Enterprise Architecture for UK Government
An overview of the process and deliverables for Release 1

Introduction

The cross-Government Enterprise Architecture (xGEA) is a fundamental element of the government's "Transformational Government - Enabled by Technology" strategy which was published in November 2005. In that strategy the first priority of the CTO Council was identified as being to agree and publish a standard Enterprise Architecture reference model which would help align existing and emerging technical architectures across government with the xGEA.

This paper describes how the first release of the xGEA – which includes the Enterprise Architecture reference model - will begin to identify opportunities that will underpin improvements in the areas focussed on in the strategy, in particular:

- Services enabled by IT designed around citizens and businesses
- Moving to a shared services approach
- Broadening and deepening government's professionalism

A discussion of the value and approach to be derived from this area of work will be provided to give insight to both the general reader and members of the more specialist enterprise architecture community.

The value of an xGEA

The business-led vision that underpins the Transformational Government agenda requires an improved method of identifying opportunities:

- To reuse solutions developed for specific issues but which potentially could have a wider value
- To share across public sector organisation boundaries to work more efficiently and save resources
- To be informed of the wider context (other public sector bodies, business and the citizen) in which IT enabled business change is taking place

By effectively providing a business and IT blueprint for government, the xGEA will help to deliver these requirements. Other benefits include:

- Promoting the development of common infrastructure
- Improved management of risk
- Identifying and aggregating demand to promote efficient use of resources
- Sustainable alignment of business and IT functions
- Agreement of shared standards to promote better inter-working between agencies
- A greater competition in the supply of IT services and products
- Improved business agility and a reduction of total cost of ownership

Release 1 xGEA enabling reuse for Government

Government like most enterprises is extremely complex and subject to an ever increasing rate of change. Accommodating change is costly, time-consuming and can be an obstacle to success. Information Technology is a complex and fundamental enabler, but difficult to change quickly. Against this background we have created a practical, pragmatic approach to developing our xGEA.

Many parts of the public sector are already in the process of creating or are maintaining an enterprise architecture. The xGEA is intended to supplement not replace the architecture capabilities of specific public sector bodies.

The xGEA will define a set of views to allow decision makers to make the right choices to best transform government enabled by IT. The focus of Release 1 is to create views that will facilitate both the production and consumption of reusable assets.

In order to rapidly achieve value an 'exemplars approach' has been adopted. Exemplars are tested and proven processes, methods, tools, techniques, systems or services nominated for collective use by their business leader, CTO or CIO. It will enable public sector bodies to submit the good practice assets for consumption from other organisations and will facilitate the consumption of those assets.

This process has been designed by contributions from Departments, Agencies, Local Government and the Devolved Administrations. In order to communicate across the organisations a common language will be required. To facilitate this, a Reference Model has been built, and is being populated with exemplars' details.

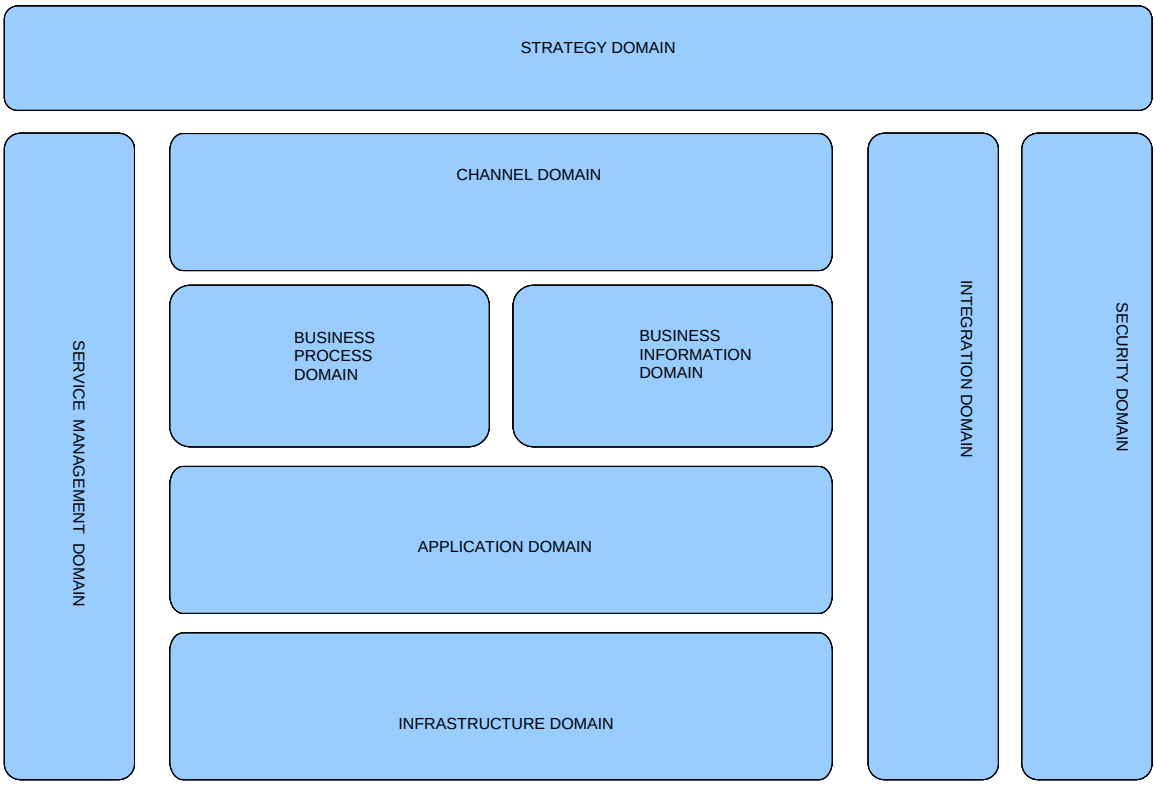
It is envisaged that the process to capture and assign exemplars will continue to develop over time. As this work evolves the models will change to reflect the language being used. Our iterative approach will allow us to develop this work in a pragmatic and achievable way.

