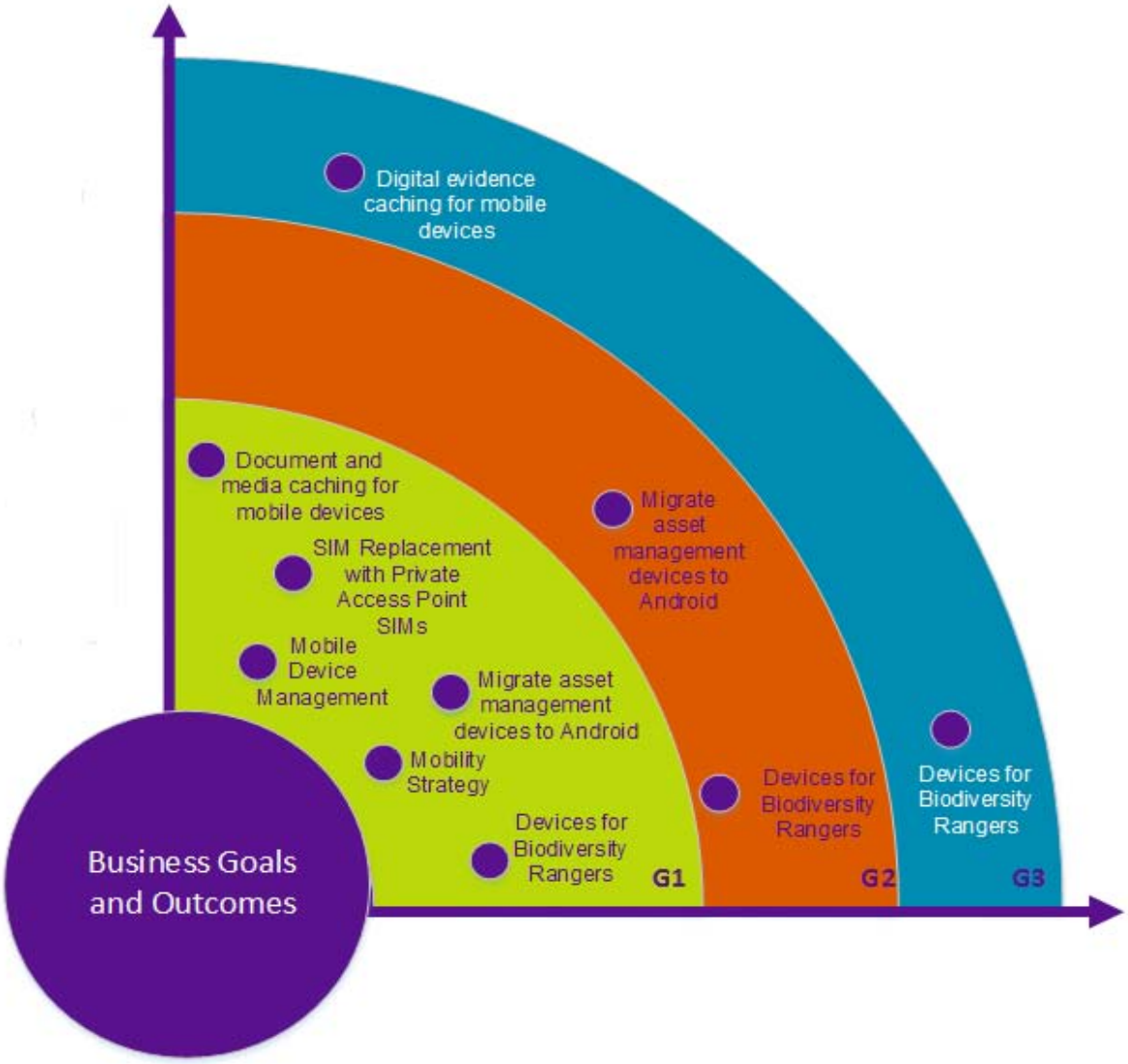
Effort here will enable anytime, anywhere access to DOC ICT systems.

More and more New Zealanders and overseas visitors are accessing products and services online through mobile applications.

Significant numbers of DOC's staff work in isolated geographic locations that are currently poorly served by data networks. We recognise we need to equip these staff with access to information and data. Our vision for a fully mobile enabled workforce is a priority for the first year of this Information Systems Strategic Plan.

Transforming our mobility capability will enable a mobile workforce, where DOC staff and external stakeholders will have ready and easy access to our data and information.

The roadmap below illustrates how this will be done.



Specifically, increased mobility will enable:

- our staff to work together, to be more informed, adaptive and lean to achieve high quality results for the department
- our staff to understand the full suite of tools and easily select and use the best tool for the job
- a wider range of engagement channels to our staff, stakeholders and customers.
- us to leverage expertise and data from external providers and partners to enrich our work and current assets
- staff and stakeholders to connect in a more personal manner via desk and device-based video conferencing and collaboration methods
- access to business applications via mobile workforce enablement and via multiple fit for purpose devices
- enterprise visibility – relevant information Anywhere, Anytime, Any Device.

