Meeting on the Management of Statistical Information Systems (MSIS 2012)  
(Washington, DC, 21-23 May 2012)

Topic (i): Architecture

**Enterprise Architecture Blueprint – Aligning People, Process, and Technology**

**Supporting Paper**
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### I. Introduction

1. Statistics New Zealand is currently undertaking an organisation-wide programme of change, Statistics 2020 Te Kāpehu Whetū (Stats 2020), to create the statistical system of the future. This programme has been developed to address challenges and opportunities in order to create a more dynamic, responsive, and sustainable organisation. The Enterprise Architecture (EA) blueprint will provide guidance and support to the organisation to ensure that Statistics New Zealand maximises its return on IT investment and enables our achievement of the Stats 2020 business objectives and benefits.

2. The purpose of this paper is to outline Statistics NZ’s end-to-end enterprise architecture. The document presents the context in which the EA blueprint has been created, EA blueprint and information on the current status of implementation.

### II. Business context

**A. Partnering to achieve business outcomes**

Statistics 2020 Te Kāpehu Whetū and the EA approach

3. The Strategic Plan 2010-2020 sets out what the organisation is seeking to achieve over the next 10 years and how it plans to get there. The plan contains four key strategic priorities as shown in the following diagram:
4. Statistics NZ’s enterprise architecture is aligned with and enables Stats 2020. Specifically it is one of the key enablers of the significant milestones we want to achieve in the first three years of the programme:

- Stabilising our systems (Risk)
- Developing new operating platforms (Value)
- Standardising production of groups of statistical outputs (Efficiency)

5. The EA enables a phased evolutionary approach to deliver capability to the organisation in a way which gives us a lot of flexibility in terms of where we focus our efforts, statistical thinking, resources, and our overall ability and capacity to manage change within the various business units. The strategic priority of ‘transforming the way we deliver our statistics’ aims to provide solutions that broadly mirror the Business Process Model (BPM), which is being used to understand, then standardise and rationalise, the production of statistics at Statistics New Zealand. Using this approach the EA has the following features:

- Logical clusters of functionality, or ‘platforms’, that will enable components to be ‘plug and played’ to provide a complete end–to–end solution for a given business unit
- The platforms will be supported by a common statistical infrastructure (statistical services, tools, and data) which are in turn supported by IT infrastructure

Key to this approach will be a move towards a metadata driven environment, which provides flexibility in how data and statistical methodology are brought together to produce a given output.

6. The following figure outlines the current planned progression of change and capability to June 2014. It also reflects the statistical clusters currently identified to support the standardisation objectives. These clusters may be subject to change and our architecture is flexible enough to handle this.

Figure 1: Statistics New Zealand’s strategic priorities

Figure 2: Sequence of system replacement (from Statistics NZ’s Business Development Plan - June 2011)
Risk

7. Statistics NZ has a proud IT history and a dedicated team of capable professionals delivering IT services to the organisation. In the last two decades many of our systems were developed using state-of-the-art technology of that time. Some of them were subsequently adopted and used by other international statistical institutions.

8. Through the years, Statistics NZ’s investment in statistical applications has resulted in an increasing stockpile of silo solutions. As with the associated legacy system issues (they are inextricably linked), silo solutions are an unwanted outcome of decentralised management. They have occurred because business units across the organisation have stood alone and not interacted effectively. Each business unit may have been operating well but they did not work together to create optimal efficiency for the organisation.

9. Many of Statistics NZ's systems and software are now out-of-date, are not supported by vendors, and only a few IT staff understand them. Resolving this system legacy problem is a major priority for the Board, as this issue could seriously affect Statistics NZ's reputation, plus its delivery and leadership roles in the Official Statistics System (OSS).

10. The platform roadmaps, developed as part of the EA, are aligned to provide an organisation-wide implementation plan of an enterprise architecture with shared systems. With the legacy migration plan, the roadmaps provide a staged transition plan from the old siloed architecture to the future state architecture of shared capability and common use platforms - an effective and standardised technology which allows continued delivery of statistical outputs.