Scope of xGEA Release 1

The first release of the xGEA will focus on building the initial portfolio of opportunities to share. The following items will support this:

- An xGEA Reference Model (xGEARM) to enable communication through an agreed set of terms and definitions
- A repository with Enterprise Architecture assets captured for all government to use
- An opportunity portfolio of potential exemplars
- A set of processes based on industry practices for describing the exemplars and the EA models

The xGEARM



The first release of our reference model has been created and is shown above. As organisations discuss opportunities to share, many of which will be services, this reference model will help us place our communication into a common framework.

Over time detail will be developed and the framework modified so that it will provide a common language which will facilitate the easier communication of exemplars to be shared. This sharing will be supported by the identification and use of relevant international standards.

Work is already in hand to develop detailed pictures of each of the domains above with the infrastructure domain being our first priority.

Repository

The material collected and generated whilst defining the xGEA will be placed into a repository for all government to use. This repository will be a rich resource that will be used to:

- Store exemplars in a form which allows for easy searching
- Understand the relationships between organisations and their business services to identify exemplars in the future
- Provide a common reference point for creating Enterprise Architectures for those organisations that have not started to develop their own.

Opportunity Portfolio of potential exemplars

The scope of the first release of the xGEA was identified earlier as building the initial portfolio of opportunities to share. These will be evaluated by those wishing to share in terms of value. Value from an exemplar could be measured as:

- Cost saving – e.g. investment has already been made and can be reused with little further expense
- Cost avoidance – e.g. in a future planned programme driving down its costs
- Increase quality – reuse an existing solution / service that has already been tested
- Time to market – reuse an existing solution / service that has been built
- Increased function to citizen – additional functionality not previously envisaged may be available
- Increase citizen access to government – access to more citizens than first envisaged may be possible

