New Zealand Government

Government ICT Strategy and Action Plan to 2017

June 2013

Forewords

From the Minister of Internal Affairs

The Government has brought the challenge of managing ICT front and centre. We are serious about providing better, faster and more secure services to New Zealanders. This requires a strong move towards online services, better protection of New Zealanders' private information, more collaboration between government departments, and a change in public service culture.

Our Better Public Services challenges include two which focus on public sector ICT:

- New Zealand businesses have a one-stop shop for all government support and advice they need to run and grow their business (Result 9); and
- New Zealanders can complete their transactions easily with government in a digital environment (Result 10).

Achieving these targets requires a transformation in our approach to ICT. Within four years, we want all new services to be offered online. This will ultimately be faster and more convenient than paper forms and travelling to physical offices. In saying this, we will continue to recognise the importance of face-to-face services for those without internet access.

The introduction of the online passports system in 2012 is a fantastic example of what we can achieve.

The online system is much cheaper to run, meaning that we have been able to lower passport fees; and the average turnaround time is faster than ever. We have kept the ability for New Zealanders to apply for passports using paper forms, but increasingly people are choosing to go online instead.

As more services move online, New Zealanders need to have confidence in the way their information is being used. We understand the importance of protecting people's personal information, and this is a key focus of the *Strategy and Action Plan*. Nothing is more paramount to building public trust and meeting our Better Public Services targets.

Information will also be protected in a way that results in less duplication – so that New Zealanders don't have to provide the same information to different departments, over and over again.

We also want to see better collaboration between government departments, so they work and invest together to achieve economies of scale. This includes a coordinated approach to investment, choosing lower cost models and shared infrastructure. Our ambition is to save $100 million a year by 2017.

Achieving these changes requires strong leadership. The role of the Government Chief Information Officer will be crucial. The public sector will also be working more collaboratively with industry to harness private sector expertise.

We all need to lift our game to enable change. This *Strategy and Action Plan* illustrates the direction we need to take. With the next steps mapped out, we all have a role to play in this exciting future.

I would like to thank the ICT Taskforce who brought together agencies to develop the *Strategy and Action Plan*. This is the next step in a transformation of government ICT that will benefit all New Zealanders.

Hon Chris Tremain, Minister of Internal Affairs

From the Government Chief Information Officer

This *Strategy and Action Plan* represents an important step forward in the goal to transform government ICT and the public services it supports.

In 2012 Cabinet gave me, as Government Chief Information Officer (GCIO), the mandate to integrate the plans of all agencies, to recommend collaboration and consolidation where advantageous, and to direct government departments to adopt all-of-government initiatives.

The *Strategy and Action Plan* gives effect to the mandates I have as the functional leader of government ICT.

The secret of a good strategy is in how well it continues to achieve its goals in an environment where the only certainty is that things will change.

Citizens' expectations are changing and government has to change to meet these expectations. The future of government ICT is not just about technology. It is also about how the government uses information and technology to deliver better services in a constantly changing environment. This is the focus of this strategy.

A prerequisite for growth in the use of digital services is confidence that government is keeping private and confidential information safe. In cooperation with central agencies, I will deliver an enhanced system of assurance.

To achieve the strategy's goals, agencies will need to work together to drive system level changes and deliver better public services. Government agencies have always co-operated to some extent and all-of-government ICT initiatives have taken off in recent years. What is needed is integration rather than alignment.

However, our current model of having ICT and operational strategies that are specific to agencies perpetuates fragmentation and duplication.

In the future we need to see government services, underpinned by ICT, as a single, coherent system that integrates to meet the needs of citizens, businesses and government.

We can achieve economies of scale and a more seamless experience for the people who use public services if agencies sign on and participate in all-of-government programmes.

This is a change in focus for many leaders in government – one where they are required to consider the wider collective interest of government in their decisions. It is essential for the success of Better Public Services that government agencies are required to look not only at their own priorities, but also at priorities across the public sector.

This *Strategy and Action Plan* captures that new approach. It is the result of work by leaders across the public service, not only ICT experts. It outlines how the public service will make the cultural and system changes needed to deliver better public services.

I would particularly like to acknowledge the work of the taskforce of agency Chief Information Officers and information management specialists who were convened to contribute to the strategy's development.

Colin MacDonald, Government Chief Information Officer

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Unlocking the value of government information and harnessing technology to deliver better, trusted public services

Preface

In October 2010 Cabinet agreed the *Directions and Priorities for Government ICT* to guide investment in, and the management of, information and communications technology (ICT[1]) in order to:

- open up government information and data;
- establish foundations for improving service delivery; and
- deliver tangible savings.

Directions for Government ICT

1. Provide clear leadership and direction
2. Support open and transparent Government
3. Improve integrated service delivery
4. Strengthen cross-government business capability
5. Improve operational ICT management

Good progress has been made. Agencies are publishing high-value public data[2] for re-use, the number and uptake of online services is increasing, and all-of-government technology infrastructure solutions are delivering cost savings. Significant achievements to date include:

- identity verification services;
- data.govt.nz and the publication of over 2,200 datasets;
- Infrastructure-as-a-Service;
- Landonline land survey and title service;
- the SmartGate automated passenger processing service; and
- rationalised supply contracts.

Notwithstanding this progress, in many ways government's business models still reflect the approaches and structures of the 1980s and '90s, with Internet technologies having been gradually 'clipped on' to deliver incremental benefits. Systems, processes and service delivery channels are still largely siloed within individual agencies, meaning people and businesses still need to understand how government is organised, and to act as an integrator across agencies. This has resulted in persisting issues in government ICT and its operating model, which must be addressed if more customer-focused and efficient public services are to be delivered:

- agency projects are often too big, take too long to deliver, and need more assurance support, leading to high project risk and some failures;
- agencies too rarely re-use systems which are available 'off the shelf' or have already been commissioned by another part of government, instead opting for bespoke solutions, leading to wasteful duplication and fragmentation;
- infrastructure is still somewhat duplicated and not optimised;
- a lack of coordinated investment has created cost inefficiencies;
- system, process and information interoperability is low, constraining service delivery and decision making;
- business case development costs are too large; and
- procurement timescales are too long and costly, often squeezing out all but the largest suppliers.

The Canterbury earthquakes, global financial crisis and changing expectations of how people want to access services all mean the Government expects the State sector to lift performance further and to be innovative in addressing such challenges. The *Strategy and Action Plan* builds on the *Directions and Priorities for Government ICT*, addresses persistent issues, and reflects the additional imperatives of the Better Public Services programme.

[1] ICT spans information management, technology infrastructure, and technology-enabled business processes and services.

[2] Non-personal, unrestricted data.

Transforming government ICT

ICT is not just about technology – it's about the ways in which information and technology are used to deliver better services and enhance trust and confidence in government

Government has charged the Government Chief Information Officer (GCIO) with leading government ICT to provide system-wide assurance, enable integrated digital service delivery, and deliver sustainable business savings of $100 million per year by 2017.

The *Strategy and Action Plan* is the response to this challenge. It sets out an action plan to transform service delivery through digital self-service channels and to unlock the full economic potential of government's information holdings.

It proposes an exit from owning and operating commodity technology assets in favour of a services-based model, and a maturing of the risk assurance framework. These combined approaches, together with other improvement programmes, will deliver the required savings and necessary enhancements in service delivery.

Delivering this plan requires a new operating model that provides system-wide coordination of investment, resources and capabilities, and develops business leaders across the system that can harness the full potential of technology and leverage information assets for transformative gains. This will not be a fully centralised model, but rather one that increases capability sharing. Achieving this in the required timeframe will require streamlined decision making processes and clearly understood decision rights.

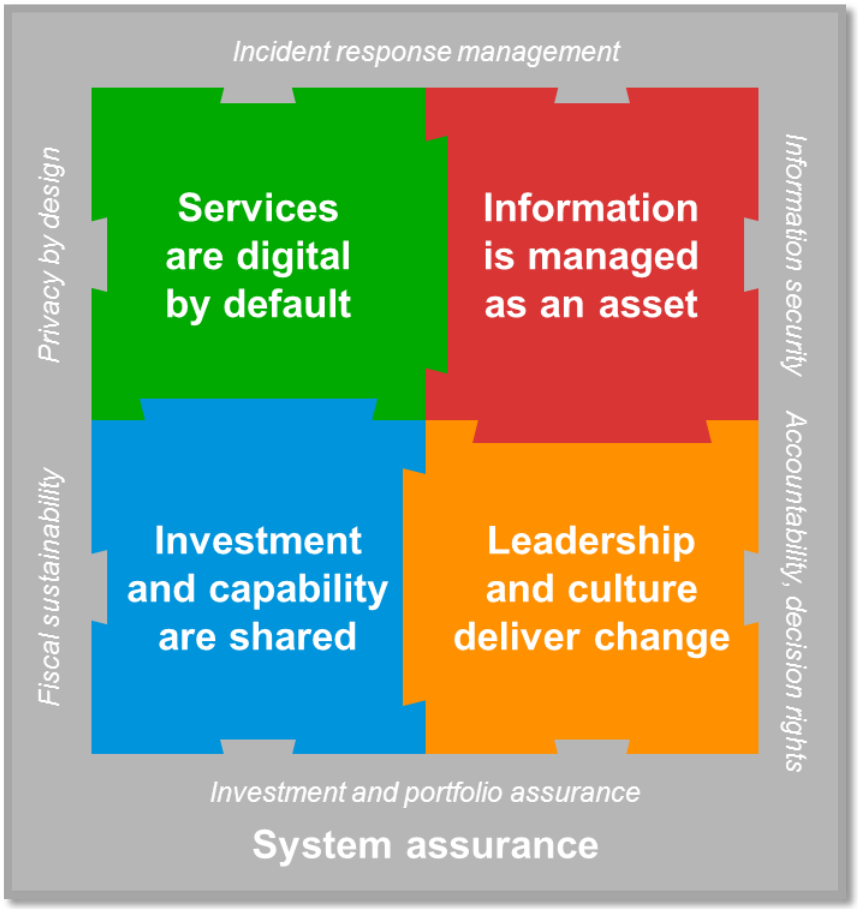
State Services agencies will be expected to align their plans with the *Strategy and Action Plan*.

The *State Sector and Public Finance Reform Bill* proposes amendments to the Crown Entities Act 2004 to support functional leadership, by expanding the purposes for which a whole-of-government direction can be applied (including purposes relating to functional leadership) and may provide additional ways to direct appropriate Crown entities to adopt common ICT capabilities and other initiatives within the *Strategy and Action Plan*. This wider uptake will deliver further economies of scale and enhance system benefits realised through the *Strategy and Action Plan*.

Government will also need to work more collaboratively with industry in new ways to ensure new capabilities are developed and provided by the best able and most appropriate parties.

Focus areas

The strategy is supported by a comprehensive action plan organised into four integrated focus areas, each including system assurance components.



Services are digital by default. Government information and services must be joined up and easy to access through common customer-centric digital channels.

Information is managed as an asset. Information and data is at the core of all government services, and government is the guardian of this asset on behalf of the New Zealand public. Exercising this responsibility, while making more effective use of this critical resource, is at the heart of transforming government services for citizens and businesses.

Investment and capability are shared. Government's investment in information and technology must be integrated, leveraging common capabilities to deliver effective and efficient public services.

Leadership and culture deliver change. Leadership and culture change are needed to give effect to the *Strategy and Action Plan*. As the functional leader of government ICT, the GCIO must set expectations with agencies based on an overview of all agency needs and business plans. Change needs to be delivered collaboratively, with delegated decision rights and clear accountabilities that connect at a system level.

System assurance. The system of assurance must be strengthened to manage information and technology risks, and the quality of government's ICT-enabled projects and services. This must apply across the spectrum of investment decision making, development, operations, benefits tracking, replacement and decommissioning. Accountabilities will be clarified, with the GCIO providing the central point of coordination and reporting.

System assurance activities are not presented as a separate focus area. Instead they are integrated into each of the four listed above.

The *Strategy and Action Plan* is outcome-focused, and while the action plan outlines a clear direction of travel, it must also remain flexible to be adjusted over time as priorities and circumstances change.

Prioritisation

The action plan brings together a number of significant cross-government and agency programmes already underway, in some cases expanding their scope. Initiatives will typically require business cases and be subject to portfolio management. New initiatives will be added as concepts and benefits are proven.