Transformation and responsiveness

11. “Statistics New Zealand is in the information business, which is a rapidly changing and fast moving one. Demand for information is increasing all the time. Technology changes by the day, increasing the ability of people to both use and produce information. We also face a tight fiscal environment and a challenging internal operating environment. The strategic direction outlined in this plan requires us to change. To remain relevant in the rapidly changing environment in which we operate we need to become more responsive and agile.”

(Introduction to the Strategic Plan by Statistics NZ’s Chief Executive Geoff Bascand)

12. To be responsive Statistics NZ needs to move to the point where it can make assessments quickly and decisions effectively about change and the associated impacts and actions. Being responsive also includes the ability to recover quickly from a change without irreversible harm to reputation or delivery. The EA being implemented provides a framework whereby the impacts of changing business needs and emerging technologies can be quickly assessed. It provides input into informed decision making and highlights dependencies and the impacts of tactical decisions. The capability-based nature of the EA and the identification of the foundation elements, principles, and standards are important to increase levels of responsiveness. The ability for subject matter experts to manage and control their statistical processes is a key objective of this implementation.

13. The EA also provides a representation of the future state which can be communicated and discussed, and a means to improve the overall maturity of our business and technical capabilities. The future state can change rapidly based on decisions taken, shifts in technology, or changes in the operating environment. The EA provides improved information for effective long term planning.

Standardisation

14. “Standardisation is about developing statistical infrastructures and approaches to clusters of “like” statistics, and functions (e.g. collection and analysis) within the statistical production process… Standardisation is not a one size fits all approach. Rather it focuses on natural production clusters or integrated functions which have similar characteristics, thereby facilitating the introduction of a common, standardised approach to their management” (The Strategic Priority 3 – Delivery Transformation Plan).
15. The EA and implementation approach undertaken to date (and proposed for the next three years) is a model with ever-increasing levels of standardised capability being introduced via the 'platform' approach. It is supported by a strategy of convergence, to ensure we continue to develop foundation capabilities.

16. To surmise our role in partnering to achieve business outcomes, the EA blueprint is the document which provides the explicit linkage between Statistics NZ’s strategic priorities and benefits and the integral technology solutions that will enable these to be delivered. There is a clear line of sight between stated business goals, benefits, and the EA.

B. Deliver a multi-platform approach

17. Within Statistics NZ we have identified statistical clusters, and within the Official Statistics System (OSS) we have identified statistical domains. For the EA implementation approach we have aligned with the statistical clusters but have allowed for flexibility:

- to ‘re or de’ cluster in order to respond to the current maturity, pace of change, and risks/challenges of the statistical cluster
- by providing services and capabilities that are not cluster/domain-specific
- designing the cluster based ‘platforms’ to not be closed off from one another

18. This approach, originally approved as part of Statistics NZ’s IT Strategy in 2009, allows us to consider the breadth and pace at which we need to transform as an organisation and the varying maturity and capabilities across the organisation. We will be able to respond quickly to change and have some great opportunities for innovative and potentially quantum gains in capability for Statistics NZ, the wider OSS, and the international statistical community.

C. Impact of future trends

19. Four main trends that will influence future versions of the EA blueprint are Government ICT, cloud service delivery model, international collaboration, and increasing access and mobility. These are significant trends and their impacts will have far reaching consequences throughout the organisation.

Government ICT

20. The New Zealand Government have set out a medium-term strategy, Directions and Priorities for Government ICT, to indicate how central government will more collectively lead the use, development and purchasing of government ICT over the next three years. Under Cabinet Minute 10/35-5A chief executives of public service departments were directed to: use cross-government ICT products and services to meet relevant business needs where they are available, unless there is a compelling business reason not to, and work with the lead agencies providing such products and services to ensure that they meet business purposes.

An initial assessment of the planned common capability initiatives has been undertaken, with respect to internet hosting options and disaster recovery/business continuity requirements. Further assessment will be undertaken through 2012/2013.

21. It is likely Statistics New Zealand’s adoption of, and collaboration within, the government ICT common capability framework will result in a mixed sourcing situation for the organisation. This will shift the current financial, software delivery, and project management practices used. While the EA blueprint does not inhibit the use, extension, or creation of common capability, a number of decisions around how our organisation interacts with the ICT framework are yet to be made - in terms of financial models, and project management and collaboration methodologies.