The end state goal is:

- all mobile devices are managed by default, and access to the intranet is from tablets on 3G
- a totally connected workforce no matter where they are, through extensive use of mobile technologies.

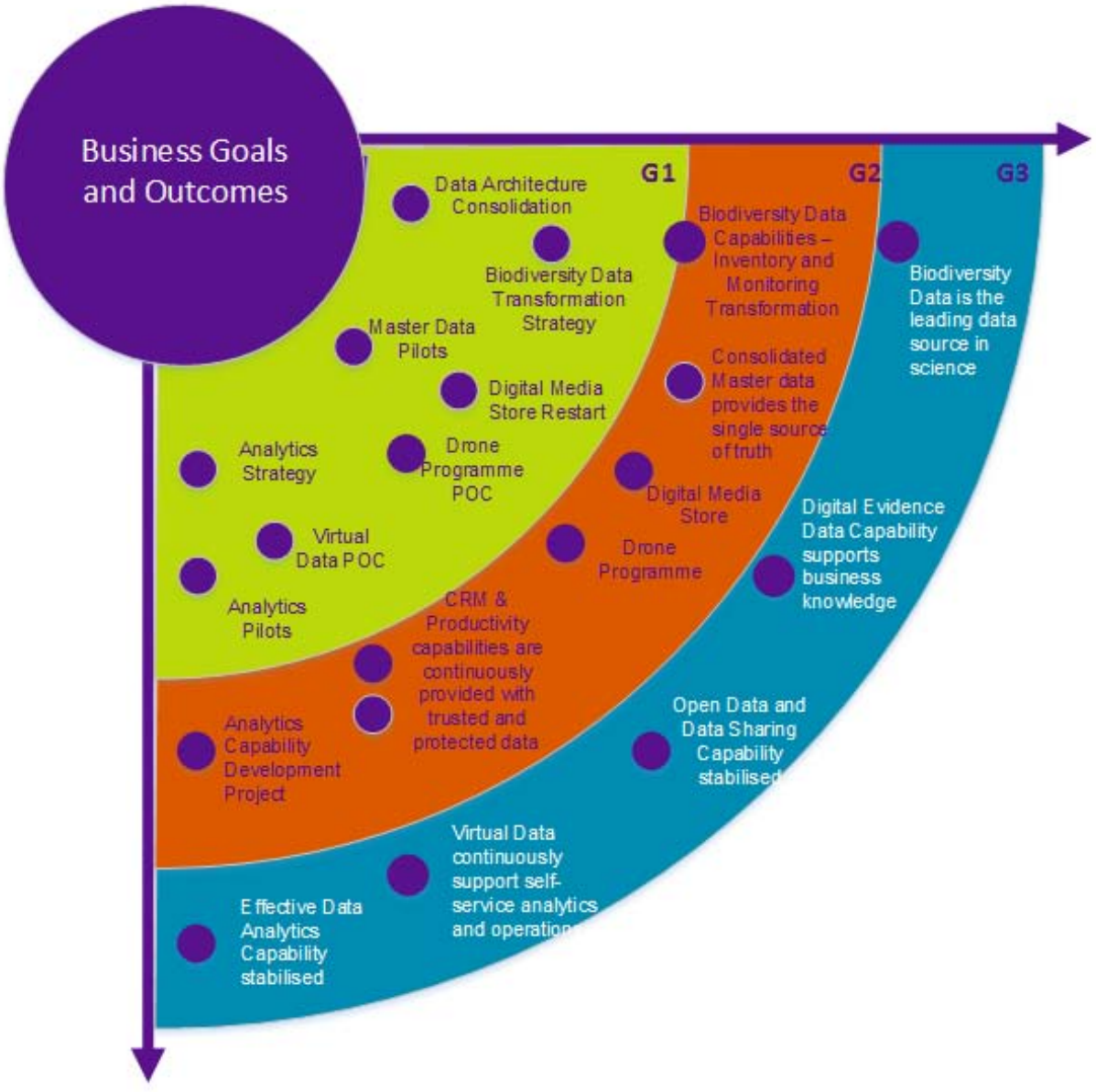
7.2 Data and analytics theme

We want the Department to have specific intelligence and operational information that draws data from multiple core applications, thus enabling strategic decisions. Data will provide a single source of the truth, through a single set of data.

Effort on the data and analytics theme will improve the quality of our data management; and allow us and our business partners and stakeholders to optimise use of their data, to provide insights and usable information.

The end state goal is making DOC the recognised repository for quality, accurate, timely conservation data.

The generation approach to progress the data and analytics theme is described in the road map below.