In addition to identifying completely new initiatives, the *Strategy and Action Plan* includes a mix of actions that have already started, some that have not yet commenced but have committed resources, and some existing initiatives that will require an increase in scope to meet the Government's transformation goals.

Priority has been given to actions which need to start early in order to contribute to the $100 million savings target, and deliver improved customer services and system assurance. Early delivery of ICT investment planning changes and the development of a new operating model are both critical to the success of the *Strategy and Action Plan*, and will both be prioritised by the GCIO and central agencies (State Services Commission, The Treasury and the Department of the Prime Minister and Cabinet).

Strategy objectives

The *Strategy and Action Plan* seeks to:

- create effective and efficient integrated service delivery models;
- realise new value from government information assets;
- optimise the use of scarce resources and capabilities;
- strengthen assurance systems to manage risk and quality;
- deliver a migration path for aging legacy systems;
- leverage scale and efficiencies;
- partner with the private sector and non-governmental organisations; and
- increase the pace of change.

Guiding principles

- **Centrally led, collaboratively delivered**. The *Strategy and Action Plan* will be led by the GCIO and delivered in collaboration with agency chief executives.
- **Customer centricity**. Customer insights must inform service design and delivery. Customers should be shielded from the internal complexities of government.
- **Trust and confidence**. Build public trust and confidence in government's ability to maintain the privacy and security of information. This underpins our ability to use digital channels.
- **Simplify by design**. Remove complexity, fragmentation and duplication, and re-engineer business processes end-to-end.
- **Share by default**. Capabilities must be shared by default rather than by exception.
- **Openness and transparency**. Non-personal information is a public asset that must be open by default for economic and social benefit.

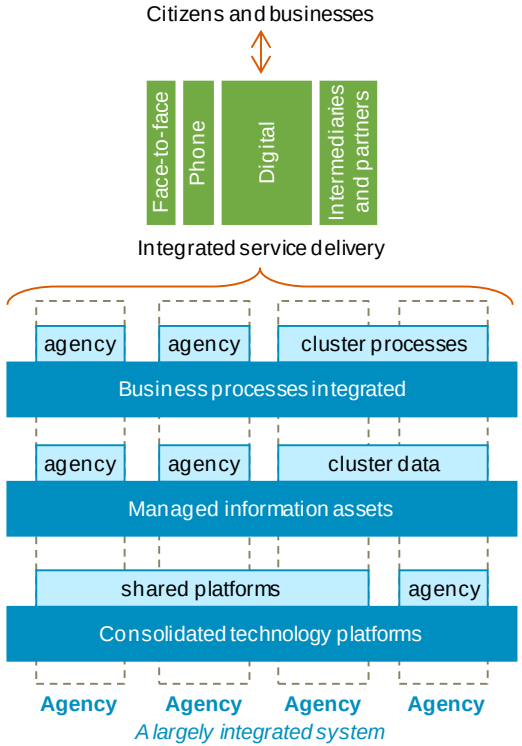
The future of government ICT

Unlocking the value of government information and harnessing technology to deliver better, trusted public services

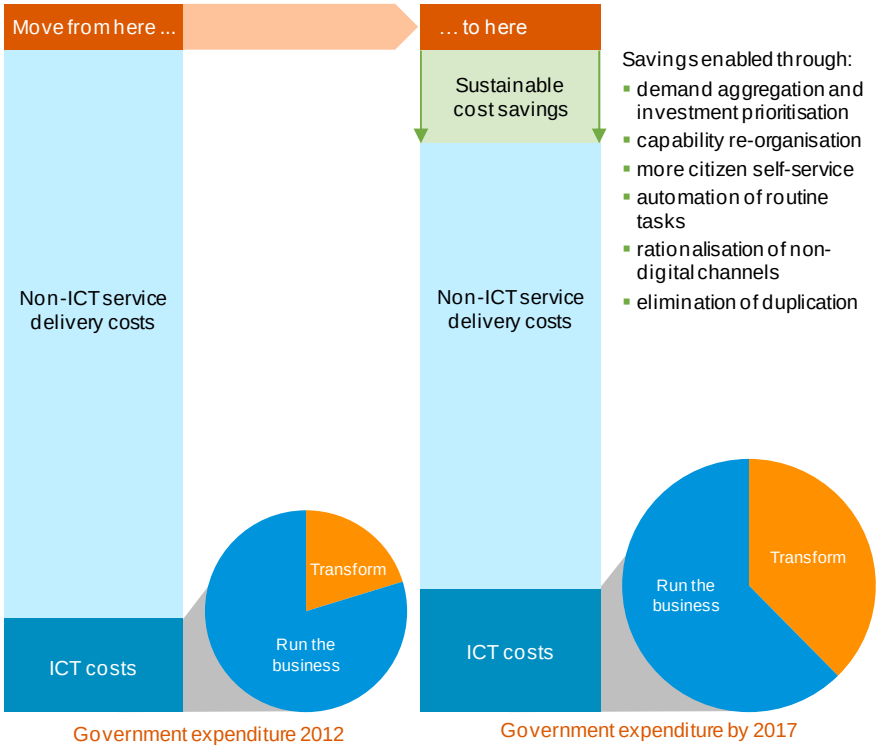
We live in an era where smart mobile devices, social media, collaboration tools and cloud computing are continually changing how people interact with government, businesses and each other. Information is the currency, shaping services, and targeting and channelling customer behaviour.

ICT is the critical enabler that will allow government to take advantage of the opportunities in today's 'hyper-connected' and information-rich world to create responsive 21st century State Services. The future for government ICT is envisaged as information-centric rather than the technology-centric model of today, transcending agency boundaries to deliver smarter customer-centred services and being characterised by:

- citizen and business accounts offering personalisation and customisation;
- government information and services being joined up and easy to access through common customer-centric digital channels;
- processes being defined by end-to-end boundaries from the customers' perspectives (for example starting a new business);
- business processes being presented as services that can be consumed and aggregated for customers by other processes and parties, including partners;
- security and privacy measures being integrated into the design and adoption of all new services and technologies introduced;
- analytics providing a holistic view that better supports service planning, service delivery and evidence-based policy;
- information being open by default, and sharing being widespread, encouraging knowledge creation and innovation – including by the private sector;
- ICT-enabled business systems deliver the expected benefits;
- agencies focusing on their unique business systems and buying-in more common capabilities;
- non-core/commodity ICT assets being eliminated from agency balance sheets and procured as operational 'as-a-service' expenses focussed on reducing unit costs over time;
- stronger central direction supported by collaborative leadership;
- highly standardised cloud computing platforms providing the majority of government's computing resource; and
- assembling and integrating being standard – there will be fewer bespoke developments.

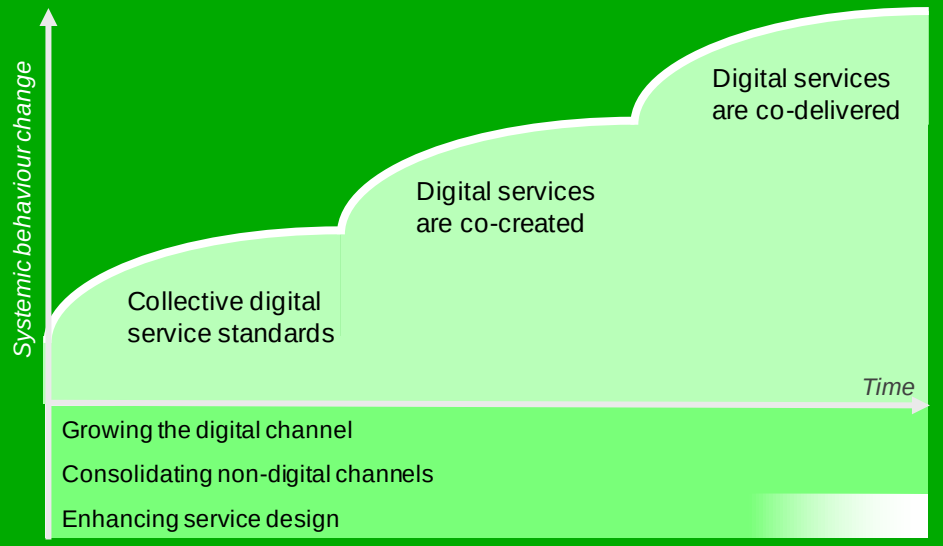


There are significant opportunities to reduce the cost of delivering government services at the same time as the range and quality of services is increased. Investment in ICT may increase over time to deliver overall business savings. Investment will focus on business and service improvement. At the same time the cost of building and operating technology assets will be reduced.



SERVICES ARE DIGITAL BY DEFAULT

- Grow the digital channel
- Consolidate non-digital channels
- Enhance service design



Services are digital by default

Destination 2017

By 2017 all new transactional services will be established following a 'digital by default' approach, reflecting the changing expectations of individual and business customers. There will be unified online transaction hubs for citizens and businesses. While support will continue for customers who choose to use other channels, savings will be realised through rationalising non-digital service delivery channels. Intermediaries will be delivering an increasingly rich range of (often aggregated) services on behalf of government. By 2017:

- the cost and the need for direct interaction between customers and government agencies will have been reduced;
- security and privacy by design will be the norm;
- it will be easier for customers to find and access services; and
- services will be accessible to partners and intermediaries in machine-readable form so that services can be better integrated and new value can be added.

The changes we need to make

In recent years the number of digital government services has grown significantly. Examples include online tax services, passport renewal, student loans, Working for Families, Companies Office services, and Landonline. Whilst uptake of government services is increasing, users still too often must navigate services that are fragmented across multiple channels because systems, processes and service delivery channels are siloed within individual agencies. There needs to be greater coordination between agencies to focus on the needs of customers.

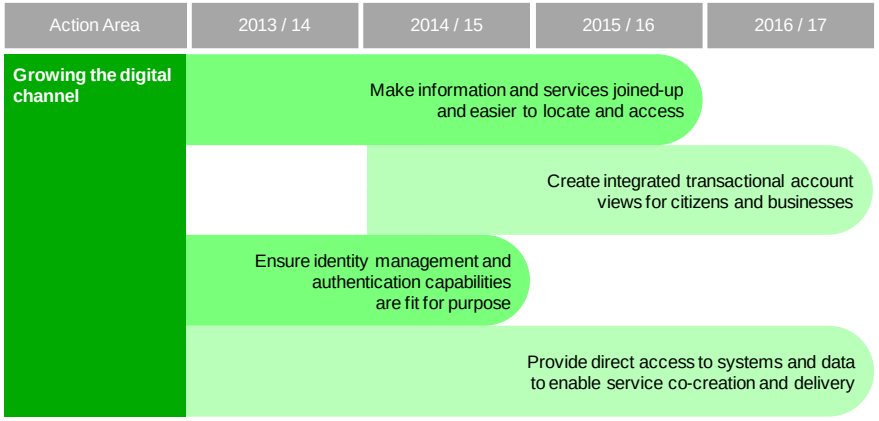
The ways in which people access the Internet and digital services are also changing, with mobile device use now commonplace. People expect to be able to access services any time, from anywhere. Whilst meeting demands for greater choice and mobility, government also needs to assure privacy and confidentiality.

Improvements in service design, process re-engineering and greater coordination of investment will permit the development of new and smarter services that cost less to deliver. The *Strategy and Action Plan* has been developed in collaboration with agencies leading government programmes to improve services.

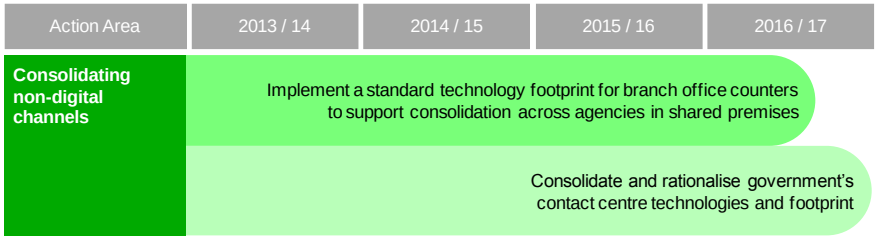
RealMe services will enable real time authentication and sharing of verified personal information about people transacting with both government and private sector organisations. The individual will remain at the centre of all service interactions, controlling the exchange of their RealMe information between organisations. RealMe will be deployed on a secure platform, with services based on 'privacy by design' principles.