1 Directions and Priorities for Government ICT
Cloud service delivery model

22. For Statistics NZ the cloud computing paradigm represents a very significant shift. Currently we have a predominately ‘in-sourced’ IT environment. This is quite unique in the New Zealand Government, but is common across National Statistical Offices. Historical reasons for the in-source model have been legislation, privacy and security concerns and the data and ICT intensive operations involved in statistical processing, analysis, and dissemination.

There are now significant drivers and pressure for the cloud computing model to be fully considered for some of Statistics NZ’s business activities. This includes government requirements under the Better Administrative and Support Services (BASS)* programme to reduce government spending. Another driver is the overall ability of our organisation to continue to be able to sustain the level of capital investment required to support strategic initiatives.

23. The EA blueprint incorporates providing and consuming cloud computing solutions, however no statistical capability is specifically identified at this time.

International collaboration

24. There is a significant change underway across the national statistics community. The HLG-BAS has developed a strategic vision, which was endorsed by the 59th Plenary Session of the Conference of European Statisticians (14-16 June 2011, Geneva).

HLG-BAS has identified two strategic directions:

- Statistical outputs: New and better products and services more tuned to the way the world is operating today, and created from a global perspective. This will help us stay relevant
- Production methods: Different and better processes and methods tuned to delivering our products at minimal cost with greater flexibility and in cooperation between institutions. This will help us to improve efficiency and effectiveness

Within the two directions the following themes have emerged:

- National Statistical Offices (NSOs) need to work together. The challenges are too big and too expensive for individual NSOs to tackle on their own
- Industrialisation – “parts are cheap and available as variants of the same basic design. It is all about standardisation and the removal of cost from the production process” Statistics New Zealand is using new ways to collaborate, for example, working with other NSOs in the Statistical Network collaboration alliance where we lead Innovation in Dissemination project.
- Standardisation – “Standardisation of methodology is not to impose a single solution. It implies adoption of the best or common solution. Any variations must be justified…” Statistics New Zealand develops components in a way that enables use by other NSOs and in turn we use components developed by other national statistical offices

25. The EA blueprint is currently founded on the Statistics NZ Generic Business Process Model (gBPM)² model. Statistics NZ has not yet adopted the Generic Statistical Business Process Model (GSBPM), however EA will support any decision by the organisation to move to the international model without significant change. The Generic Statistical Information Model (GSIM)³ is currently under development and will be a valuable foundation element for the EA blueprint. Statistics NZ is currently participating in the GSIM development sprints. Future versions of the EA blueprint will incorporate advances made.

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2 Generic Statistical Business Process Model
3 Generic Statistical Information Model (GSIM)

* BASS is a New Zealand government programme that provides an annual administrative and support benchmarking service to larger government agencies to support value for money assessments, target-setting, and tracking of improvement over time.
Increasing access and mobility

26. Trends in global information technology, New Zealand Government’s commitment towards an open and transparent government4, and the increasing expectation of shared use and common capability across government will lead to new understandings and opportunities to support transformational change in the way we deliver statistics. Statistics NZ’s services will be increasingly accessed from mobile platforms, and user expectations will continue to expand as device capability and business intelligence techniques improve.

27. In adapting to, and taking advantage of, these trends we need to maintain our responsibilities and values in the area of confidentiality and data security, and EA will design solutions with mobility in mind.

III. End-to-end enterprise architecture blueprint

28. The enterprise architecture seeks to enable the statistical architecture and Statistics New Zealand’s strategic goals through a ‘platform’ approach to building capability for survey clusters and re-using shared capability across the organisation. The End-to-End Enterprise Architecture Blueprint contains a number of artefacts including principles and standards, conceptual models, capability specifications and a draft of the end-to-end capability roadmap outlining future capabilities and timelines.

A. Principles and standards

29. Principles are general rules and guidelines, intended to be enduring and seldom amended, that inform and support the way in which we set about fulfilling our mission.

32. Statistics NZ’s IT Principles, as outlined in the IT Strategy, apply to the EA blueprint. The IT principles and our cornerstone principles (as outlined in the Strategic Plan 2010-20) have been used to develop a set of architecture principles to guide the delivery and use of our IT assets and resources.