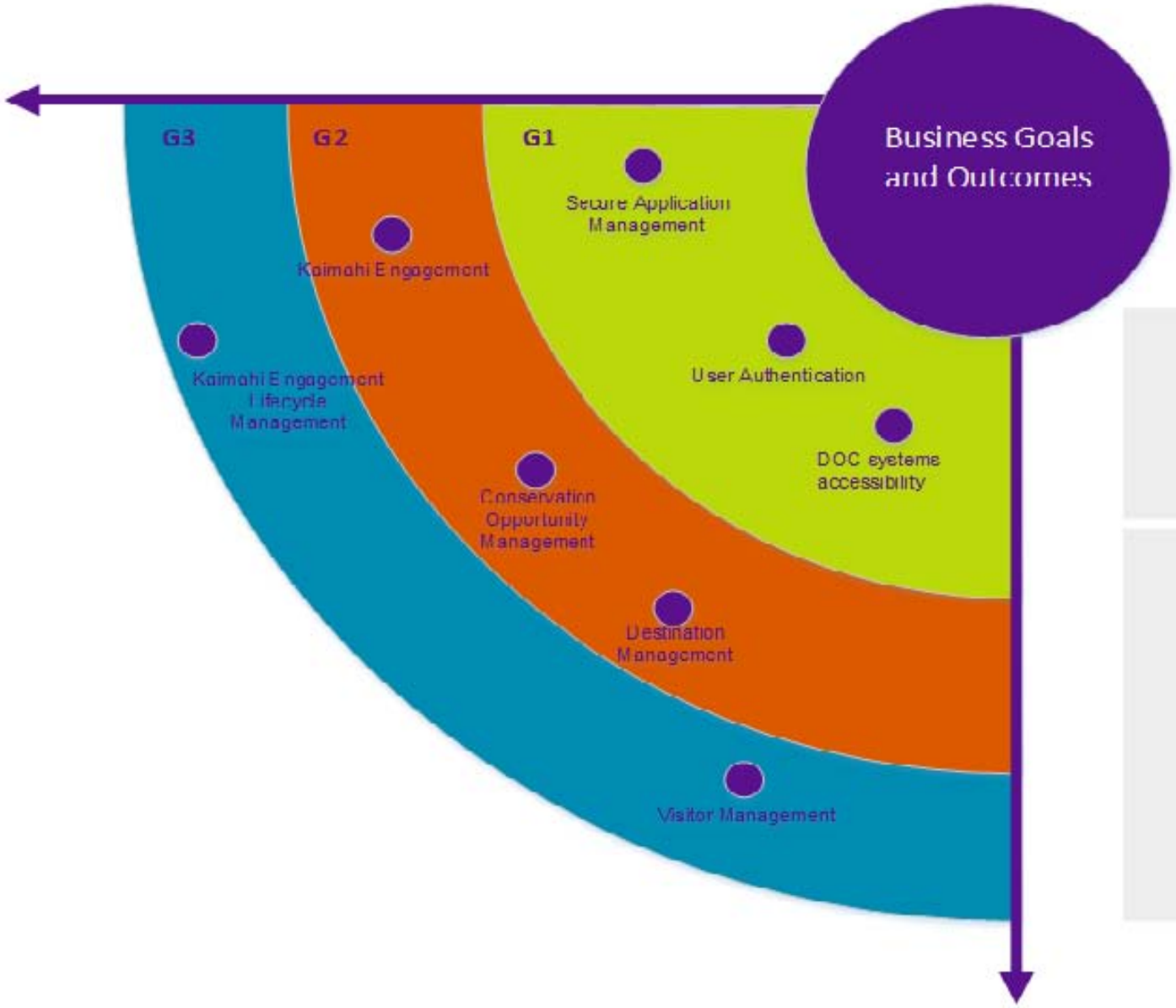
Effort on the data and analytics theme will enable:

- business intelligence and operational information data to be drawn from multiple applications, such as the Financial Management Information System (FMIS), the Human Resources Information System (HRIS), Payroll SAP, the Asset Management Information System (AMIS) and so, informing our ability to make targeted strategic decisions
- capability to draw from different data sets residing in different places across DOC using portals to accesses dashboards
- access to single datasets from multiple applications across the business seamlessly
- hugely improved management of multiple information sources
- DOC to provide marked-up useable data to external stakeholders
- DOC to integrate our data and disseminate it to our stakeholders
- DOC to collect, manage, store and share data from external sources.

7.3 Client and customer relationships theme

Effort progressing DOC's capability and capacity to improve how we manage client and customer relationships using information communication technology will enable DOC business groups to collaborate more effectively with their business and community partners, to do more conservation.

Our approach to improving the way we manage our client and customer relationships is described in the following road map.