Growing the digital channel. The range of government services available online will continue to expand and will be more easily discovered and accessed by customers. Greater service integration, increased use of the private sector to design and deliver services, and shared technology and process 'building blocks' will enable digital services to be established more readily and securely. These will include centrally-delivered business architectures and common capabilities (services and sources of authoritative data), and also secure access for partners and intermediaries to government systems to enable co-design and co-delivery. This will reduce the cost of implementing new services and make them easier to deliver through digital channels. Initially key service and compliance information will be presented, in higher quality and more easily used forms than are currently available.

Currently customers have to act as ‘integrators’ of government services, requesting information from one agency in order to provide it to another. Integrated services across agencies and channel partners will deliver more ‘packaged’ services that better meet the needs of people and businesses. Digital will be the default and primary channel for transacting with government, though customer choice will be retained.



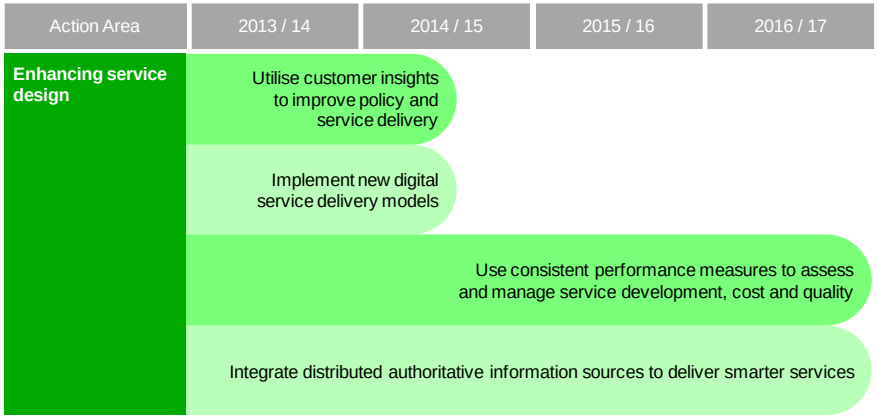
Consolidating non-digital channels. Non-digital channels (call centres, counters) will become ‘operator assisted’ interfaces into the self-service digital channel as appropriate. Non-digital channels will be actively supported by ICT and rationalised as transaction volumes reduce over time, to reduce costs.



Enhancing service design. Top-quality, smart online services must be designed from the ground up to be ‘digital by default’. Service design and delivery monitoring principles will be developed and embedded through all-of-government programmes improving service delivery, to ensure that quality, privacy, security and long-term information accessibility needs are well understood and reflected in service design.

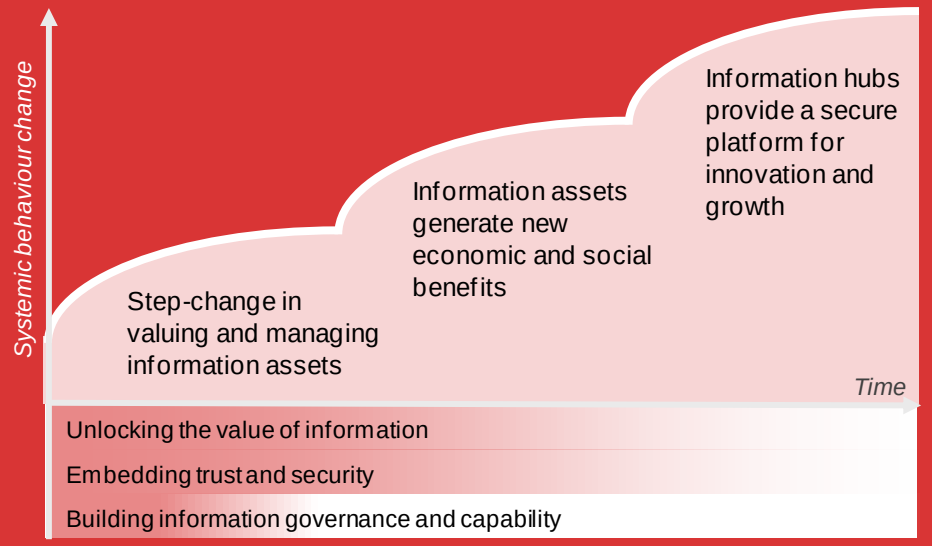
In order to deliver truly customer-centric digital services and increase the use of digital channels, services must be easy to use and designed with customer wants and needs being front-of-mind. Shared digital service delivery models are needed to enhance the consistency and quality of the customer experience across government, and align services to appropriate delivery channels. Early activities will define and set baselines for shared performance benchmarks that will allow agencies to better understand the factors that drive trust and confidence in digital services. Stakeholders will be engaged in the service design process through the use of social media and other means of engagement.

Central and local government also require frequent engagement with stakeholders to inform policy and decision-making processes. Good quality engagement is both resource and expertise intensive, and the increasing use of online social media raises public expectations regarding interactions with government. An online consultation and engagement service will make participation more easily accessed and coordinated.


Action Area
2013 / 14
2014 / 15
2015 / 16
2016 / 17
Enhancing service design
Utilise customer insights to improve policy and service delivery
Implement new digital service delivery models
Use consistent performance measures to assess and manage service development, cost and quality
Integrate distributed authoritative information sources to deliver smarter services

INFORMATION IS MANAGED AS AN ASSET

- Unlock the value of information
- Embed trust and security
- Build information governance and capability



Information is managed as an asset

Destination 2017

By 2017 the full value of government-held information will be recognised and actively used in designing and delivering new services, supporting evidence based policy-making and optimising decision-making. High-value information assets will have been catalogued, rationalised and integrated to deliver authoritative data sources. There will be greater confidence in the security of personal and classified information. Government recordkeeping practices will be 'digital from inception'. Whole-of-life information management will be value focused, support the development of new joined-up services, and be open by default.

The vision for the future management of government-held information is ambitious and will deliver real benefits to New Zealanders. The economy will derive maximum value from information assets being used more effectively within government and re-used in innovative ways by businesses, social organisations and individuals. New Zealand's democratic and transparent traditions will continue to be held in high regard.

The changes we need to make

Currently, information is duplicated across multiple systems and agencies, meaning New Zealanders have to provide the same information many times to many agencies. The management of information is predominantly the responsibility of ICT units rather than business units. Management accountabilities and practices are not only fragmented and inconsistent across the information management lifecycle, but also encourage or require agency-centric approaches. While progress has been made in establishing strategies for individual information domains and in the use of common technology capabilities, significantly more needs to be done to embed a paradigm of common information capabilities and shared, authoritative data sources.

The focus for information management in the *Directions and Priorities for Government ICT* was on supporting open and transparent government. This included releasing public data to encourage economic, social and cultural growth through enabling non-governmental organisations and individuals to create new products and services and generate wider participation in the development of government policy.

The *Strategy and Action Plan* expands this focus from supporting open data initiatives to strengthening guardianship and enabling the creation of new value. Government-held information is a strategic asset that offers significant opportunities to leverage its value to better support service design and delivery, policy development and decision making. Taking an asset management approach will change the way investment, benefits, governance and security are coordinated. There will be an increased emphasis on non-personal information being made 'open by default', with more information shared effectively between agencies and made publicly available in a way that facilitates re-use.

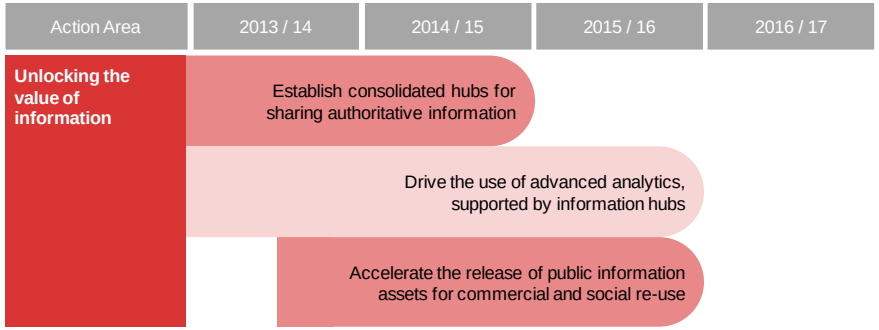
At the same time further work is needed to protect private and restricted data; this is pre-requisite to New Zealanders' confidence in public services. Effective information governance and guardianship requires clear management practices that ensure security and privacy controls are pervasive across channels, devices, networks and applications. Government services must follow 'privacy by design' principles.

Unlocking the value of information. Public (non-personal, unrestricted) information is a national asset that must be open by default and available to be re-used for economic and social benefit.

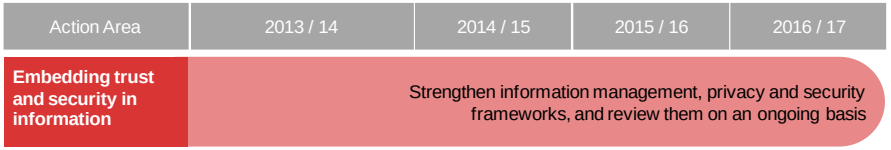
In future, the true value of government information will be better utilised to transform the business of government through better-informed policy development and the delivery of new and improved services to New Zealanders.

There are opportunities to benefit from maturing Internet technologies to transform the management and use of information. The concept of information hubs will be trialled, promoting a 'sectoral' approach to the management of information. This will enable the rationalisation, consolidation and integration of information assets to establish (often virtual) authoritative data sources and more effective analysis of anonymised data to inform policy development and decision-making.

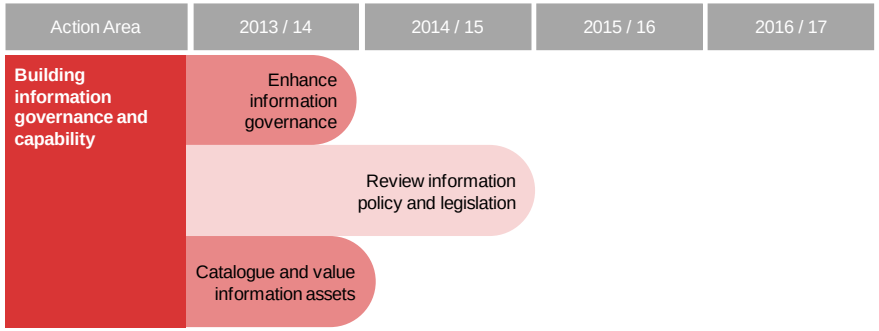
Businesses and other non-governmental organisations and individuals will continue to create additional value from government information assets through developing new knowledge and services to generate economic, social and cultural dividends. Agencies too must be able to take greater advantage of shared information.



Embedding trust and security. To build on New Zealand's democratic tradition of openness and transparency, Government has committed that the information it holds on behalf of the public will be open where appropriate, trusted, authoritative, well managed, readily available (without charge where possible), and re-usable. Personal and classified information must be protected, secure and private, and only accessed and used for authorised purposes. This becomes even more critical in a digital world experiencing explosive growth in data volumes and where government services are increasingly available online. Capability and management awareness must be lifted. An enhanced assurance framework for managing and reporting on the protection and security of government-held information is needed. Protection must keep pace with digital service design.

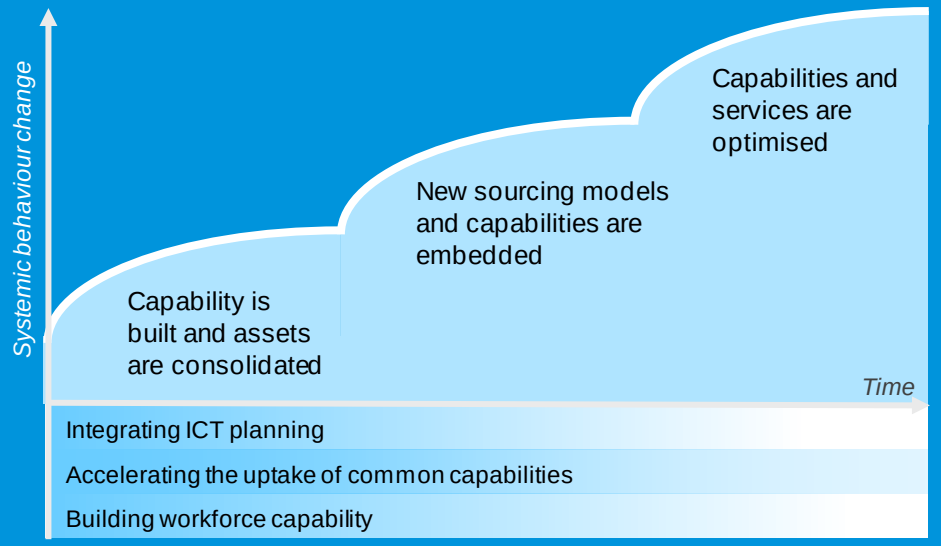


Building information governance and capability. Unlocking the full value of government information requires active and visible leadership. To support this, governance will be enhanced to include stronger roles and accountabilities associated with managing, securing and leveraging government's information assets. Effective stewardship of government-held information will be a key responsibility for all public servants charged with delivering public services and protecting private or classified information. To take advantage of these new opportunities, a comprehensive appraisal of the value of government information is needed. An information 'stocktake' and valuation will inform investment decisions regarding the collection, protection, publication and whole-of-life management of information across government. Legislative and policy settings will be reviewed to understand how more effective use can be made of information assets.