30. The purpose of the Enterprise Architecture (EA) Standards is to clearly state the EA requirements and to ensure that everyone is familiar with and complies with EA requirements. These standards apply equally to 3rd party including “Commercial Off The Shelf” (COTS), open source software and internally developed Statistics NZ software. All metadata systems will align with the Data Documentation Initiative (DDI) and Statistical Data and Metadata eXchange (SDMX) standards. Please refer to Appendix III for more information on EA principles and standards.

B. Conceptual EA models and capability specifications

31. The enterprise architecture conceptual models are primarily utilised for communication. They provide a high level view of the overall EA direction, core layers of the architecture, and how the layers relate to one another. The base model is the Enterprise Architecture Framework. This model was originally approved as part of Statistics NZ’s IT Strategy in 2009 and has not significantly changed.

Figure 3: Enterprise architecture framework

4 The Declaration on Open and Transparent Government, August 2011, New Zealand Government
32. The enterprise architecture provides the ability to look at the architecture of Statistics New Zealand’s overall capability (instead of that of individual systems, project by project). The EA delivers our organisation’s required capability through layers of tools, services, and platforms. There are five layers in the EA framework and below is a description of each:

- At the lowest layer the IT Infrastructure continues to be standardised with the implementation of the Microsoft Windows Operating environment, Microsoft SQL Server data environment, the Microsoft development environment (including Microsoft Analysis, Integration and Reporting Services) and specialist tools including SAS Server and EG, and Blaise. This layer continues to undergo significant standardisation.
- The data layer includes various data clusters and types. Examples include: the frames, all collected social, population and economic data, administrative data, and geospatial data. Storing and managing data with structural similarities is implemented in generic data stores (eg micro-economic, household). However, we also implement data with specific structures in separate data stores where appropriate. All data is collected, managed, and shared via the tools and services layer.
- The tools and services layer provides the capability to perform specialised tasks and are available to all systems in the enterprise. These include statistical tools (such as those in the Standard Methodological toolbox), technical tools (such as metadata and configuration tools), and corporate tools (such as those used within HR and Finance).
- The next layer has the Foundation Services. These combine and add to the lower layer tools and services to provide access to broader areas of capability such as the management of classifications or the management of all statistical metadata. Importantly, from the point of view of the platforms, this layer provides Information Access and Information Analysis capability: Information Access provides the capability to search, discover, and access all information in the enterprise and Information Analysis provides the capability to analyse data and produce statistics ready for dissemination.
- The top layer is the platform layer. Each platform will provide access to standard capability and combine it with the elements specific to the statistical area (e.g. unique data storage, unique data viewing, unique statistical tools) where it is required. This is illustrated in the diagram below:

Figure 4: Platforms and services

33. Shared tools and services, and infrastructure ensure we are able to effectively and efficiently provide capability to the enterprise. We can also stage and target improvements, additions, and upgrades to Infrastructure, software, tools and services across the different layers with the benefits flowing back up through the stack. The ‘platform approach’ refers to the implementation of the business process model for a statistical cluster using foundational elements, tools and services, data and infrastructure. These may be common or unique to the platform.
34. A capability specification is a brief description of each capability in the enterprise with a statement about the benefits and features of the capability and how it aligns to Statistics New Zealand’s strategic priorities. The capability specifications are continually under development and review. The specifications are colour coded to match the five layers of the EA stack model and the status reflects if it is an existing or future development. Please refer to Appendix I for an example of a capability specification and Appendix II for a visual representation of where capabilities sit on the EA framework diagram.

C. End-to-end capability roadmap and individual roadmaps

35. The capability roadmap is a visual representation of all capabilities aligned to the EA stack model along a timeline. This quickly identifies from where in the enterprise architecture the capability is/will be provided and when it will be available. It is an alignment of the individual roadmaps created by the Enterprise Architecture team.

36. The roadmaps present a four year outline of capabilities for the individual projects and programmes that the EA team members are involved in. The roadmaps comprise information about current capability, future capability, position within the Enterprise Architecture, and a development timetable.