7.4 Productivity theme

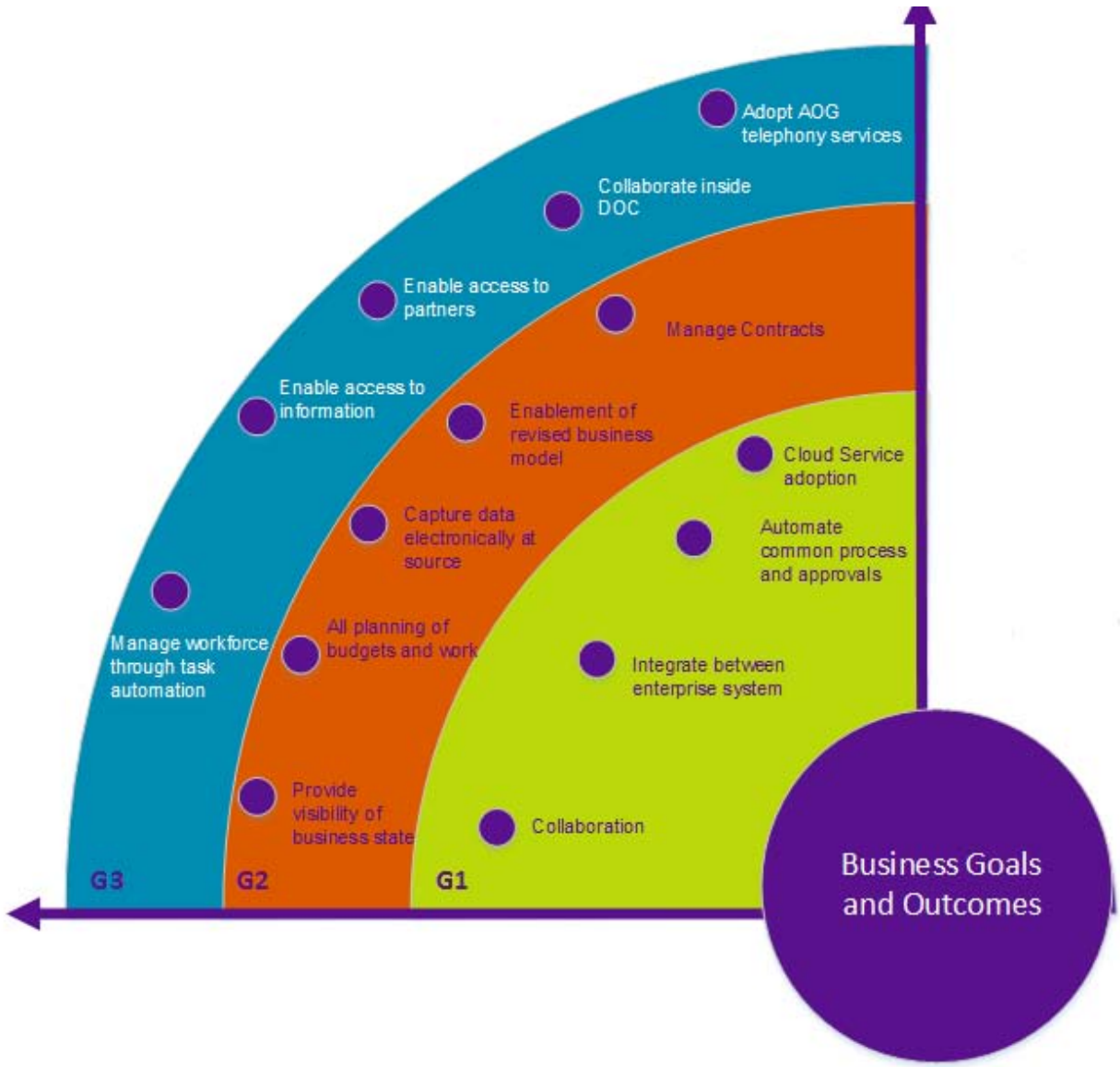
Improving productivity will enable DOC to do more with less and enhance our business efficiency.

Integrating our enterprise systems will be key and a first generation of effort. Integrated enterprise systems will connect systems together, both inside and outside DOC. Significantly, this then reduces the need to develop applications to integrate systems to each other, so that data can be utilised between each system. For example, the SAP and GIS integration projects planned for 2015-16 will enable unified task allocation through integrated systems; and provide an integration platform to enable wider collaboration in the ECM tranche 2 project.

Integrated systems will also provide the platform to link enterprise business applications to each other, to allow data to be available to two or more disparate systems. It also provides the platform for DOC to collaborate with its external business partners. This is foundational piece of work to allow the business to realise its outcomes.

- Our workforce will access business applications via mobile – within the office, by hot-desk and collaboration tools that are available via multiple fit-for-purpose devices
- We will increase our use of all-of-government tools and this will reduce our operational and implementation costs. Cloud programmes and enterprise applications will be integrated for more effective information sharing.
- Staff and stakeholders can connect in a more personal manner via desk and device-based video conferencing and collaboration methods.
- Our workforce has access to the right tools that they need to help them do their job effectively and efficiently, making it easier for them to do conservation work.
- We will be able to rapidly adapt to changing business needs with nimble prototypes, pilots and small apps development to meet requirements. The end state goal is a rationalised and coherent set of developed application that is fit for purpose and able to support the future.

The productivity road map is described below.