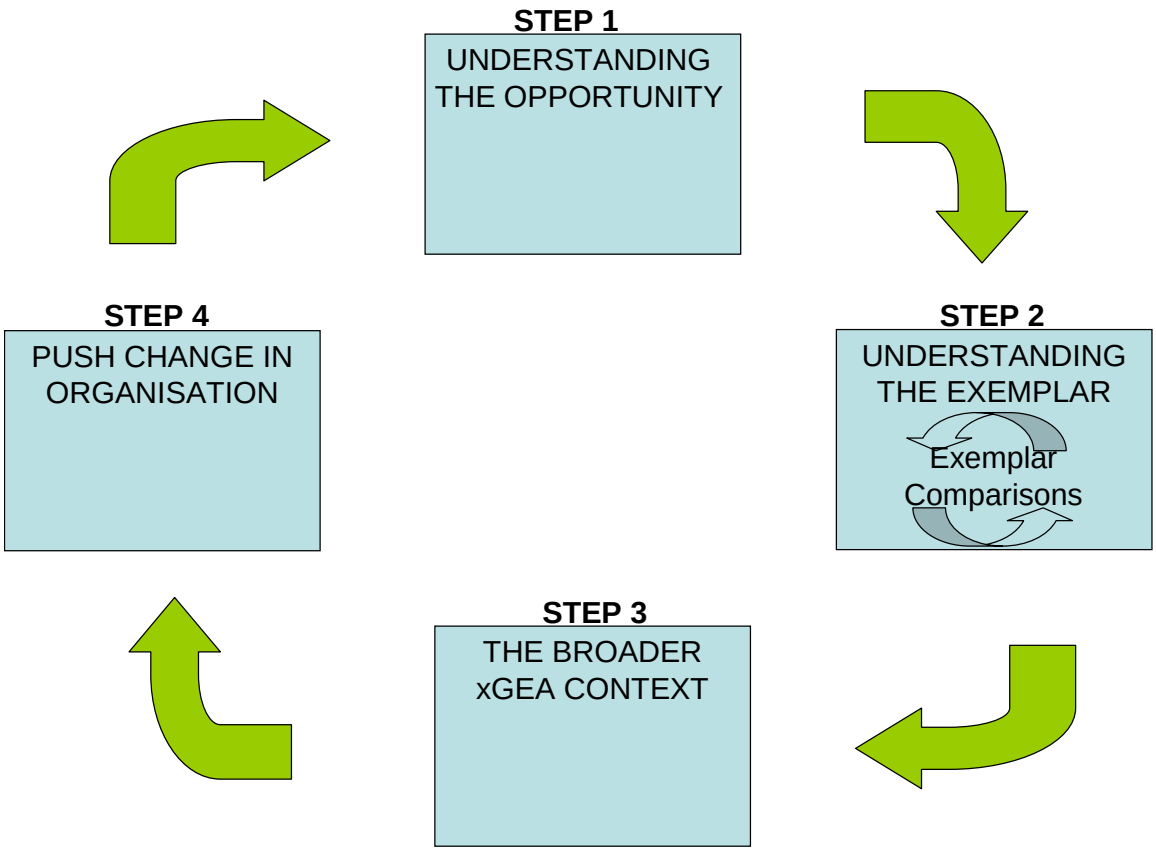
This will enable us to identify the best opportunities to share and enable us to plan the necessary changes.

Approach

The Process for identifying sharing and reuse opportunities

This process supports the creation of a practical, pragmatic approach to developing our xGEA through identifying opportunities from across government where there is a potential to share. This will ensure that the xGEA is grounded in real examples (i.e. identified exemplars) where cross government sharing and reuse is put into practice.

The process, highlighted in the following diagram, will create the forum for organisations to propose exemplars that other organisations may wish to consume and, more importantly, the forum for organisations to request potential exemplars that they would like to consume.



These exemplar requests and submissions will then be ranked against a number of criteria to determine the priority of those exemplars to be deployed. The following sections describe this process in more detail.

Understanding the opportunity

Earlier in this document the concept of identifying candidates for sharing was discussed. However it is equally important that the demand for consuming the opportunities to share is identified.
In order to ensure that benefits are identified quickly initial candidate exemplars will be selected that:

- Cross 2 or 3 organisational boundaries
- Demonstrate tangible business value and can be expressed as value to UK citizens
- Focus on the business content and events that need to be shared
- Have non-functional IT capabilities (e.g. hardware and networks) that could be consolidated or otherwise shared

This release will create the first version of the opportunity portfolio that will be populated by the possible exemplars.

Understanding the exemplar

Once an initial set of opportunities for sharing have been understood and selected the next step will focus on grouping and assessing the exemplars such that we can identify areas of common requirement and areas of most value.

It is likely that a number of organisations will have similar candidate exemplars that are believed to offer comparable service. The groupings will enable the providers and consumers to work together to determine the desired function and the exemplar(s) that best meet the requirement.

The aim of this step is to have a documented set of requirements that the candidate exemplars are trying to meet and a plan for how the exemplar(s) will be made available to other organisations.

The broader xGEA context

This step focuses on placing the chosen exemplar into the wider context of the xGEA to ensure it can interact with other existing exemplars. For example, if an identification exemplar was chosen it may have to work alongside an authentication exemplar.