Action Area
2013 / 14
2014 / 15
2015 / 16
2016 / 17
Building information governance and capability
Enhance information governance
Review information policy and legislation
Catalogue and value information assets

INVESTMENT AND CAPABILITY ARE SHARED

- Integrate ICT planning
- Accelerate the uptake of common capabilities
- Build workforce capability



Investment and capability are shared

Destination 2017

By 2017:

- agency ICT strategies and investment plans will be centrally guided for prioritisation and rationalisation;
- the creation of new capabilities will be driven by aggregated agency needs;
- agencies will be working together to deliver ICT enabled solutions as a matter of course;
- the use of scarce specialist capabilities will be optimised, and ICT projects more effective, through sharing resources and taking a system view to managing external capability;
- ICT business models will have shifted from focusing on operating and maintaining assets to being service-centric;
- government's engagement with the market will be more mature and coordinated more often at a system level; and
- government ICT investments will focus on the lowest total cost of ownership over time, delivering more affordable and sustainable services.

The changes we need to make

Currently, technology investment planning is agency-specific, often near-term focused, and is biased significantly towards the purchase of technology infrastructure capital assets. Pressure on agencies' capital / depreciation budgets and uncertainty over future funding have created inefficiencies across the system, typically meaning infrastructure assets are over-specified at the start of their life and then 'sweated' long past their useful lifespan, introducing significant operational risk.

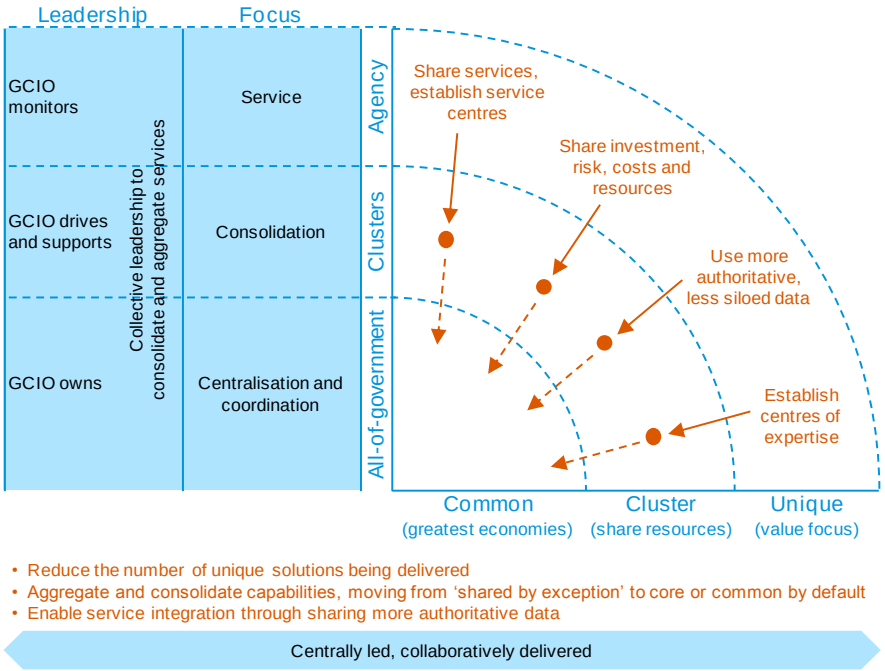
Whilst some significant progress has been made to date in addressing infrastructure assets through initiatives such as Infrastructure-as-a-Service and syndicated procurement agreements, there are further opportunities to rationalise the Crown's substantial commodity end user computing (PCs, laptops, tablets, etc.) asset base, and to potentially move these assets off the Crown balance sheet altogether through the Cloud Desktop-as-a-Service initiative. New arrangements are needed to support agencies to divest assets and transition to all-of-government solutions, and to centrally consolidate the Crown's legacy infrastructure asset holdings.

Many agencies have made substantial investments in one or more large, unique business software applications, either from a package vendor or as a bespoke development. These assets represent the core intellectual property within government's technology asset base, but are also often some of the most neglected assets in the portfolio, typically eventuating in a need to completely replace systems due to risk of failure. It is this portfolio of applications that the *Strategy and Action Plan* proposes to manage in a significantly more integrated and coordinated manner, to ensure that such systems:

- leverage common, standard technology platforms, procured 'as-a-service' to drive scale efficiencies;
- are appropriately modularised so that component parts can be upgraded over the expected life of assets;
- re-use existing functionality components from across the system wherever possible, to reduce duplication and fragmentation;
- support end-to-end business processes rather than stopping at agency boundaries;
- fully align with government priorities driving a more joined-up service delivery model; and

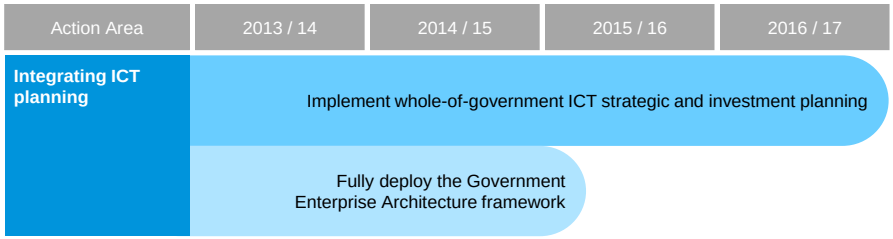
- are delivered on time and to budget, and generate the expected benefits.

Given the number of agency, sector and all-of-system initiatives in concurrent implementation, a robust benefit tracking and realisation framework must be in place from the beginning of the *Strategy and Action Plan*'s implementation, to ensure benefits are traceable, realised, and not double-reported between investment initiatives. There is also an opportunity to re-invest some or all of the direct financial benefits into later year actions presented in this plan to further accelerate change.



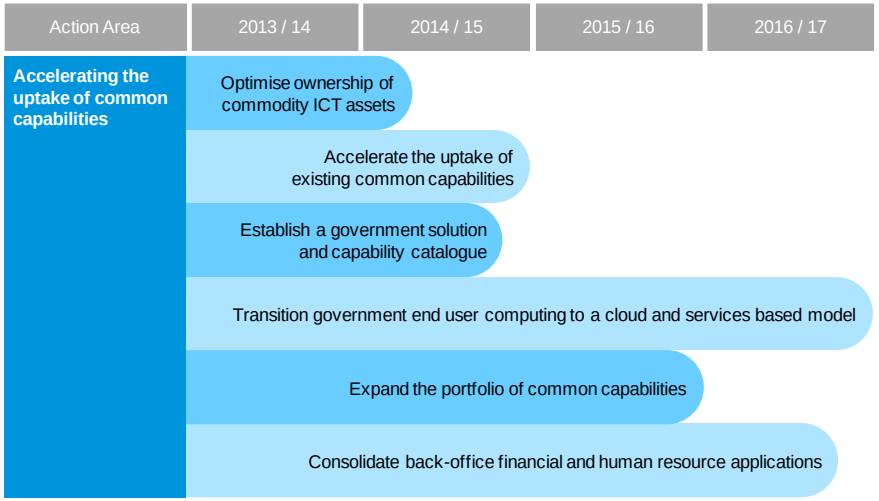
Integrating ICT planning. Currently, there are varying levels of maturity in strategic and investment planning and forecasting, making it challenging to take system level investment decisions. In order to address some of the persisting issues faced across the system, planning must become more sophisticated and transparent so that opportunities can be identified and government can leverage its scale. Government agencies need clear, concise ICT strategic planning expectations. The GCIO will establish guidelines and criteria to guide agencies in making commercial and investment decisions, to enhance benefits realisation.

Investment decisions need to be informed by authoritative information. The GCIO will maintain a system-wide view of agencies' collective technology investment intentions. This will be used as the basis for a government ICT investment plan that will identify aggregation opportunities, reduce duplication, and allow investment in ICT to be prioritised in order to deliver smarter public services and drive cost savings.



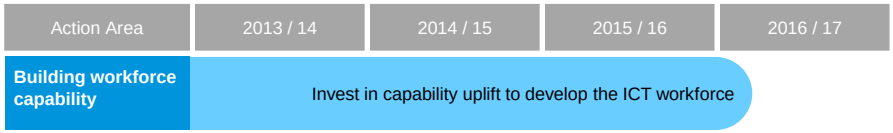
Accelerating the uptake of common capabilities. Common capabilities are shared building blocks which agencies must adopt to improve service delivery and better manage their ICT portfolios for lower cost. The delivery of common capabilities will be accelerated through an integrated system investment plan and a new government ICT operating model, and reprioritised based on aggregated agency demand and the delivery of system-wide benefits.

This strategy seeks to remove commodity ICT assets from the Crown balance sheet. The transition to commoditised services will be accelerated through a combination of leasing, cloud 'as-a-service' uptake, and incentive arrangements for transitioning from capital to operating expenditure.



Building workforce capability. ICT skill and workforce needs are constantly changing. Under the new operating model communities of practice, centres of expertise and service centres will be established to provide agencies with consistent access to expertise in high-demand functions such as security, information management, architecture and standards, supplier and contract management, and mobility. These capabilities will take various forms depending on need and may focus on the whole of government, on sectors, or on the requirements of other clusters of agencies. This is about building cohesive and shared capabilities at a system level.

Information management competency must be bolstered to deliver a step-change in the management of government's information assets and to build a high level of digital and information literacy across the public sector. A common approach to strengthening this capability is needed, calibrated against all-of-government information management competency requirements.



LEADERSHIP AND CULTURE DELIVER CHANGE

- Re-organise capability
- Develop leadership
- Enhance governance and decision making
- Collaborate, communicate and engage

Leadership and culture deliver change

Destination 2017

By 2017 there will be a step-change in the level of collaboration, with ICT governance and operating structures being connected across government. A culture of collaborative leadership and operation will be ingrained and – along with new sustainable funding approaches – will be delivering genuine agility, collaboration, innovation, and engagement with people and businesses. Information leadership will pervade government, from Ministers through to front-line delivery personnel. Assurance systems will be strengthened to manage risk and quality. The ICT workforce will work more flexibly and seamlessly across agency boundaries.

By 2017 government business leaders will better harness the full potential of ICT. Government ICT will be a 'best place to work' with staff being engaged, incentivised and recognised in new ways. ICT management decisions will be more informed by performance data.

The changes we need to make

Currently, ICT services are agency-centric, reducing opportunities for collaboration, or creating economies of scale or scope. Likewise, business units within agencies are a captive audience for their ICT units, restricting innovation, mobility and choice. The global ICT landscape has transformed in recent years and some capabilities that were historically appropriate are losing or have lost relevance. New capabilities are required to address current and emerging challenges.

Cabinet has charged the GCIO with implementing a new operating model for government ICT. A more collaborative model is being developed that will establish new decision frameworks and reorganise government ICT capability at a system level. This will centre on an increased service focus with customer and service delivery needs front of mind. Importantly, in this context 'customers' may be business units within an ICT unit's own agency, or ICT or business units in other agencies. Customer choice and mobility will be implicit, meaning the value proposition must be clear to customers and performance management must be effective.

This evolution needs to extend much further than agency ICT groups – government business leaders need to better understand the value that can be delivered through better information sharing and service integration. Coordinating ICT investment across sectors and clusters will grow in importance. Benefits delivery management will be emphasised.

Each agency has a primary affinity to a single sector and may also be affiliated with one or more additional clusters based on common services and customers.