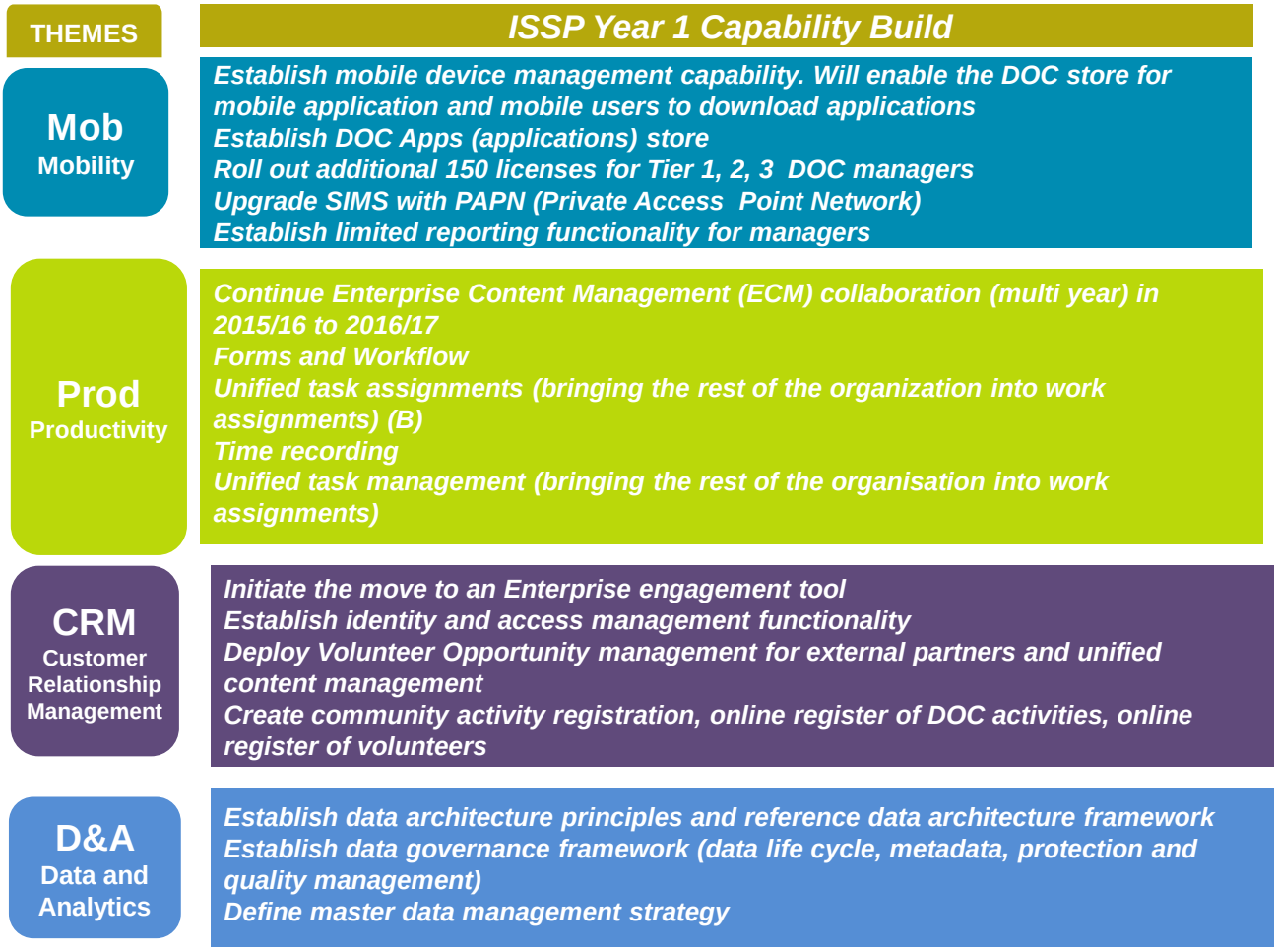


8 Road map foundation: DOCs Year 1 delivery on the ISSP

The ISSP work programme will start with a number of prioritised work initiatives put forward as part of a capability foundation road map, within the Four Year Plan.

Roll out of mobility capability to support our front line staff is the priority.

Year 1 initiatives to build future capability are described in the following table.



9 Enabling the ISSP road maps

When analysing DOC's ability to deliver transformational change of its information systems we considered three options for our approach:

Status quo: we carry on as now with the ISSP as 'guidance' only. Progress would be incremental, project support would be from business as usual resources, somewhat uncoordinated and fragmented. Projects are increasingly aligned to technology road maps, resources are balanced on a 'first in, first served' basis and resources are decentralised.

Balanced approach: we have made some compromise solutions recognising there would be limited benefits in the first year. There is some re-alignment of existing resources, additional operational funds would progress easier (well understood) ISSP activities, there would be competition for resources for individual business-driven strategies and the benefits of the strategic plan are starting to be realised.

Overall DOC capability would improve. Some important projects would be delivered, though some duplicated capacity will still exist. Efficiencies are delivered through a centralised suite of services by the Portfolio Office, improved oversight of projects, and by allocated resources to the larger, significant strategic projects.

Stretch: the ISSP is a fully-funded strategic and coherent work plan that delivers DOC's vision. The business plan has become aligned to support the ISSP, funding is centralised to deliver full ISSP enablement through prioritisation and centralisation of the initiatives to a full optimal model. We maintain 'life support' only to older systems, with no enhancements. We are able to deliver faster and

better ICT services which can be re-prioritised as required. We are more responsive to stakeholder needs, governance reporting is directed upward and provides 'direct line of sight'.