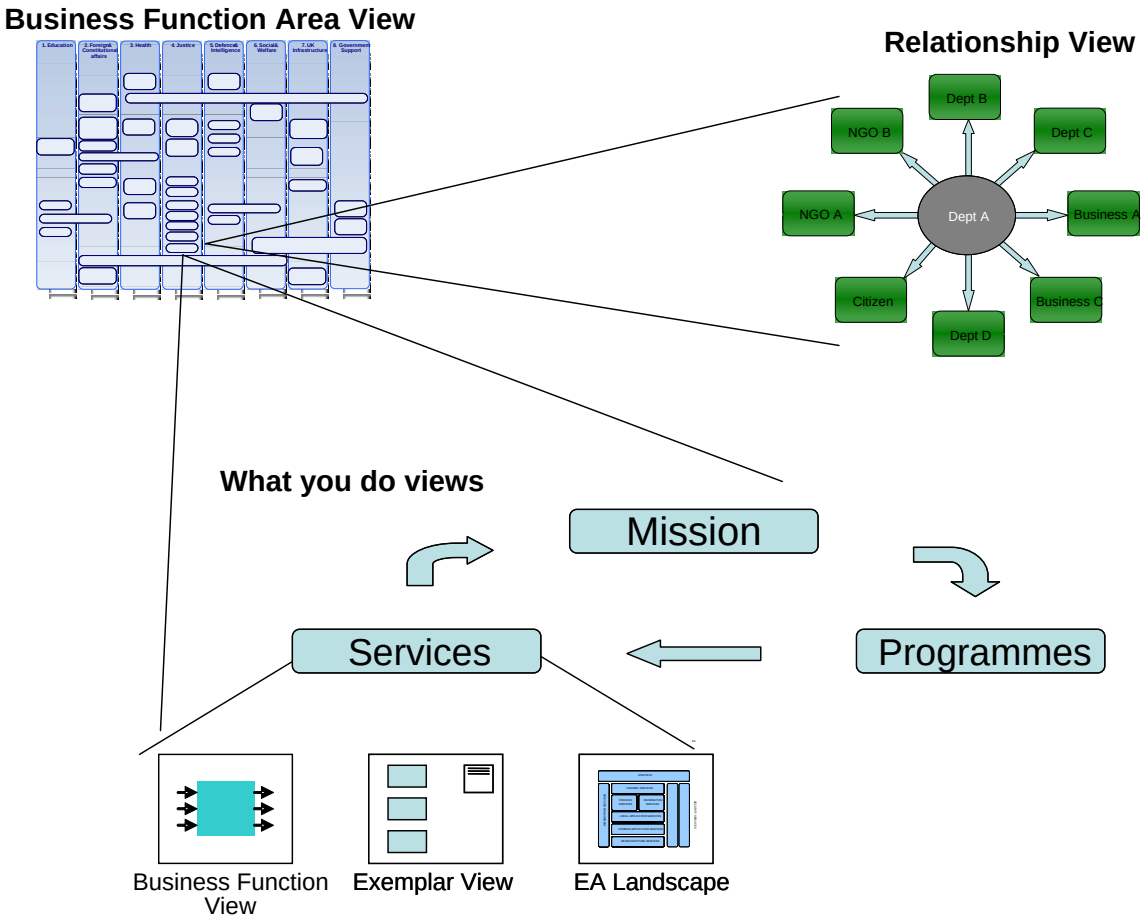
Therefore in step 3 the dependencies between the defined exemplar and other existing exemplars are captured. This will be done in the context of the xGEA Reference Model which will result in the identification of necessary standards to ensure the exemplars can interoperate.

From this we will create a plan for deploying the exemplar across the various government organisations who have agreed to consume it.

Broader context to ensure entire scope captured

The exemplar process can be seen as a bottom up process, working from practical examples. This approach will enable the quick identification of opportunities to reuse. However these opportunities will be based on organisational views, initially driven from the CTO Council and may be focused on current activities.

So that exemplars will continue to be identified other views will be captured to facilitate a top down driven process. The following diagram shows the relationship between these views.



Organisations will be aligned to functional business areas, captured in the Business Functional Area View, to identify potential groupings of functional similarity. From this view two specific sets of data will be collated:

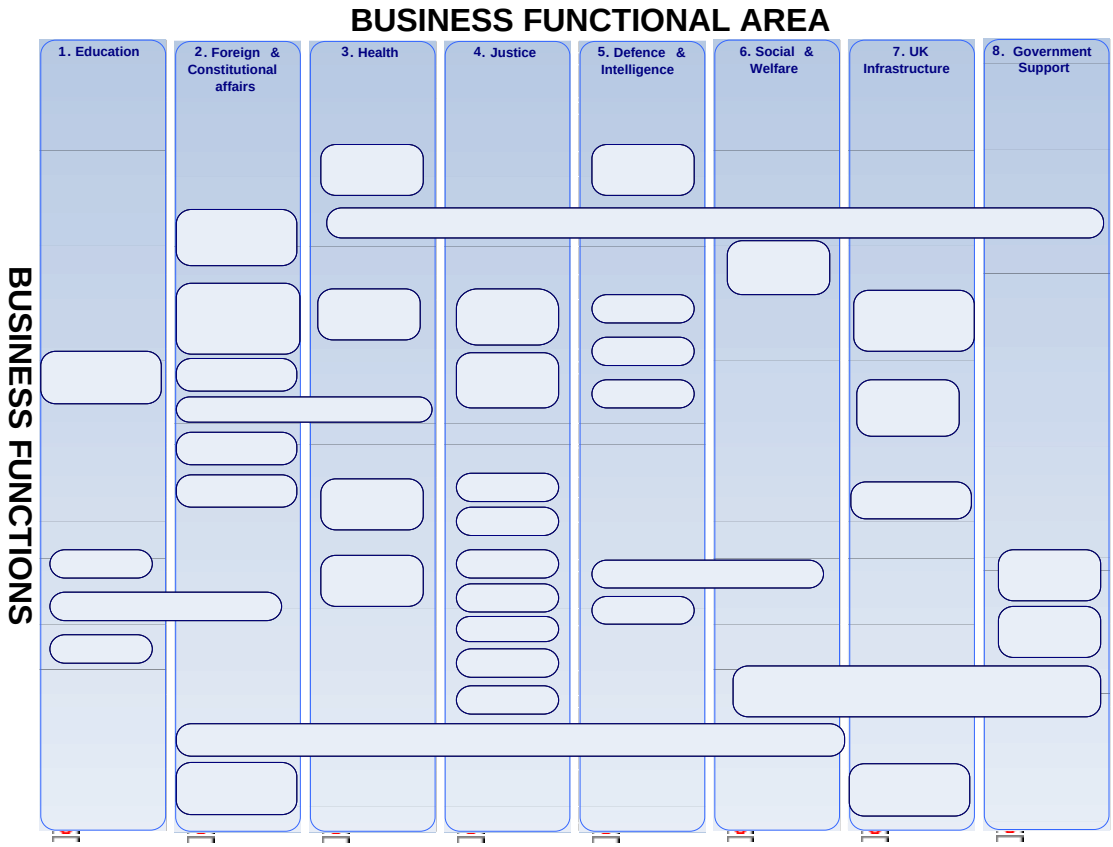
- Who public sector areas eg government departments have relationships with?
- What they do?

The ‘What they do’ question is then broken down into a subsequent set of views ranging from:

- Mission - the reason to function as an organisation
- The programmes that are currently running, or are planned that will meet the mission
- The services that result from the delivered programmes

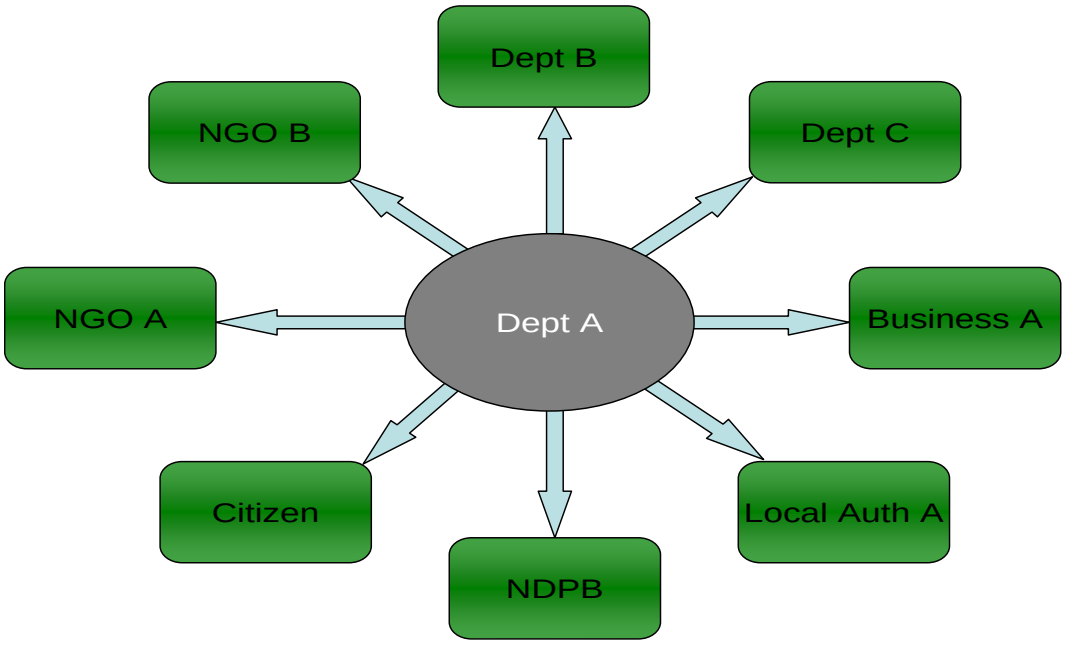
The following sections explain those views in more detail:

Business Functional Areas View



The Business Functional Areas have initially been created by placing organisations against functional areas. This view will evolve over time through taking the functions captured in the Business Function view from each organisation, to provide a business functional view of cross government. This will then enable organisations to determine where there is duplicate function across organisations and functional areas so that duplications can then be investigated to determine whether there are opportunities for reuse.