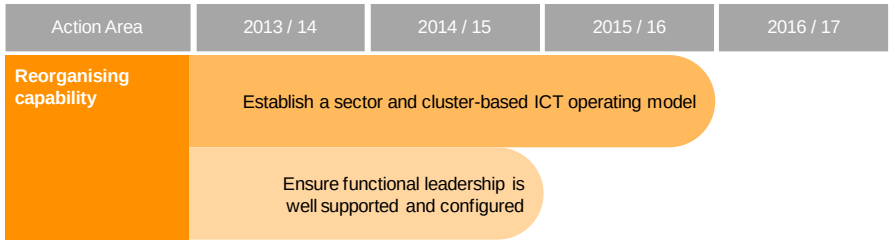
The operating model:

- is not about technology operations – it is first and foremost about cultural change to the business of government;
- must balance decision rights to encourage and empower agencies and sectors to deliver sustainable change;
- must recognise each agency's starting point will be different;
- will be challenging and will take time to fully implement, meaning it must be flexible and agile to respond to changing circumstances;
- will be independent of, yet complement, all-of-government, sector/cluster and individual agency strategies; and
- will provide assurance over government ICT through a single coordinated point – the GCIO.

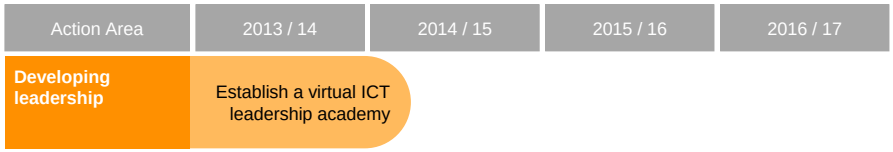
Re-organising capability. To deliver economies of scale, operationally-oriented capabilities will be consolidated into service centres. Where appropriate, expertise-oriented services will be reorganised into centres of expertise. Clusters will be defined into which agencies will self-organise.

Reorganised capabilities will be leveraged and integrated by ICT units, and delivered as services to their customers. ICT units will act as brokers of capability, focusing on sourcing capabilities from the most appropriate provider (including other agencies) to ensure the full breadth of capabilities to deliver business outcomes is available and accessible to agencies.

The capability of the GCIO, as functional leader, will be increased to deliver the operating model and provide assurance over system-wide investment in ICT. Public management system processes will be refined to empower this new operating model. This refinement will be led by central agencies in partnership with other functional leaders.



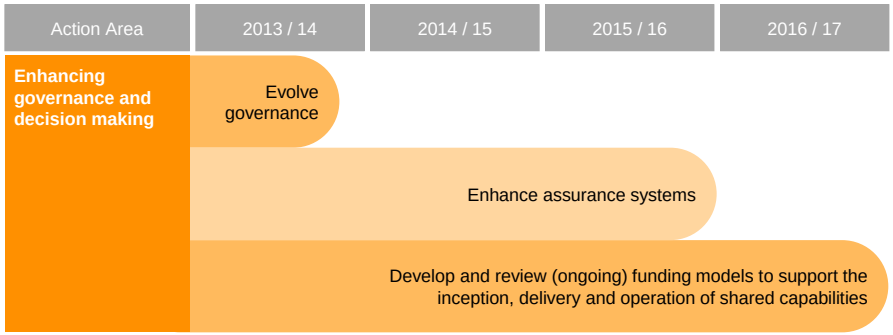
Developing leadership. State sector leaders across all disciplines have important roles to play in improving service delivery and driving better value from government's investment in ICT. The needs to make information more accessible and to increase collaboration between agencies, citizens and businesses mean it is essential that decision makers have a strong and continuously growing understanding of how information and technology can be better leveraged to improve the business of government. Skills development must be tailored for executives, business leaders, policy staff, and information and technology professionals. In the future secondments between agencies will occur more often, at more levels.



Enhancing governance and decision making. The core principle for the functional leadership of government ICT is that it is centrally led and collaboratively delivered, with the GCIO setting direction and agency chief executives participating in collective leadership arrangements. The GCIO has begun the process of realigning government ICT governance.

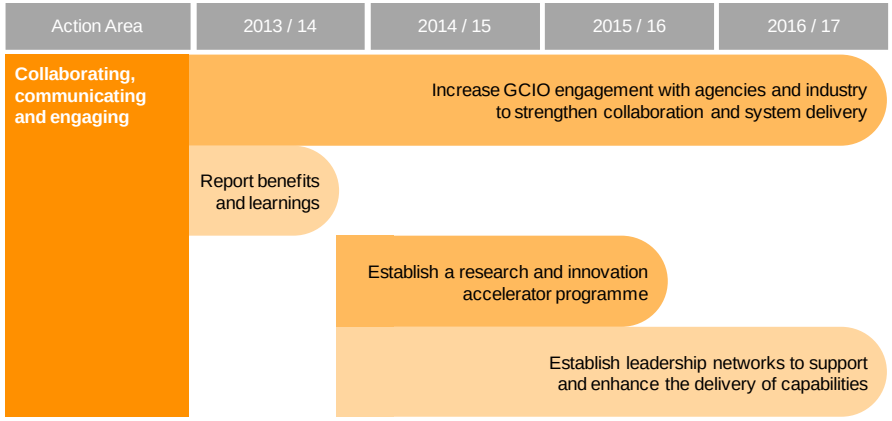
Priorities include strengthening the coordination of information management, assurance systems (including privacy and security), government ICT investment, and capability configuration. The next step will be to establish the new operating model, underpinned by enhanced quality and risk assurance systems.

New funding models are also required that incentivise and support agencies to contribute to, implement and benefit from cross-government initiatives. The Treasury is working to develop fit-for-purpose mechanisms that will support more joined-up approaches and will be more sustainable in an environment where more and smarter government services are required for less cost.



Collaborating, communicating and engaging. The State sector must position itself to innovate to take advantage of the rapid emergence of new disciplines and technologies. Supported by central agencies, the GCIO will lead work to establish centres of expertise and leadership development networks, and to promulgate examples of best practice, including outside government and internationally. The GCIO will also provide active support when agencies cluster together to deliver common solutions that align with the direction and principles of the *Strategy and Action Plan*.

Partnering with industry and 'best sourcing' will continue to grow in importance, being critical in assisting government to identify, deliver and operate new service solutions.



DELIVERING TRANSFORMATION

The system shift we need

SYSTEM CHANGE	
Today	**Destination 2017**
SERVICE DELIVERY (CHANNELS)	
• Two thirds of transactions with government are not available in any digital channel and half of New Zealanders do not transact with government digitally at all. The design of digital services reflects agency silos, meaning: - processes, tools and infrastructure are duplicated between agencies, resulting in unnecessarily high service delivery costs; - services and customer experiences are fragmented across delivery channels and agencies; and - there is insufficient coordination between agencies that centres on customer needs. • Privacy breaches have undermined trust and confidence.	• All transactions[3] with government are available in secure self-service digital channels. Digital is the default and primary channel. • Service design and delivery is informed by the voice of the customer. • Privacy protection is a core design feature subject to independent audit and verification. • Suitable transaction types are able to be easily 'front ended' by private sector intermediaries using machine interfaces, allowing them to deliver services in more integrated and innovative ways. • Citizen and business accounts offer greater convenience through personalisation and customisation. • Government information and services are joined up and easy to access through common customer-centric digital channels. • Non-digital channels (call centres, in person) become 'operator assisted' interfaces into the self-service digital channel. • Non-digital channels are actively rationalised and consolidated as transaction volumes reduce over time.

SYSTEM CHANGE	
Today	**Destination 2017**
BUSINESS PROCESSES	
• Processes are defined by agency and system boundaries, making cross-agency integration difficult. • Automation is typically not completed in real-time and requires significant human intervention. This limits service cohesion and responsiveness. • Systems largely replicate and automate historic manual processes.	• Process and workflow integration enables secure agency-to-agency interoperability of transactional systems. • Processes are defined by end-to-end boundaries from the customers' perspectives (for example starting a new business). • Processes are event driven (for example entering New Zealand) and occur in real time across agency boundaries. Systems support process automation and real-time processing wherever possible. • Process design is based on lean thinking approaches. • Processes are exposed as secure services that can be consumed and aggregated by other processes and parties, including partners. • Processes are defined in common language and registered in a shared repository for re-use.

[3] With the possible exception of very complex and/or low-use transactions.

SYSTEM CHANGE	
Today	**Destination 2017**
ICT ORGANISATION AND WORKFORCE	
• Operating models reflect 1980s and '90s thinking. ICT units are organised by function, tending towards building and operating infrastructure assets rather than information and sustainable business change. • ICT services are agency-centric, reducing opportunities for collaboration, or creating economies of scale or scope. Likewise, business units within agencies are a captive audience for their ICT units – restricting innovation, mobility and choice. • Capability is duplicated across the system, resulting in duplicated investment and challenges in effectively managing supply and demand. • The global ICT landscape has transformed in recent years and some capabilities that were historically appropriate are losing or have lost relevance. New capabilities are required to address current and emerging challenges.	• A new operating model is established. ICT units move from supporting business operations to enabling business transformation, with capabilities focused on: strategy, architecture and planning; information management; collaboration and innovation; business transformation; business intelligence; capability management; supply, sourcing and service chain management; and where appropriate, customer services. • Government ICT functions as a cohesive set of capabilities and resources. • ICT units have clear business models and focus on co-creating value with partners and customers; 'open' innovation, collaboration and partnership are the norm. • ICT units act as brokers of capability, focused on sourcing capabilities from the most appropriate provider (including other agencies) to ensure the full breadth of capabilities to deliver business outcomes is available and accessible to agencies. • To deliver economies of scale, operationally-oriented capabilities are consolidated into service centres. Where appropriate, expertise-oriented services are reorganised into centres of expertise. Reorganised capabilities are leveraged and integrated by ICT units and delivered as services to their customers.

SYSTEM CHANGE	
Today	**Destination 2017**
INVESTMENT	
• The structures and cultures driving ICT initiatives and investment are heavily agency-centric, making it challenging to lead integrated service delivery and cross-government investment decisions. • Investment planning is near-term focused and heavily directed towards technology infrastructure and the purchase and maintenance of capital assets. • ICT strategies are not always aligned with business strategies. • Cross government capabilities are considered 'opt-in' not 'opt-out'.	• Non-core/commodity ICT assets are eliminated from balance sheets and procured as operational 'as-a-service' expenses with a rigorous focus on reducing unit cost over time. • Investment is targeted toward technology assets that directly support the unique functions of government. • A coordinated system-level investment plan and Government Common Capability Roadmap is maintained that provides greater predictability, ensures assets are maintained, leverages scale, and reduces duplication and fragmentation. • Robust governance and assurance is in place to assure return on investment and benefit realisation. • Direct financial benefits are recognised and then re-invested into the system to drive further change. • ICT sourcing decisions are based on a transparent and contestable framework. • Economies of scale are leveraged.

SYSTEM CHANGE	
Today	**Destination 2017**
INFORMATION MANAGEMENT	
• Information management accountabilities and responsibilities are fragmented and inconsistent across the information management lifecycle. The management of information assets is predominantly the responsibility of ICT units rather than business units. • Information and data is locked into applications, limiting its ability to be viewed holistically for improved service delivery and policy development. • Information management is not well integrated into agencies' risk and assurance processes. • Information is duplicated across multiple systems and agencies. For example New Zealanders have to provide the same information many times to many agencies. • Information management legislation, policy and practice reinforce agency-centric approaches and fragmented models that have been designed for non-digital formats. • The implications of the need for access over the very long term are not widely understood. Due to technology changes some historic government-held information is already no longer accessible.	• Information is considered a strategic asset and is securely managed across its entire lifecycle. • By default, information is open (unless there is a valid reason to withhold it) and is easily discoverable, accessible and re-usable. • Individuals and agencies fully understand, embrace and comply with their information guardianship accountabilities and responsibilities. • Information sharing is widespread, encouraging knowledge creation and innovation, including by the private sector, thus reducing the burden on citizens and businesses accessing services. • Electronic information exchanges are established that provide appropriately secure access to authoritative information. • Advanced analytics provide a holistic view that better supports service planning, service delivery and evidence-based policy. • Agency interests in information assets are well represented as part of coherent and comprehensive system-level information management frameworks. • Information of high value is managed and preserved to protect its accessibility in the long term.

SYSTEM CHANGE	
Today	**Destination 2017**
SECURITY AND PRIVACY	
• Security models are based primarily on physical and electronic boundary controls. In today's environment this does not sufficiently protect data and devices, impacting information security and privacy protection.	• Effective security and privacy measures are integrated into the design and adoption of all new information systems, including mobile devices, applications and wireless networks. • Security capability is shared, overcoming resource constraints, preventing unnecessary duplication, and ensuring that sound security practices are implemented. • Security reference architectures are in place that incorporate security and 'privacy by design' principles, while accounting for agencies' unique business needs. • Government's security position is enhanced and responsive, building trust and confidence in government digital service delivery. • Security and privacy awareness is raised within organisations and pervades business practice, with clear accountabilities through to executive levels. • Government systems are regularly audited to ensure security and privacy controls are in place.