10 A portfolio approach to deliver balanced change

To support delivery of the new ISSP different operating options are available depending on the extent and scale of the desired transformative change.

Critical to the success of the ISSP is delivery and implementation of the initiatives identified in the themes on a regular basis. This ISSP aims to make some rapid changes in DOC's ICT performance, and so make the work of our business partners easier and more productive.

The ISSP outlines a work programme which can be delivered successfully within the currently known constraints. Regular review and re-balancing is required to keep the programme on track and aligned to the wider DOC context. As an example, another Battle for our Birds initiative would require the ICT programme to be reprioritised.

This is achieved by separating and prioritising the ISSP activity programme alongside normal operational management of day to day activities, by establishing a strategic portfolio of work separate for the normal operations.

This portfolio approach will maintain a balance between supporting the needs of the current state daily operational activity, while creating and then maintaining the space to undertake the ISSP activities. The ISS Portfolio Office will be responsible for delivering this ISSP through a set of coherent work projects that are efficient and effective.

Allocation and direction of resources to support the work programme will be achieved using this portfolio and oversight approach.

A dedicated ISSP work plan will establish a prioritised year one (foundation) work, but also identify, negotiate and ring fence the internal resources required to support the work programme.

The transformational changes required of DOC's information systems are extensive and will require a substantial work programme. We have attempted to define a multi-year work programme which can be delivered successfully within the currently known constraints.

11 Business as usual services

The ISSP provides a strategic direction for change and transformative changes to DOC's information systems.

Business as usual (BAU) services will be managed through normal business planning cycle.

The priority is "keeping the lights on", meaning keeping DOC's information systems working.

This BAU keeping the lights on" activity is managed through Asset Management Plans (AMPs) operated by the ISS business unit.

These Asset Management Plans define how the various information and system assets managed by ISS will evolve over time.

The funding implications of these AMPs are determined through the annual planning process.

In this ISSP we have assumed that the AMPs are accepted by DOC, and that funding has been allocated to managing DOC's IT assets according to plan.

12 Oversight and accountability

This ISSP defines part of the business strategy for how information systems support DOC's work.

Implementing the ISSP will need active oversight, engagement or governance from across DOC if it is to be successful.

The Deputy-Director General Corporate Services will provide the single point of accountability for delivering the ISSP.

A reference group comprising key stakeholder Directors will be established to assist with the oversight of the ISSP, ensuring we deliver tangible transformational change on a regular basis, to improve DOC's ICT performance, while also making our peoples' lives easier and more productive incrementally.

13 ISS operating model

The ISS senior management team formalised how ISS will operate as a business unit, according to established guidelines, here. The ISS Operating Model describes how ISS managers, their teams and ISS staff work to deliver services to our clients within DOC, and their customers.

We aim to provide a consistent, effective and efficient quality of service. Our Operating Model is related to how we are structured as a business unit within the context of DOC's operating model, and the all-of-government vision for a single, coherent ICT ecosystem supporting system-wide ICT benefits and better public services.

The ISS Operating Model illustrates the:

- strategic engagement model for new transformational work
- operational engagement for existing applications and systems
- engagement within ISS and the business about IT projects.

14 Key execution capabilities

Delivering this ISSP will require changes to some current capabilities, specifically:

- priority must be given to building targeted ICT capability to deliver the ISSP
- capabilities will be developed for building an ISS "business partnership" model
- recommendations will be proposed for changes to the ICT funding model for delivering the technology road maps
- monitoring ICT performance will done by establishing business oversight of the ISSP work programme
- a Portfolio Office will be established within ISS
- engagement strategies will improve ISS business partnership capabilities and competencies
- DOC business processes will become standardised and follow industry practice.

The following points have important implications for DOC's ICT investment:

- ICT-enabled business systems must deliver the expected benefits

- we focus on our unique business systems and buy-in more common capabilities
- non-core or commodity ICT assets are eliminated from our balance sheet and procured as operational 'as-a-service' expenses focussed on reducing unit costs over time
- an all-of- government approach provides stronger central direction supported by collaborative leadership
- highly standardised cloud computing platforms provide most of government's computing resource
- assembling and integrating ICT is standardised and there are fewer bespoke developments.