37. The roadmaps are developed in conjunction with the platform or capability owners and the delivery project teams. The roadmaps provide an agreed view which is also represented in project/programme plans. There are currently 12 roadmaps and the goal is to have those currently in draft and consultation signed off by the respective project steering committees by August 2012. The roadmaps are at varying levels of maturity, from very early ideas and concepts to having achieved sign off by a project steering committee. We have set five statuses for the roadmaps accordingly:

![Individual roadmap status](image)

Figure 5: Individual roadmap status

IV. Governance and reviews

A. Responsibilities and authority

38. Compliance with the EA is required. The highest-level authority for the EA is the Statistics NZ Board who approve the EA as part of the IT strategy. The IT Advisory Board (ITAB) has delegated authority to endorse the annual revision of the EA and provide advice on the architecture review process. The relevant Portfolio Committee or Steering Committee (using the advice of the ITAB) can decide on the approach to architecture where a conflict cannot be resolved or where there is a very significant decision to be taken.
39. The Architecture Review Panel (ARP) has responsibility through the architecture review process to ensure compliance with the EA and issue waivers/exemptions to projects/programmes. The ARP has authority in two key areas:

- Ensuring projects remain compliant with the architecture that was approved through the architecture review process. In cases where the project strays considerably from the approved architecture, the Senior Solution Architect has the authority to refer the project back through the architecture review process.
- Determining whether a change project must go through architecture review. If, in the opinion of the Enterprise Architecture Manager, the project is deemed a low architectural risk, he or she may conditionally exempt the project from the architecture review process although the project is still expected to comply with the EA.

40. All individual roadmaps are developed in conjunction with the business owner and the project team. The approval authority for the individual roadmap is the relevant steering committee.

B. Architecture review process

41. All changes to information, technology, and solutions are subject to Architecture Review. This step ensures that all changes are compliant with the EA. If they are not compliant, then projects must seek a waiver from the ARP. All developments, enhancements, introductions of new tools or third party software are required to submit an Architecture Review Proposal.

42. Projects with a budget of over $100,000 require an additional architecture review at the strategic level prior to the initiation phase (this is usually undertaken in conjunction with the development of the Business Case). The architecture review is a formal check that is performed to:

1) Review the architecture being proposed with respect to the project's purpose and context (gBPM, EA)
2) Discuss the possible architecture options
3) Make recommendations on how to proceed so that there is consistency with Statistics NZ’s EA

The architecture review helps to identify vulnerabilities in a proposed architecture through analysis of the overall design of the solution. It also provides an opportunity to challenge the existing architecture making architectural change a managed process.

43. The architecture review is performed by panel chaired by the Enterprise Architecture Manager and the following roles representing the project: IT Delivery Manager, Project Manager/SMPM, Solution (or appropriate) Architect and the Senior Developer from the development team.

The outcome of an Architecture Review is an Architecture Action Plan.

C. External reviews

44. In November 2010, as part of the external reviews undertaken for the Statistics 2020 Te Kāpehu Whetū business case process, Horizon Consulting undertook two reviews. The first review provided a risk assessment of the current state of Statistics NZ IT systems from a sustainability perspective (life-cycle management, maintenance, skill availability and adaptability to external change) and technology perspective (age, versions, mix of technology used).

45. The second review provided a set of recommendations to mitigate the risks identified in the first review and an assessment of the degree to which the proposed programme of work, specifically the Legacy Mitigation Programme and the Enterprise Architecture, would be successful in mitigating the risks identified in the first review (collectively these are referred to as the Horizon Consulting Review).
The overarching finding was "Statistics New Zealand is proceeding with both its Legacy Migration Planning and Enterprise Architecture development in a prudent well thought out manner". In relation to Statistics New Zealand’s enterprise architecture the review outlined the following gaps and challenges:

- While well thought out, the draft EA conceptual model does not appear to address the corporate side of the business (HR, Finance, shared corporate applications, “under-the-hood” enabling technologies, etc)
- Perhaps there is another layer to be added to the model that sits between the “Statistical Infrastructure” and “Data” layers and which comprises “Common Facilities” utilised on both the statistical and corporate sides of the business as alluded to above
- In moving to a model of shared components, the draft EA throws up some interesting governance challenges that Statistics New Zealand has not encountered before.
  - Who ‘owns’ shared modules?
  - How can administrative data be shared amongst a variety of business units?
- As Statistics 2020 ramps up these arrangements are likely to be stressed not least by resourcing pressures. The EA team estimates that they will need to grow by approximately 50% to be able to service the Statistics 2020 portfolio of projects.