Relationships



This view captures the relationships an organisation has with other:

- Departments
- Agencies
- Non Government Organisation
- 3rd parties
- Citizens
- Businesses
- Other Governments

'Relationship' as it is used here is not limited to technical relationship, if an organisation's business processes involve written or telephone communication then that is a valid relationship too.

This view will enable us to identify where organisations have similar relationships, e.g. if a number of departments have a relationship with a particular organisation, business or citizen then the terms of such relationships may merit investigation with a view to driving best value for money, reuse and consolidation.

Mission

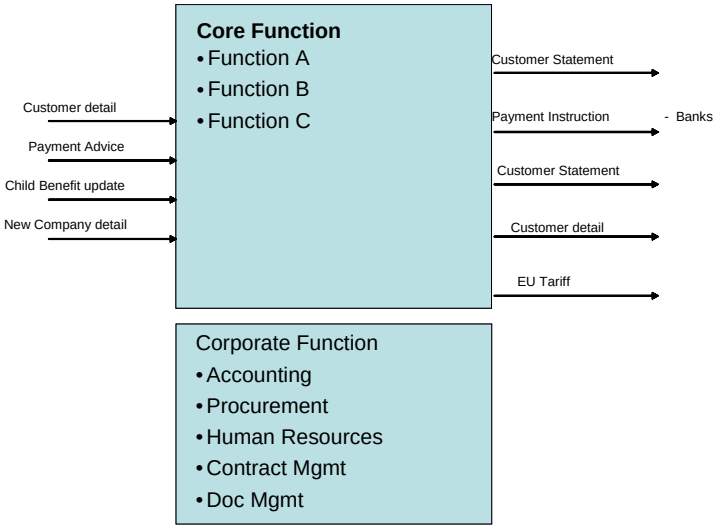
The mission, which in many cases will be or be based on an organisation's mission statement, will be a brief very high level statement relating to what the public sector organisation is trying to achieve. This will be used to determine whether organisations have like aims.

Programmes

Once the first release of the opportunity portfolio has been created the programme plans will be used to identify possible consumers of exemplars. These organisation programme plans will capture current and future initiatives.

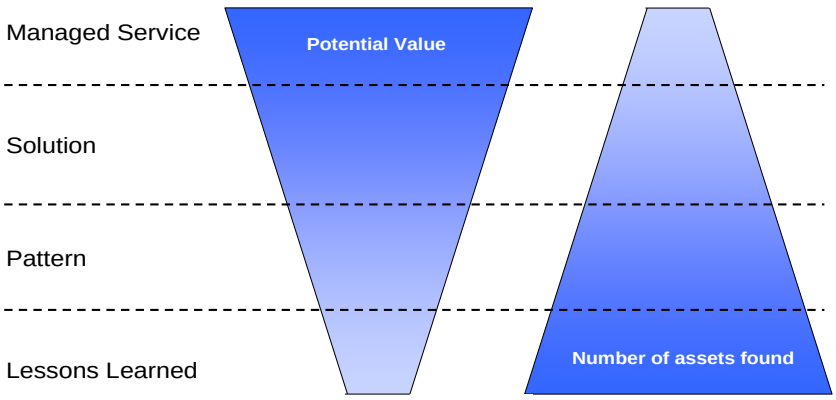
Services

Business Function



Potential future areas for sharing can be identified by looking top down through assessing the key business functions and information flows. This will be achieved by producing a very high level view of an organisation's core functions and information flows. In describing the Business Function model as above, for example, and then comparing it with that from another organisation a number of organisations can be seen to perform a similar function or similar information flow, such as 'Payment Instruction'. This could highlight a potential exemplar that could be used across organisations which perform a similar function.