15 Monitoring and evaluation

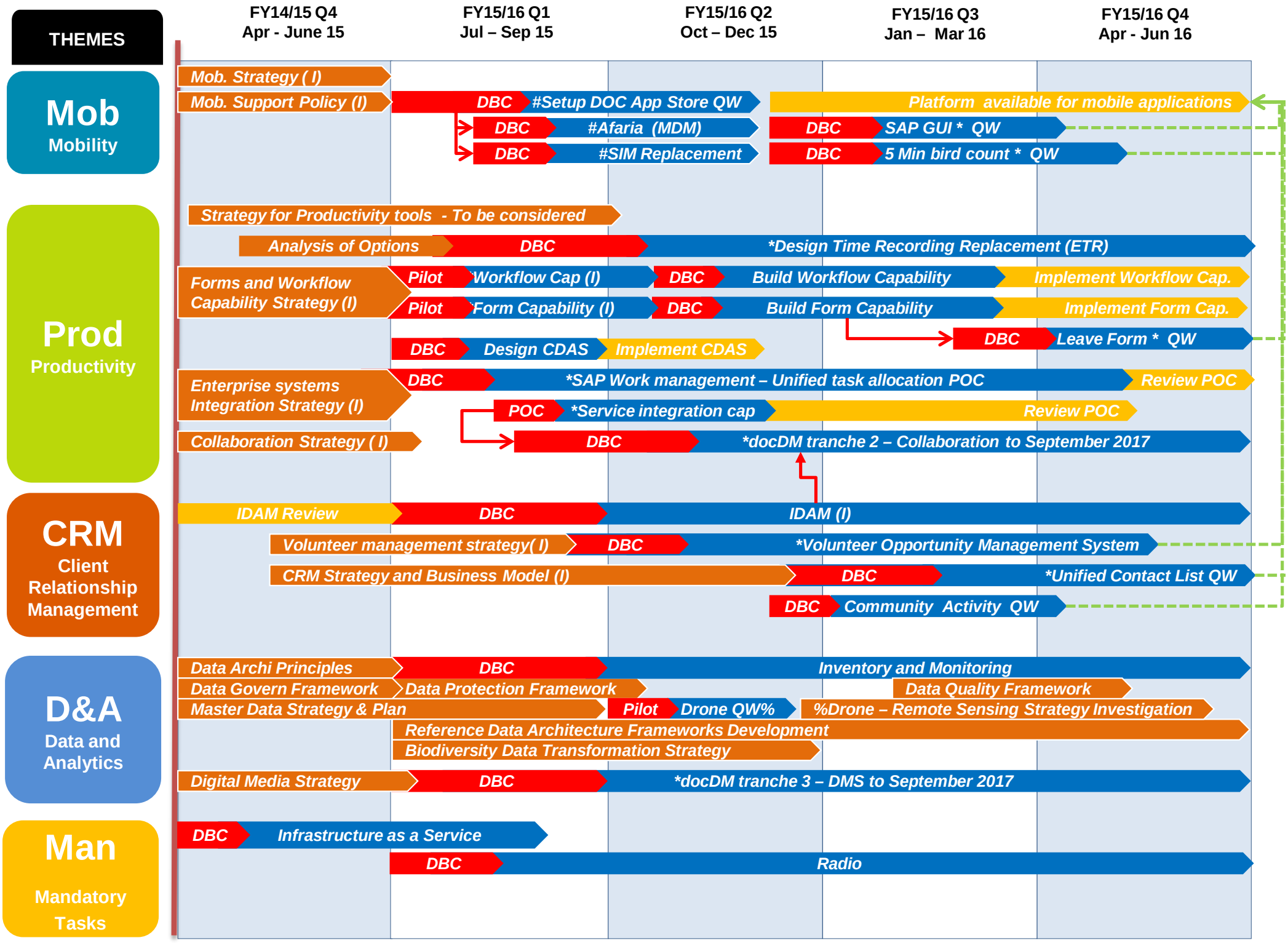
Key performance measures will be developed to monitor activity and achievement, linked to DOC's stretch goals. These measures will be monitored and managed through the ISS Portfolio Office reporting on the ISSP programme of work.

Other measures might include, for example:

- the value of business-led ICT spending
- the percentage of ICT investment dedicated to employee productivity
- the percentage of investment spent on top business capabilities
- the percentage of staff who have the competencies needed for success in IT
- the percentage of projects where risk decisions are owned by business leaders
- a (reduced) number of vendor relationships that we have to manage
- number of Service Level Agreements in place by 2019
- number of Service Level Agreements are linked to performance management agreements by 2019
- percentage of employees who are network performers and informed sceptics.

Appendix 1: high level 15-month roadmap

The ISS Business Plan will deliver a 15-month high level roadmap and capital intentions, see below. Lines marked with an asterisk * are business-driven projects. Lines with (I) are ISS initiatives.



Legend

Afaria: a product option for managing mobile devices
DBC: Detailed Business Case
GUI: Graphical User Interface (or dashboard)
IDAM: Identity and Access Management
MDM: Mobile Device Management
POC: Proof of Concept
QW: Quick Win

Appendix 2: Glossary of terminology

Term	Definition
AMPs	Asset Management Plans
Better Public Services (BPS) Programme	The BPS reform programme aims to deliver better public services within tight financial constraints, has 10 specific result targets, including two relating to improving citizen and business interactions with government.
Business Intelligence	Business intelligence or BI is the set of techniques and tools for transforming raw data into meaningful and useful information for business analysis purposes
BSS	Business Support Services – a team in DOC's Information Systems and Services business unit that looks after DOC's bespoke software applications.
Business plan	A formal statement of business goals, reasons they are attainable, and plans for reaching them used as a decision-making tool
Capability	A capability is what an organisation needs to deliver its business strategy and achieve its outcomes. Capabilities encompass people (competencies), processes, information, and technology.
CCB	Change Control Board – is the final decision point before a change is implementated into production.
Client	DOC's business groups who receive Information Systems and Services (ISS) support
Commodity ICT asset	ICT assets that DOC may require (eg, network infrastructure, data centres, common business software, desktops, and cellphones) and where there is significant market competition for supply.
Common capability	A capability leveraged across all-of-government. Existing examples include Infrastructure-as-a-Service, Desktop as a Service, and many others
CIE Programme	Conservation Information Ecosystem (CIE) Programme is