In the year since the review was undertaken Statistics NZ’s enterprise architecture has continued to evolve and has taken into consideration the findings of the Horizon Consulting review, and is learning from implementation of the EA through delivery programmes and projects via our organisation’s transformation programme Stats 2020.

V. EA team

A. Role of the EA team

The EA team is composed of solution, security, and data architects who engage with the various business areas and are led by the Enterprise Architecture manager. The role of EA team is to:

![Role of the EA team](image)

Figure 6: Role of the EA team
B. Value Proposition

49. An important objective of the Enterprise Architecture team is to provide guidance to ensure Statistics NZ maximises its return on IT investments through:

- Promoting an enterprise view of technology across all software development projects and major technology initiatives
- Facilitating the integration of business strategies into technology planning, including input into IT investment strategies
- Promoting a culture of re-use at the business service level leading to improved delivery time frames and lower implementation costs
- Leveraging existing appropriate technical and support infrastructure to reduce the total cost of ownership (costs and manageability)
- Facilitating, in combination with relevant research and development efforts, the efficient and effective introduction of new technology to maximise the return on IT investments

Basic concepts for operating this knowledge portal are to develop a department culture like that shown in Figure 6 above, and to aim for staged growth by building trust and establishing value.

VI. Lessons learned and conclusions

A. Lessons learned

50. Statistics NZ’s EA has been evolving for a number of years. During this period we learned some important lessons:

- Alignment to statistical architecture: EA has to be aligned with statistical architecture, however in an NSI we often have multiple statistical architectures (eg economic, social etc) at different levels of maturity and implementation. We approached this challenge by using the platform approach to allow EA to consider the breadth and pace at which the organisation needs to transform
- Business ownership: implementation of enterprise architecture through the business projects can be very difficult if ownership isn’t clear. Governance framework (SW Owners Forum, Platforms Owners, and Project Steering Committees) was established to assure decisions are being taken at the appropriate levels and progress is monitored across the portfolios of projects
- EA has to be proactive and directly engaged with the implementation teams on an ongoing basis to ensure two-way connection between high level EA work and detailed design and implementation
- Management of change and migration is often underestimated. A huge effort is required to implement new enterprise architecture at the organisational-wide scale
- EA has to start with small successes and build on top of these. This improves business buy-in and removes the risk associated with big bang delivery
- We must always be aware of the end goal but keep in mind that this can change as the environment is constantly changing/evolving (eg relatively recent availability of cloud options, recent changes in mobile capabilities)

B. Conclusions

51. EA is a business-driven process that describes the impact of business change on the organisation's business processes, information, solutions and technology. Therefore the primary deliverable is the EA and its successful implementation. The majority of artefacts, concepts, and diagrams detailed in this document are not new, however it is the first time they have been presented together in a coherent framework.
References


Statistics New Zealand IT Strategy 2009 – 2012, internal document

Statistics NZ’s Business Development Plan - June 2011, internal document


Horizon Consulting: IT Risk Review, Statistics New Zealand - Current IT Environment, November 2010, internal document

Horizon Consulting: IT Risk Mitigation, Statistics New Zealand - Legacy Migration Plan and Enterprise Architecture, December 2010, internal document
Appendix I – Capability specification example

“Excelerated” reports

<table>
<thead>
<tr>
<th>Stats 2020 portfolio:</th>
<th>Economic – Micro Economic Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owners:</td>
<td>Better Economic Statistics transformation (BESi)</td>
</tr>
<tr>
<td>Capability:</td>
<td>Dissemination</td>
</tr>
<tr>
<td>Position in the EA model:</td>
<td>Foundation Services</td>
</tr>
<tr>
<td>Expected availability date:</td>
<td>September 2012</td>
</tr>
</tbody>
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Description

Provides creation of standard output reports using custom templates which link to standard classifications. The classification categories provide the basis for each report that is represented. This capability forms a part of the Standard Data Dissemination Management (SDDM) toolset, but will be available for integration with other platforms.