SYSTEM CHANGE	
Today	**Destination 2017**
TECHNOLOGY PLATFORMS	
• Technologies are generally standardised within individual agencies, but not across the whole of government. • Not all technology is housed within appropriate datacentre facilities capable of meeting security and resilience requirements. • Average asset utilisation is relatively low as agencies scale assets up to accommodate peak demand requirements. • End user platforms are PC-centric, with mobility being an 'add on'. This drives additional cost and complexity. • Agency ownership of assets results in high levels of duplicated capital investment.	• Highly standardised cloud computing platforms provide the majority of government's computing resource. • End user platforms, delivered via flexible interfaces to a range of mobile devices, enable a dynamic workforce. • The security model will facilitate 'bring your own device' (BYOD). • Resources are scalable and are provisioned dynamically as required, driving efficient utilisation of underlying assets. • Agency systems predominantly adhere to open standards to support modularity and interoperability. • Agency telecommunications capabilities are mainly sourced 'as-a-service', replacing historic bespoke and fragmented telecommunications capabilities.

SYSTEM CHANGE	
Today	**Destination 2017**
PROJECTS	
• Individual agency projects (including for line-of-business systems) are too often large, expensive and high-risk bespoke developments that span multiple years. • There is limited cross-government portfolio management. • There has been a track record of overspending and delays, with some significant failures.	• There are larger numbers of smaller incremental projects, possibly with time and cost caps. Upgrade cycles are improved to keep assets current. • Portfolio and project assurance regimes are strengthened. • More projects are shared across agencies, supported by new collaborative funding models. • 'Assemble and integrate' is the norm. There are fewer bespoke developments overall and even these leverage common capabilities and components. • Modular approaches and supporting methods are used more often.

Implementation

Assurance, implementation and benefits management will be led by the GCIO who is responsible for leading government ICT to improve services and service delivery, generate efficiencies across departments, develop expertise and capability across the Public Service, and ensure business continuity. The first 60 days after launch will focus heavily on engagement and mobilisation planning.

The GCIO's leadership of the *Strategy and Action Plan* will be supported by the Head of State Services, central agencies and the Government ICT Strategy Group of agency chief executives that is chaired by the GCIO. The GCIO will report to the Government ICT Ministerial Group. There will continue to be strong links to the Better Public Services programme and the State Sector Reform Ministerial Group. The action plan also includes GCIO-led activity to evolve governance arrangements in order to increase participation by agencies.

Change will be delivered through:

- coordinating government's overall ICT investment, focusing on whole-of-life costs, return on investment and benefits realisation;
- tightening planning and decision-making disciplines, and improving leadership, governance capability and assurance.
- reorganising capabilities so they are delivered by the best able and most appropriate providers in the system;
- agency ICT units becoming capability 'brokers', focusing on sourcing and integrating capabilities;
- rationalising and consolidating service channels, particularly call centres and counters;
- establishing authoritative, secure information hubs to support the delivery of joined-up customer-centric services, and commercial and community re-use of valuable information assets; and
- lifting government's capability to utilise new and emerging technologies to better serve New Zealand.

Factors critical to successful implementation

1. **Providing clarity**. It is crucial that scope, governance and operating models for ICT functional leadership are well understood from the outset. Boundaries will be made clear, including the extent that the strategy will drive the Public Service, State sector and local government, and also the role of the GCIO. Decision-making arrangements will be streamlined and mechanisms for prioritising investment requests will be clearly articulated. Actions like these will provide agency leaders with an understanding of where they can operate independently and where the context of their sector and/or the whole-of-government takes precedence.
2. **Committed leadership**. Ministers, agency chief executives and agency leadership teams must be committed to and support the strategy. The GCIO will assist agencies to understand the impacts it will have on how they utilise common ICT capabilities to deliver their business strategies and to move their services to an integrated digital channel delivery model.
3. **Sector CIOs**. Agencies will be asked to self-organise ICT functions into capability clusters based on shared services and customers. Sector Chief Information Officers will be appointed and will be responsible for leading the development and establishment of a cluster business model and investment plan, taking on some delegated responsibilities from the GCIO.
4. **Funding**. The action plan includes activity led by The Treasury to establish sustainable funding mechanisms that will support both the plan's delivery and the delivery, operation and agency adoption of common capabilities. Funding models will provide clarity, including how agencies will be supported to transition from capital-intensive asset development to 'as-a-service' consumption using operational expenditure.
5. **Assurance**. The GCIO will provide assurance that ICT risks and processes within the State Services are identified and effectively managed.

Implications for stakeholders

WHAT DOES THIS STRATEGY MEAN FOR…

PEOPLE AND BUSINESSES AS CUSTOMERS

- Easier access (any time, anywhere) to more, better, personalised and integrated services.
- Enhanced trust and confidence in the privacy and security of government-held information.
- New opportunities to contribute to policy development and service design.

MINISTERS / GOVERNMENT

- Faster delivery of service improvements and lower overall system costs.
- Greater assurance of the effective management of risk, quality and security of government Information and Communications Technology initiatives.
- Government's public information assets will be more available for re-use by the private and NGO sectors to deliver economic and social benefit.
- Broader input into policy development that is better informed by authoritative data and advanced analytics.

AGENCIES / CHIEF EXECUTIVES

- Opportunities to improve service delivery through joining-up processes and having greater access to authoritative information (with appropriate access controls) held across government.
- More sustainable ICT expenditure management, including through breaking the high cost and risky asset replacement cycle.
- Need to work together to appoint sector CIOs and ensure those people are leading more integrated ICT planning and management.
- Stronger engagement with the GCIO. Clearer direction on, and benefits from, common capabilities and system-wide assurance requirements.
- New opportunities to contribute to system-wide ICT planning.
- Agencies will be more responsible for assuring their systems and services are secure and protect privacy.
- Smaller agencies in particular will have greater access to shared resources and expertise.
- Government workers will be able to work more easily, seamlessly and securely from any location.

WHAT DOES THIS STRATEGY MEAN FOR…

AGENCY ICT UNITS

- Benefit 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 lower risk.
- Source capabilities from, and supply expertise to, other agencies. 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.
- The government ICT workforce will have more opportunities to work with and within other agencies.

PRIVATE SECTOR AND NGOs AS GOVERNMENT SUPPLIERS / PARTNERS

Lifting productivity and growing 'New Zealand Inc.' is a key Government goal. Partnering with the private sector will be critical to government's ability to execute this strategy successfully. There are several roles where government will utilise industry and community capabilities and experience:

- developing and providing 'as-a-service' products as government progressively moves to exploit the economies of scale and scope presented by cloud-based services
- assisting government to lift its management and technical capabilities to make more effective and efficient use of information and technology
- assisting government to take more holistic and regionally distributed approaches to workforce management and development
- developing innovative solutions and delivering better public services with partners and intermediaries
- building commercial and social services based on government's authoritative open data.

ACTION PLAN

Action Plan

While the action plan outlines a full four years of actions, it is envisaged that it will be reviewed annually, so that a rolling ‘two plus two’ year plan is constantly updated and maintained, with the next two years’ worth of actions always being clearly articulated, mandates reviewed, and delivery accountabilities assigned. Agency alignment with the action plan will be built into four-year business planning processes. The action plan will be supported by an evolved Government Common Capabilities Roadmap.

Action items identify the agencies that are expected to help the GCIO to lead change in each area. Delivery will be collaborative, as most initiatives will drive change across clusters or all agencies. As was noted earlier, many initiatives will require agreed investment business cases. Some initiatives are already underway.

The *Strategy and Action Plan* gives effect to Government mandates relating to the GCIO’s functional leadership of government ICT. The action plan distinguishes between the overall leadership role of the GCIO and instances where delivery leadership will be the responsibility of the Chief Executive of the Department of Internal Affairs (who also holds the position of GCIO).

SERVICES ARE DIGITAL BY DEFAULT

GROWING THE DIGITAL CHANNEL			Lead	2013/14	2014/15	2015/16	2016/17
1 Rationalise entry points for information and increase accessibility Make information and services joined-up and easier to locate and access.	1.1	Citizen entry point. Redevelop newzealand.govt.nz as the primary entry point for citizens to obtain information, including a mobile-enabled version.	**DIA**	*Underway*			
	1.2	Business entry point. Redevelop business.govt.nz as the primary entry point for businesses, providing essential compliance information and common services relating to business 'life events'.	**MBIE**				
	1.3	Strengthen the integrity of government web presences by evolving the web standards to include a wider set of quality practices for assurance, security, syndication, search engine optimisation and visibility.	**DIA**				
	1.4	Rationalise and consolidate the government web domain to improve the quality and accessibility of content, by migrating agency content to newzealand.govt.nz or other central sites as appropriate, with existing agency entry points retained as links.	**DIA**				
	1.5	Create an authoritative 'New Zealand Government' presence (or presences – e.g. on Apple iTunes, Google Play, Microsoft Windows Store) for publishing mobile applications for customers and require agencies to adopt this publishing mechanism.	**DIA**				
	1.6	Evaluate using the Public Library network to establish community digital hubs as assisted digital facilities and education providers, to increase the accessibility of digital services.	**DIA**				
2 Integrated Transactional Account view Deliver unified access for transacting with government.	2.1	Create an optional Integrated Customer Transaction Account view for citizens and businesses that provides: Phase 1 – self-service updates to commonly held contact details; Phase 2 – summary view of interaction and transaction history; Phase 3 – integration to simplify common self-service transactions; Phase 4 – extend to include local government services. Leverage existing and planned new services, e.g. RealMe.	**DIA** MSD				
3 Identity and authentication as key enablers Ensure government's identity assurance capabilities for digital service delivery are fit for purpose and build trust and confidence in government.	3.1	Leverage the RealMe partnership to extend authentication to support mobile device platforms.	**DIA**	*Underway*			
	3.2	Review existing identity assurance products and services – including logon and identity data validation – to ensure they are designed and delivered in a customer-centric, effective and sustainable manner.	**DIA**	*Underway*			

4 Enable 'direct connect' Create an interface service to provide direct access to government processes and data, to enable co-creation and co-delivery of services.	4.1	Provide direct interfaces to information and transaction processes consistent with integration, security, privacy and service standards, and publish these to a central registry.	**DIA** All				
	4.2	Enable channel partners who act as service delivery agents or intermediaries on behalf of government to directly connect with government data and services.	**GCIO** All				
	4.3	Enable industry and non-government organisations to directly connect their systems to government data and services, assuring data quality and enriching service delivery.	**GCIO** All				
CONSOLIDATING NON-DIGITAL CHANNELS			**Lead**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
5 Over the counter Implement a standard technology footprint for over-the-counter office space to support consolidation across agencies in shared premises and cost reduction.	5.1	Pilot, in Christchurch, a shared front-office counter service across multiple agencies to understand customer demand and support customers to adopt digital channels.	**MSD**	*Underway*			
	5.2	Require agencies to deliver their branch office applications into a standard over-the-counter technology delivery model.	**MSD** All				
	5.3	Evaluate the feasibility of consolidating the provision of branch office counter services, using existing office networks.	**MSD**				
6 Contact centres Rationalise and consolidate government's contact centre premises and technologies, to support the move to digital channels and reduce premises, technology and telecommunications costs.	6.1	Pilot, in Christchurch, a shared contact centre facility designed to deliver benefits through co-location.	**MSD**	*Underway*			
	6.2	Evaluate the technical and commercial viability of a virtual call centre model that leverages ultra-fast broadband and advanced automation technologies (such as voice biometrics, chat and call-back), and utilises higher levels of self-service and automation.	**MSD**				
	6.3	Using the results of the pilot and evaluation, determine and deliver the optimum model for remaining government call centres (premises, technologies) nationwide.	**MSD** All				
ENHANCING SERVICE DESIGN			**Lead**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
7 Customer insights Enable the public to easily input into policy discussion and the design of government services.	7.1	Launch the Government Online Engagement Service that will enable public feedback into policy and service design.	**DIA**	*Underway*			
	7.2	Develop methods and tools to promote customer-centric service design, and deploy these across government.	**DIA** MBIE				
	7.3	Deliver tools to enable customers to easily provide feedback on government services.	**MBIE**	*Underway*			