Term	Definition
	a strategic initiative to enable a new way of working for DOC
CIE Board	The group of senior leaders in DOC who will provide business governance oversight and leadership for the ISSP to ensure benefits are delivered
Customer	Visitors, tourists, operators, external audiences, stakeholders
CRM	Customer Relationship Management information software system that supports a complete Customer Relationship Strategy and related business processes
Data and analytics	The science of examining raw data with the purpose of drawing conclusions about that information
Data Governance Maturity Model	A framework to measure and develop an organisation's level of maturity in managing data and information.
Enterprise content management (ECM)	ECM tools are used to create, store, distribute, search, archive and manage unstructured content such as scanned documents, email, reports, images and work processing files.
ESS	Enterprise Systems Support – a team in DOC's Information Systems and Services business unit that looks after software applications.
Evidences	Resources, or supporting material, or content in various formats.
Four Year Plan	The Four Year Plan (4YP) provides an integrated view of a DOC's medium term strategy and supports the DOC's decision-making about priorities and resource.
GIS	Geospatial Information Systems – system for storing and manipulating geographical information on computer.
Geospatial Services	A team in DOC's Information Systems and Services business unit that looks after DOC's geospatial services.

Term	Definition
ICT	Information Communication Technology
Identity and Access Management	The tools and policies that manage identity information, authentication and authorisation of service users – for staff, members of the public and organisations.
IQA	Independent Quality Assurance describes a wide variety of quality assurance processes used to improve outcomes, may also be called a 'health check'
Information management	The way DOC plans, identifies, creates, receives, collects, organises, governs, secures, uses, controls, disseminates, exchanges, maintains, preserves and disposes of information.
Infrastructure-as-a-Service (IaaS)	A vendor-hosted and managed Common Capability that enables agencies to buy their computing infrastructure, on demand, from approved providers.
ISS	Information Systems and Services is the business unit that supports DOC's information communication and technology (ICT) and delivers ICT services.
ISS PO	ISS Portfolio Office – manages the ICT programme of work and projects in the ISS business unit.
Infrastructure-as-a-Service (IaaS)	A vendor-hosted and managed Common Capability that enables agencies to buy their computing infrastructure, on demand, from approved providers.
ISSP	Information Systems Strategic Plan is the information technology component of the overall business strategy, covering people, data, policies, processes, systems, emerging technologies.
Mobility	Enabling a mobile way of working in the field for DOC staff
New Zealand Geospatial Strategy	This strategy aims to better coordinate and manage the use of New Zealand's geospatial resources across all tiers of society.

Term	Definition
NVBS	National Visitor Booking System
Operating model	A strategic model that illustrates the relationships between operating units and the wider systems with which they interact. An operating model provides a set of guidelines for both business and technology architectures and infrastructures.
Productivity	Efficient use of funds, resources and workforce for conservation gains
Quality assurance	A method to ensure that work satisfies the appropriate quality standards and customer acceptance.
Result 9	Better Public Services (BPS) target: New Zealand businesses have a one-stop online shop for all government advice and support they need to run and grow their business.
Result 10	Better Public Services (BPS) target: New Zealanders can complete their transactions with government easily in a digital environment.
Technology roadmap	A plan that matches short-term and long-term goals with specific technology solutions to help meet those goals
SaaS	Software as a Service
SAP	SAP is our financial management system used to run financials, asset management, mobile work manager, and plant maintenance.
SLA	Service Level Agreement
SOP	Standard Operating Procedure
Vendor/Supplier	A person or organisation that provides goods or services to the Department of Conservation

Tō tātou taiāo. Tō tātou hītori. He tāonga tūturu nō Aotearoa. Maioha rawatia. Poipoia rawatia. Tukua!

Our nature. Our history. It's New Zealand’s unique legacy. Enjoy it. Enrich it. Pass it on.

ABOUT ICT AT DOC

ICT at DOC is managed by the Information Systems and Services (ISS) group.

ISS VISION

Information Systems and Services is a valued partner supporting DOC achieve New Zealand is the greatest living place on Earth.

ISS PURPOSE

To actively promote and deliver quality Information Services to our partners and clients enabling them to achieve conservation outcomes.

DETAILS

Chief Information Officer: Ashley Mudford

Information Systems and Services staff: 113

Desktops: 1311

Mobile PCs: 886

Hand-held devices: 456

Total screens: 2859

Published by:
Department of Conservation
PO Box 10420
Wellington 6143
New Zealand
April 2015

Editing and design:
Publishing Team, DOC National Office

This publication is produced using paper sourced from well-managed, renewable and legally logged forests.

New Zealand Government

Cover image: Trampers in the Acheron Valley, Molesworth.
Photo: Brian Dobbie, DOC