Strategic priority alignment

Strategic Priority 3 – Transforming the way we deliver statistics

- Provides automated output production through reporting templates

Benefits

Increased automation

- Creates a template for a given output that can be reused next time the output appears
- Reduces the time taken to produce standard output reports

Features

- Template driven report creation
- Links to standard classifications and metadata
- Utilises standard data repositories (such as relational databases and OLAP Cubes)

Uncertainties / dependencies

The Micro Economic platform requires the use of this tool within the 2012 calendar year. The SDDM project was not scheduled to deliver until 2012/13, but negotiations are in progress. This tool is also required as part of the 2013 Census toolset.
Appendix II – Capabilities by position in EA

The Capabilities by position in EA diagram (next page) is a view of the capabilities and shows where they sit on the EA framework diagram.

Note: This is a first draft where the focus has been to highlight capability delivered or proposed for current initiatives or programmes. Future versions will include all existing capabilities and indicate the lifecycle status of all.

Diagram key

- Represents a current capability that is specific to a layer or platform
- Represents a proposed capability
- Represents a reusable capability that is provided at a lower layer (eg Tools and Services) and can be used by the various platforms
- Represents a capability that is provided elsewhere outside of Statistics NZ

Reusability goal

Our aim for the future is to try and increase the amount of reuse by providing the capability further down the EA stack so it’s available to a wider audience.

For example, capabilities available in Platforms are provided by Tools & Services
Figure 7: Capabilities by position in EA version 0.1

(Deliveries supported by legacy systems are not included in this version)
Appendix III - Statistics New Zealand’s EA information poster

Statistics New Zealand’s Enterprise Architecture

Enterprise Architecture Standards

The purpose of the Enterprise Architecture (EA) Standards is to clearly state the EA requirements and ensure everyone is familiar and complies with the EA requirements. These standards apply equally to third-party including Commercial Off The Shelf (COTS), open source software and Statistics NZ software developed in in-house.

- **EA_A01** The solution shall conform to a Service Oriented Architecture (SOA) approach that can be deployed in multiple physical tiers (n-tier)
- **EA_A05** Service components inter-operability shall conform to the adapted New Zealand E-government Interoperability Framework (NZ e-GIF standard v1.3)
- **EA_A06** Service components shall conform to the Statistics New Zealand and New Zealand government data principles and standards
- **EA_A09** Service components shall conform to the Statistics New Zealand technology environment
- **EA_A10** Service components shall implement security methods based on the security standard [under development - contact Architecture Team]
- **EA_A12** User Interfaces shall conform to User Interface Technical Reference Model
- **EA_A13** Service components and data shall be able to be recovered to a known stable state after failure
- **EA_A23** Service components and databases shall be delivered to the standards required by the ‘Handover to Support Process’
- **EA_A39** User Interface components shall not directly access data stores
- **EA_A40** Service components shall be designed and developed using Object Constraint Language (OCL) Metamodel and
- **EA_A40** Design Models shall comply with Unified Modelling Language (UML) v2.0 or above

Transition Phases

The three images below illustrate the staged transition from the ‘before’ version to the ‘after’ version of our architecture.

Five initial platforms have been identified, Household Platform (HPS), Micro-Economic Platform (MEPS), Macro-Economic Platform, DNA, Collection and Dissemination platforms. Through the Statistics 2020 Programme additional platforms maybe required, for example population/demography and integrated data.

Business Principles

- **Common usage applications** - Development of applications used across the enterprise is preference over the development of similar or duplicative applications which are only provided for separate business areas.

Data Principles

- **Data is an asset** - Data is an asset that has value to the enterprise and is managed accordingly.
- **Data is accessible** - Data is accessible for users to perform their functions.
- **Data is shared** - Sharing and reusing of data is preferred over duplicating data from one business area to another.
- **Common vocabulary and data definitions** - Data is defined consistently throughout the enterprise, and the definitions are understandable and available to all users.
- **Data Security** - Data is protected from unauthorised use and disclosure

Technology Principles

- **Control technical diversity** - Technological diversity is controlled to minimise the non-trivial cost of maintaining expertise in and connectivity between multiple processing environments.
- **Interoperability** - Software and hardware should conform to defined standards that promote interoperability for data, applications and technology.

The ‘After’ version - New Architecture

Based on standardisation to support an “analytics data first” statistical architecture and a more responsive statistical organisation

Figure 8: EA poster