8 Digital service delivery models Implement new models to support agencies to align delivery approaches and channels. This will be a first step in channel rationalisation.	8.1 Develop a digital channel strategy and digital service delivery change approach. Implement shared digital service delivery models and support agencies to align delivery approaches and channels, including the use of channel partners.	**DIA** All	
	8.2 Develop service design principles that embed integrity, assurance controls, privacy, identity and security requirements, utilising the new framework to be developed (refer to 14.1).	**DIA**	
9 Measure and improve service performance Develop and publish consistent service delivery performance measures.	9.1 Baseline service delivery performance benchmarks to define cost and quality, and to inform service development.	**DIA** MBIE	
	9.2 Measure and report against benchmarks. Use the information to understand performance and manage service development, cost and quality. (Refer also to 0.)	**DIA** All	
10 Authoritative information and joined-up processes Integrate distributed authoritative information sources to deliver smarter services.	10.1 Establish a new universal business number for registered business entities to make joined-up service delivery more efficient.	**MBIE**	*Underway*
	10.2 Implement an integrated service for businesses (registration of a company, GST and employer status) via companies.govt.nz.	**MBIE**	*Underway*
	10.3 Identify and facilitate opportunities for using authoritative data and information to inform business process improvement and service integration.	**GCIO** All	

INFORMATION IS MANAGED AS AN ASSET

UNLOCKING THE VALUE OF INFORMATION		Lead	2013/14	2014/15	2015/16	2016/17
11 Information hubs Establish information sharing hubs to integrate and consolidate information assets to enrich data, provide authoritative sources to agencies, and support improvements in information security.	11.1 Establish and pilot an information hub that links selected authoritative business data as a model for managing government information at sector and cluster levels.	**MBIE**				
	11.2 Identify other priority needs across sectors and appoint lead agencies to establish these hubs. Clarify information types, relevant standards and user needs. Determine the most appropriate approach to develop and operationalise hubs, including complying with information security and policy needs.	**GCIO**				
	11.3 Deliver and evolve a 'Data Integration as-a-Service' common capability (extensively expertise-based) to aid agencies to share and leverage information assets, and access the management expertise and technologies needed to integrate, rationalise and consolidate information from contributing agencies.	**GCIO** IRD				
12 Advanced analytics Drive the use of analytics, supported by rich authoritative information hubs, for better decision making.	12.1 Service planning – support investment targeting and service design through using new data science and advanced analytics techniques and technologies at a strategic level to improve understanding of service needs and outcomes, identify high-value opportunities, prioritise activity, and monitor outcomes.	**Central agencies**	*Underway*			
	12.2 Evidence-based policy – develop analytical tools to support evidence-based policy development across the system, including the collection of insights from NGOs and commercial service providers utilising published government data and information.	**MSD**				
	12.3 Risk and intelligence – utilise advanced data analytics to develop more effective risk and intelligence models (for all domains) across government. Pilot within the border control sector.	**Customs**				
13 Open by default – active re-use of information assets Accelerate the release of public information assets for commercial and social re-use and co-production of services.	13.1 Enhance the accessibility of public data through providing access to more sources and leveraging existing services such as data.govt.nz, Land Information New Zealand's Data Service and Statistics New Zealand's DataHub. Use government data integration solutions, including direct connect (refer to action area 0) and DIaaS (refer to 11.3).	**LINZ** Statistics DIA				
	13.2 Require that agencies publish data to common authoritative information hubs that are shared and open by default.	**GCIO** LINZ				

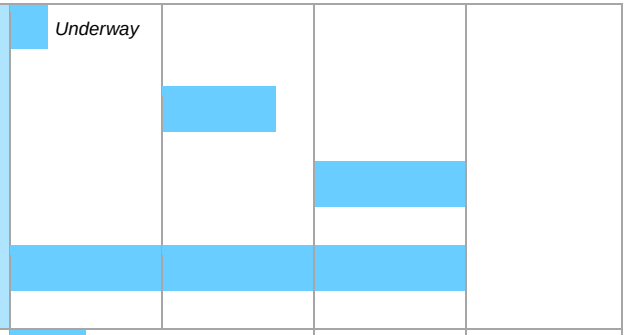
EMBEDDING TRUST AND SECURITY		Lead	2013/14	2014/15	2015/16	2016/17
14 Information management, privacy and security framework Deliver a management framework that balances service delivery with the protection and security of government-held information, privacy of citizen information, and confidentiality of business information.	14.1 Develop and promote an enhanced information management framework, incorporating privacy and security, to enhance the efficiency and integrity of information and data management practices across government. Utilise the findings of the 2012 GCIO review of publicly-facing systems and related work. 14.2 On an on-going basis, review the framework's adoption and assess requirements for further enhancements.	**GCIO** All **GCIO**				

BUILDING INFORMATION GOVERNANCE AND CAPABILITY		Lead	2013/14	2014/15	2015/16	2016/17
15 Enhance information governance Establish information governance and custodians, and embed information asset management responsibilities across the public sector.	15.1 Refine information governance and management roles, accountabilities and responsibilities across the wider information lifecycle, using the data catalogue (refer to 17.2) and the Government Enterprise Architecture. Streamline roles and accountabilities. 15.2 Extend the functions of agency data champions to drive awareness and integration across and between sectors. Focus investment in high-value information assets and deliver whole-of-life management of these assets at an all-of-government level.	**GCIO** **GCIO** DIA				
16 Review information policy and legislation Review and (if necessary) update information management policy and legislative settings to optimise the sharing and re-use of information.	16.1 Identify any constraints in policy and legislation relating to appropriate sharing of personal and non-personal information. 16.2 Develop appropriate options and propose approaches to changing policy and legislation to address constraints.	**DIA** MoJ **DIA** MoJ				
17 Value information assets Identify, catalogue and value existing information assets.	17.1 Develop and promulgate guidance for cataloguing and valuing high-value information assets. Utilise and expand on existing valuation methods as appropriate. 17.2 Catalogue and value authoritative, high-value agency information assets.	**GCIO** Treasury **GCIO** All				

INVESTMENT AND CAPABILITY ARE SHARED

INTEGRATING ICT PLANNING		Lead	2013/14	2014/15	2015/16	2016/17
18 Strategic and investment planning Review and aggregate agency investment plans into a government ICT investment plan that identifies system opportunities, and drives collaboration and consolidation.	18.1 Define clear, concise ICT strategic planning expectations of agencies.	**GCIO**				
	18.2 Develop and promulgate an investment prioritisation framework that focuses investment in high-value information assets and deliver whole-of-life management of these assets at an all-of-government level.	**GCIO**				
	18.3 Require agencies to create 4-year ICT strategies and investment plans aligned with existing business planning cycles, and inform the GCIO of their future investment intentions.	**GCIO**				
	18.4 Aggregate investment intentions, realign with the investment prioritisation framework where necessary, and publish an integrated, rationalised government ICT investment plan that will assure achievement of strategic objectives.	**GCIO**				
	18.5 Implement digital tools such as an ICT dashboard to build visibility and transparency of agency plans and system priorities.	**GCIO**				
19 Government architecture Fully deploy the Government Enterprise Architecture framework, including common language, capability, standards, tools and processes to all agencies.	19.1 Extend the Government Enterprise Architecture framework to support transactional system interoperability, enterprise security, and business-enabling elements such as data services and processes.	**GCIO** DIA	*Underway*			
	19.2 Refresh and consolidate standards into the Government Enterprise Architecture to enable integration and service improvement.	**GCIO**				
	19.3 Require that agencies and sectors/clusters provide the GCIO with future-state architectures aligned with the framework to ensure interoperability.	**GCIO**				
ACCELERATING THE UPTAKE OF COMMON CAPABILITIES		**Lead**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
20 Optimise commodity ICT asset ownership Seek more cost-effective ownership and funding models for commodity ICT assets.	20.1 Complete a financial analysis of commodity ICT assets. Investigate current commodity asset profiles and future intentions. Investigate the economics of rent versus buy in the contexts of asset replacement funding cycles and shifts in all-of-government service provision. Investigate accounting treatments for lease and rent options. Depending on the results of these investigations, develop a case for changes to the model for providing commodity ICT assets.	**Treasury**				
	20.2 Based on the outcome of investigations into the model for the ownership of commodity ICT assets, consider implementing a moratorium on the purchase of commodity ICT hardware.	**GCIO**				

21 Drive common capability uptake Accelerate the uptake of common capabilities.	21.1 Drive uptake of Infrastructure-as-a-Service (IaaS) to achieve 100% of departments' IT infrastructure moving into an IaaS data centre by 2015, excluding those where current contractual arrangements make it impractical to complete the transition by that time.	**DIA**	
	21.2 Evolve Infrastructure-as-a-Service data centres to create a platform for an onshore Government Cloud.	**DIA**	
	21.3 Expand and drive the contestability of government-consumed telecommunications services (Telecommunications-as-a-Service).	**DIA**	
22 Streamline software procurement Aggregate demand and simplify supply for software products used across multiple agencies.	22.1 Create a catalogue which encompasses Software-as-a-Service and enterprise license agreements that facilitate delivery, fulfilment and billing.	**DIA**	*Underway*
	22.2 Populate a catalogue with cost-effective and pre-approved cloud software solutions which can be purchased by agencies on a subscription basis.	**DIA**	
	22.3 Establish License Framework agreements with incumbent multi-agency suppliers and also develop a common Software Asset (license) Management capability (Software Acquisition Strategy Phase 2).	**DIA**	
23 End user computing Complete the full suite of capabilities required to move the entire end user computing platform (including mobile devices) to a cloud / services based model as quickly as is practical, to deliver savings and lift State sector employee productivity.	23.1 Deliver Office Productivity as-a-Service, targeting 70,000 users by 2017.	**DIA**	*Underway*
	23.2 Deliver Desktop-as-a-Service as a common capability by 2013. Migrate agencies still on Windows XP as a matter of priority. Drive uptake across all departments to 100% by 2017.	**DIA**	*Underway*
	23.3 Deliver a cloud enterprise content management 'as-a-Service' solution.	**MPI**	*Underway*
	23.4 Enhance information security for end-user computing so that both in-office and out-of-office working is consistent and secure.	**DIA**	
	23.5 Evaluate the commercial, technical and operational viability of 'bring your own device' (BYOD), drawing on agency pilot experience. Support BYOD across government.	**GCIO** All	

24 Common business services Increase efficiency and support joined-up service delivery through expanding the suite of common capabilities available to agencies.	24.1 Deliver a service that allows customers to (optionally) validate, verify and change their address details, and share this information with agencies.	**DIA**	
	24.2 Implement a re-usable framework for building and deploying forms for online services.	**GCIO**	
	24.3 Deliver a payment service (collection and disbursement) leveraging Inland Revenue's Transform programme.	**IRD** MBIE	
	24.4 Establish Business Rules as a capability - sharing expertise and frameworks.	**IRD**	
25 Back office applications Extend the scope of the Optimise programme to consolidate financial and human resource information systems.	25.1 Evaluate the potential opportunities and benefits to rationalise department FMIS solutions. Deliver a roadmap for the future.	**Treasury**	
	25.2 Evaluate the feasibility of adopting an enhanced service delivery model for corporate finance functions across government, and define the target model.	**Treasury**	
	25.3 Adopt the FMIS roadmap and (if a new model has been defined) financial services delivery model for targeted agencies across government.	**Treasury**	
	25.4 Consolidate existing human resources management information systems (HRIS), starting with an initial six agencies.	**DIA**	
	25.5 Extend the consolidation of HRISs more widely across government. Require agencies on the same HRIS instance to evaluate shared services opportunities with agencies having similar needs.	**GCIO**	
	25.6 Evaluate the value proposition and feasibility of establishing a single enterprise resource planning (ERP) solution across government.	**GCIO** Treasury	