Exemplar Types

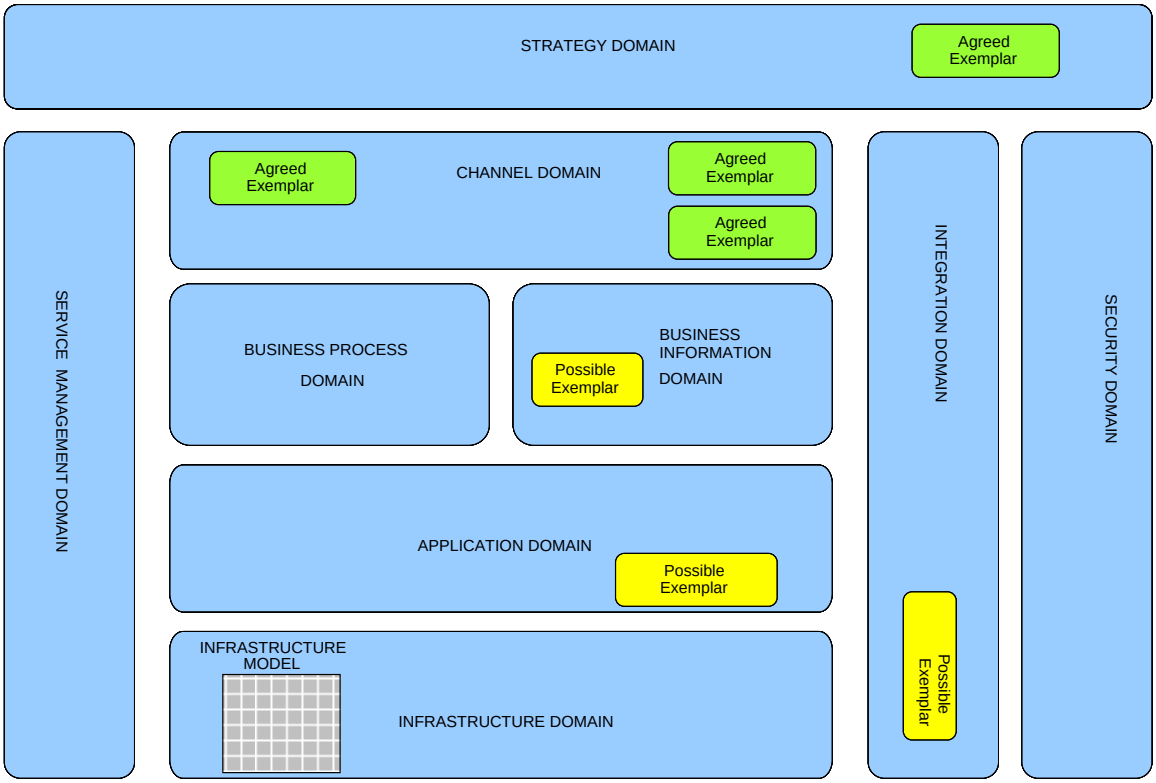


Exemplars can be categorised into four types:

- Managed Service – it can be provided within the existing technology and people in place today and provided as a service direct
- Solution – it is based on a proven approach with a set of technology and will be re-built using a trusted team
- Pattern – it is a proven approach / technique that can be followed again
- Lesson Learned – it is purely a set of recommendations around a specific area

These exemplars will be harvested from the supplying organisation in different ways depending on the value the exemplar provides. These will range from little assistance required through to full governing board required to ensure exemplar is incubated until ready to be shared.