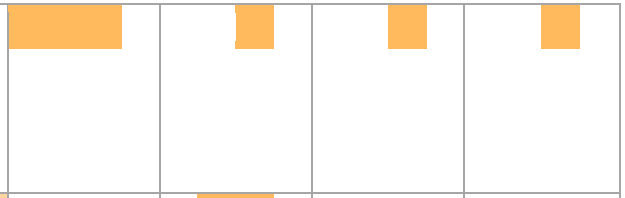
BUILDING WORKFORCE CAPABILITY		Lead	2013/14	2014/15	2015/16	2016/17
26 Develop the ICT workforce Invest in capability uplift and make better use of scare specialist capabilities. Note: This action area is strongly tied to, and dependent on, operating model changes introduced in the following section.	26.1 Establish centres of expertise (shared resource pools) and communities of practice to enhance and share competencies and practices. Initially deliver for security, architecture and testing, then for information management, analytics and research. Ensure these are available as cross-government resources.	**GCIO** All				
	26.2 Define skills frameworks and pathways for the future government ICT workforce, including for graduate intakes.	**GCIO**				
	26.3 Require agencies and sectors/clusters to develop ICT workforce plans, including focusing on the appropriate use of contract personnel to temporarily extend capacity (e.g. for change initiatives) rather than as de-facto permanent business operations staff.	**GCIO**				
	26.4 Assess the engagement levels of government ICT staff.	**GCIO**				

LEADERSHIP AND CULTURE DELIVER CHANGE

REORGANISING CAPABILITY		Lead	2013/14	2014/15	2015/16	2016/17
27 Reorganise capability – ICT operating model Formalise a new ICT operating model based on 9-10 sectors and a larger number of agency clusters, outlining target configurations focused on information management, assurance and investment planning.	27.1 Complete the initial design of the operating model, refining its design and approach in partnership with business leaders and stakeholders. Produce a capability blueprint that establishes clear principles for sectors and clusters to implement, and that will deliver economies of scale and skill at a system level.	**GCIO**	*Underway*			
	27.2 Pilot clustering within the Transport sector.	**Transport** GCIO				
	27.3 Confirm the operating model, appoint Sector Chief Information Officers, and begin system-wide deployment.	**GCIO** SSC				
	27.4 Complete system-wide deployment into Public Service departments, Non Public Service departments and Crown Agents.	**GCIO** SSC				
28 Support functional leadership Ensure ICT functional leadership has the right mechanisms and support from the centre to deliver system change.	28.1 Modify and enhance existing processes to enable the functional leadership of the GCIO to effectively provide assurance and advice.	**Central agencies**	*Underway*			
	28.2 Review the form and functions of the GCIO.	**Central agencies**				

DEVELOPING LEADERSHIP		Lead	2013/14	2014/15	2015/16	2016/17
29 Leadership academy Establish a virtual Information and Technology Leadership Academy to build business leadership of ICT at all levels. Utilise existing capabilities (e.g. the Leadership Development Centre).	29.1 Establish the Academy with a clearly defined mission, scope and structure.	**GCIO**				
	29.2 Establish and pilot a programme that develops government business leaders' ability to exploit the potential of ICT to transform government business.	**GCIO** MSD				
	29.3 Establish and pilot an induction programme for government ICT leaders in the machinery and business of government.	**GCIO**				
	29.4 Establish and pilot a mentoring programme to develop future ICT leaders and the ICT-awareness of wider State sector leaders.	**GCIO**				

ENHANCING GOVERNANCE AND DECISION MAKING		Lead	2013/14	2014/15	2015/16	2016/17
30 Effective governance Evolve all-of-government ICT governance models to align with the objectives of the *Strategy and Action Plan*.	30.1 Ministers set clear expectations with agency chief executives regarding contribution to the delivery of the *Strategy and Action Plan*.	**Cabinet**				
	30.2 Streamline governance. Revise roles, accountabilities (including delivery of this strategy), decision criteria and performance indicators. Target priority areas such as information management, security, privacy and investment management.	**GCIO** Central agencies	*Underway*			
	30.3 Align system, sector/cluster and agency governance groups.	**GCIO** Central agencies				
31 Assurance Create a new system of assurance that embeds risk and quality management processes.	31.1 Review and strengthen security and risk standards, processes and practices.	**GCIO**	*Underway*			
	31.2 Develop a portfolio view of ICT value and risk across government to target assurance activity and improve the robustness and quality of agencies' risk management (relates also to 14 and 18).	**GCIO** **Central agencies**	*Underway*			
	31.3 Create and implement an end-to-end service risk and assurance framework from customer to service design and delivery.	**GCIO**				
32 Funding models Ensure funding approaches support the inception, delivery and operation of shared (all-of-government or agency clusters) ICT capabilities.	32.1 Establish a model for seed funding the development of business cases for investment in sustainable capability in common and high-need areas.	**Treasury**	*Underway*			
	32.2 Establish a sustainable funding model that enables investment in cross-government ICT development and operations, taking increases in capital-to-operating swaps into account.	**Treasury**	*Underway*			
	32.3 Signal annually the system-wide investment priorities and intended application of funding mechanisms and sources. Review funding models as required.	**Treasury** GCIO				
COLLABORATING, COMMUNICATING AND ENGAGING		**Lead**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
33 Engagement Increase engagement with agencies and industry to strengthen collaboration and system delivery.	33.1 Increase GCIO resourcing and implement greater agency account management at a portfolio level.	**GCIO**	*Underway*			
	33.2 Strengthen strategic relationships with the market and industry groups, communicating government direction and consulting on solution approaches.	**GCIO**				

34 Reporting benefits and learnings Systematise the reporting of the successes and benefits delivered by all-of-government ICT initiatives.	34.1 Establish standard metrics and mechanisms. Report and publish the benefits realised from all-of-government ICT initiatives, including capability maturity and case studies that communicate key learnings.	**GCIO**	
35 Research and innovation practice Establish an innovation accelerator programme that focuses on business-driven research and development. Engage more strongly with industry and academia.	35.1 Design and commission the practice in consultation with stakeholders and building on existing innovation initiatives. 35.2 Pilot and evaluate the programme, with an initial focus on business process re-engineering opportunities to improve service design and delivery.	**GCIO** **GCIO**	
36 Leadership networks Establish networks to support and enhance the delivery of capabilities.	36.1 Establish and promote specialist leadership communities of practice, for example a security community. Leverage existing forums and industry engagement where possible. 36.2 Locate and coordinate specialist national and international capability to provide independent advice. 36.3 Increase New Zealand's participation in global ICT leadership networks. Coordinate representation and publication of case studies. 36.4 Establish a programme that coordinates ICT leader secondment 'swaps' with international jurisdictions.	**GCIO** **GCIO** **GCIO** **GCIO**	

Glossary

Better Public Services programme	The BPS reform programme is aimed at delivering better public services within tight financial constraints. It includes ten specific result targets, including two relating to improving citizen and business interactions with government. BPS also introduced functional leadership (refer to separate listing).
Bring your own device (BYOD)	BYOD involves employees, business partners and other users using personally-owned devices to run enterprise applications and access data. Devices typically include smart-phones, tablets and personal computers.
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.
Centre of Expertise (CoE)	A centre of expertise-oriented services provided by one agency / organisation to multiple customer agencies under formal service agreements.
Cloud computing	A cloud computing model is most often characterised by the individual's or organisation's ability to use a service (or range of services) from multiple providers on a pay-per-use or subscription basis, without needing to invest in the underlying infrastructure or capability that delivers those services.
Commodity ICT asset	ICT assets that any agency may require (for example network infrastructure, data centres, common business software, desktops, and cellphones) and where there is significant market competition for supply.
Community of Practice (CoP)	A group of individuals across agencies (and possibly wider) that pool their competencies to provide a collective, yet distributed, capability. Communities of Practice are a form of collaborative network in which members work towards common goals and lift average capability levels across government.
Data Integration-as-a-Service (DIaaS)	A planned government common capability that will assist agencies to share and leverage assets and expertise, in order to better manage, secure and generate new value from government-held information. DIaaS will support the new direct connect service (refer to separate listing).
Desktop-as-a-Service (DaaS)	Virtual desktop and application environments (using thin client or traditional desktops) delivered as a cloud-based, on-demand service.
Digital channel	Digital mechanisms and pathways (for example websites, mobile applications) through which goods and services are delivered to customers. Fully self-service digital channels require no human intervention on the provider side to complete transactions. Some channels may be 'digital-assisted', combining the use of digital, personnel and physical assets – for example contact centres or where customers are given in-person assistance to use digital channels.
Direct connect	A planned interface service that will provide direct and secure access to appropriate government processes and data, to enable co-creation and co-delivery of services.
Directions and Priorities for Government ICT	Adopted by Cabinet as Government policy in 2010, the Directions and Priorities set out the medium-term direction for government ICT investment across the State Services.
e-Government Interoperability Framework (e-GIF)	The e-GIF includes policy and standards for interoperability, and a method for selecting and developing new standards. The e-GIF has been incorporated into GEA-NZ (refer to separate listing).
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.
Enterprise resource planning (ERP)	ERP tools automate and support a range of administrative and operational business processes, including finance and administration, line of business, customer management, and asset management.

Financial Management Information System (FMIS)	FMISs are accounting systems that enable agencies to plan, execute and monitor budgets through assisting with the prioritisation, execution and reporting of expenditure, the custodianship and reporting of revenues, and compliance with financial management standards and regulations. FMISs are sometimes considered to be a subset of ERP systems (refer to separate listing).
Functional leadership	Leadership of key areas of expertise 'horizontally' across government that is aimed at securing economies or efficiencies across departments, improving services or service delivery, developing expertise and capability across the Public Service, and ensuring business continuity. The GCIO is the functional leader of government ICT.
Government common capability	Any business or ICT capability that can potentially be used by more than one agency, or across the whole of government, to support the delivery of business outcomes. Existing examples of government common capabilities include Infrastructure-as-a-Service, SEEMail (secure government email) and all-of-government ICT procurement contracts such as those for desktop and laptop computers.
Government Enterprise Architecture (GEA-NZ)	GEA-NZ is a unifying common language and classification framework that agencies can use to describe common capabilities and contribute to delivering of all-of-government ICT goals. Its focus is on describing business and ICT capabilities that enable sharing and re-use among agencies.
Human Resources Information System (HRIS)	An HRIS is a business application for managing HR-related transactions, best practices and reporting. Functions typically include core HR and payroll functions, and may include recruitment, competency management, training, time management, performance management and self-service functions. HRISs are sometimes considered to be a subset of ERP systems (refer to separate listing).
Infrastructure-as-a-Service (IaaS)	New Zealand Government Infrastructure-as-a-Service is a vendor-hosted and managed solution that enables agencies to buy their computing infrastructure, on demand, from approved providers.
igovt	igovt allows people to verify their identity to government service providers securely via the Internet. It comprises a logon service and a registration / identity verification service. More information can be found at www.i.govt.nz. (Refer also to the listing for RealMe.)
Information and communications technology (ICT)	ICT spans information management, technology infrastructure and technology-enabled business processes and services.
Information hub	Planned collections (including virtual collections that link data held in different locations) that are designed to enable sharing of authoritative government-held information between agencies and with service delivery partners to enhance services and service planning, and to comply with information privacy and security requirements.
Information management	Information management refers to the way an organisation plans, identifies, creates, receives, collects, organises, governs, secures, uses, controls, disseminates, exchanges, maintains, preserves and disposes of information.
Office Productivity-as-a-Service	Office productivity tools (for example word processing, spreadsheets, email, and collaboration) provided to agencies as a secure cloud-based service, to a range of end-user device types.
Open data	Open data is data that can be freely used, reused and redistributed by anyone – subject only, at most, to the requirement to attribute and 'share alike'. Refer also to the separate listing for public data.
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.

Public data	Government-held public data is non-personal, unclassified and non-confidential data that is: collected, commissioned or created by an agency in carrying out its functions or statutory responsibilities; publicly funded; and for which there is no restriction – in the case of copyright works, to its release and re-use under any of the Creative Common NZ law licences or, in the case of non-copyright material, to its open release and re-use. 'High value' public data is data which when re-used contributes to economic, social, cultural or environmental growth, illustrates government's performance, and/or contributes to greater government efficiencies through improved information sharing.
RealMe	RealMe is the consolidated name for the services previously branded as igovt (refer separate listing), which will be extended to allow private sector so organisations to identify their customers. These services represent government's investment in a common capability for authentication and identity verification. More information can be found at www.realme.govt.nz.
Service centre	A centre of transactional operations delivering services to multiple customer agencies under formal service agreements.
State sector organisations	State sector organisations span the Public Service, State Services (including Crown Entities), and wider State sector. More information can be found at www.ssc.govt.nz/state_sector_organisations.
Telecommunications -as-a-Service (TaaS)	Communications functions delivered as a cloud-based service, that may include data networking, telephony, messaging and conferencing.

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