EA Landscape

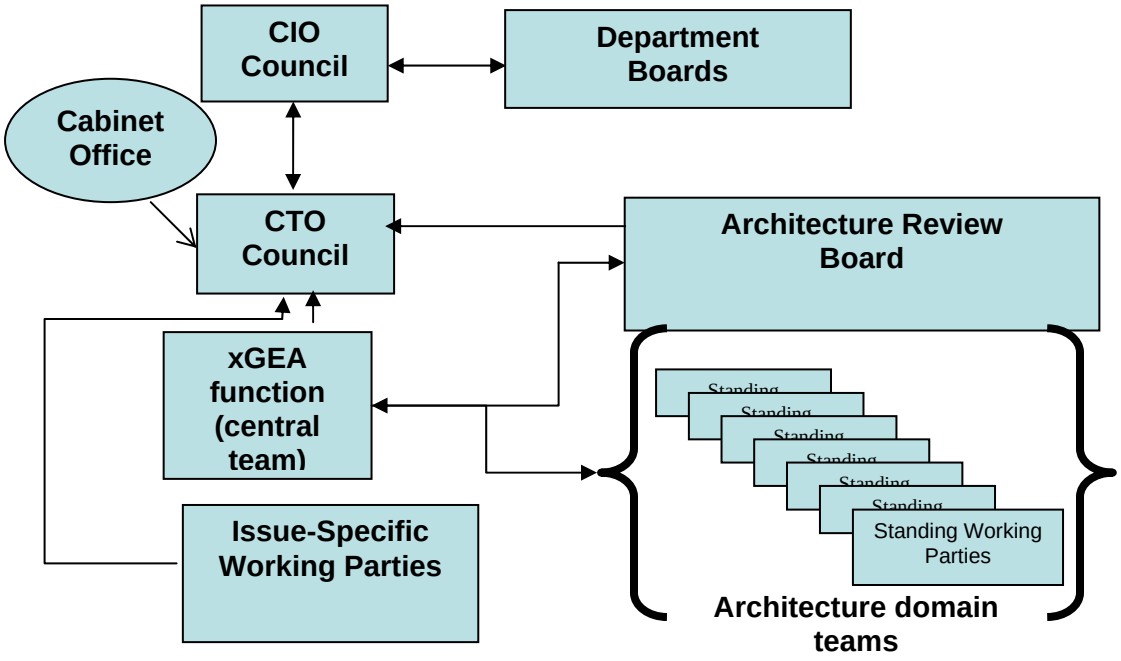


When the exemplar and the requirements that it meets are fully articulated it will:

- Be placed against the agreed xGEA Reference Model
- Be tested against the common language created
- Provide another entry point for organisations to search for exemplars they might wish to make use of

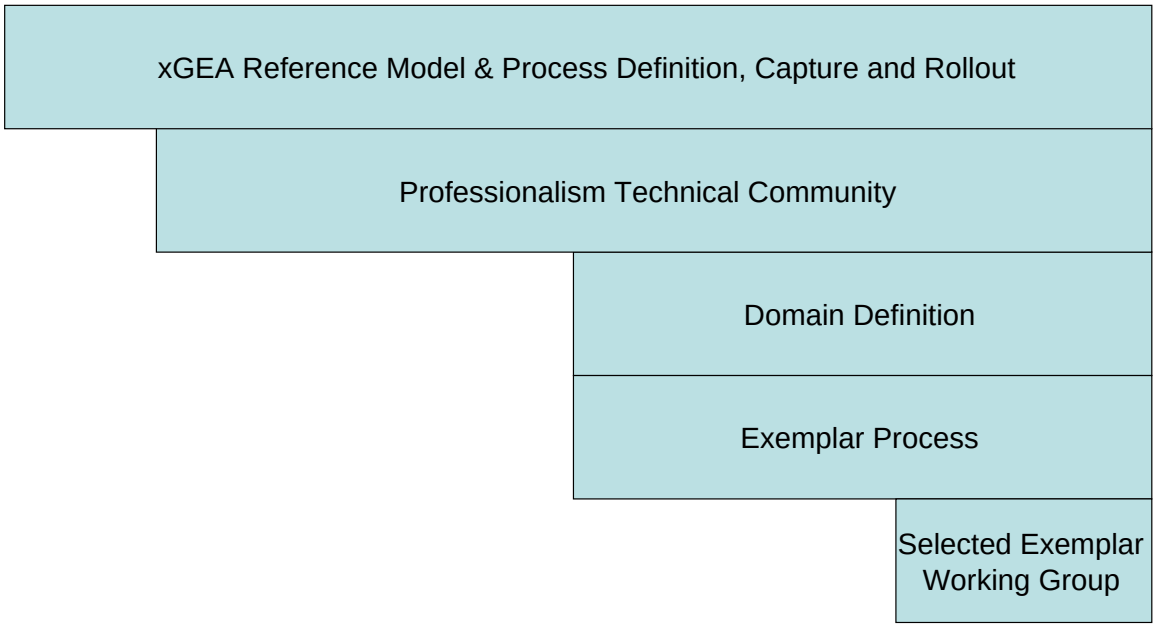
Governance and Plan

How the teams will work



The EA function work is being undertaken through a central team which reports to the CTO Council and domain teams which have been agreed with the Council and staffed by their representatives. The CTO Council has agreed that the work of the xGEA should be overseen by an Architecture Review Board.

Planning



The work performed breaks down into four categories:

1. The collation of material for the repository as described above, along with the exemplar process.
2. The definition of each of the domains in the xGEA Reference Model.
3. An ongoing Skills Framework for the Information Age (SFIA) skills assessment, joined with the community of Technical Architects being built based on running the above two activities.
4. Once the potential Opportunities Portfolio is created we will then need to create working groups to define the definitive requirement and select the desired exemplar.

The Way Forward

Looking ahead, the CTO Council will continue to focus on the necessary technical work which underpins the development and adoption of the xGEA. Areas of particular interest will include:

- Work on a common infrastructure based on the open standards and proven interoperability implemented with commercial off the shelf products
- Common standards to help facilitate reuse and sharing
- Inclusion of Information Assurance into all aspects of design and build
- Rationalising government data and voice networks
- Adopting a consistent approach to identity management