

The role of Information Governance in an Enterprise Architecture Framework

Richard Jeffrey-Cook, MBCS,
CITP, FIRMS

Head of Information and Records
Management

In-Form Consult Ltd, Cardinal Point
Park Road, RICKMANSWORTH,
WD3 1RE, UNITED KINGDOM
+44 1483 894052

richard.jeffrey-cook@inform-
consult.com

ABSTRACT

The Open Group Architecture Framework (TOGAF) is a leading method and set of supporting tools for developing an enterprise architecture. An element of enterprise architecture is information architecture and a component of information architecture is information governance.

This paper examines where TOGAF makes reference to information governance and identifies the methods and supporting tools in TOGAF which relate to information governance. These include the definition and characteristics of governance as used by TOGAF, the Architectural Governance Framework employed by TOGAF, the idea of a Governance Repository, suggestions on an Organisation Structure, the use of Capability Maturity Models, and the concept of an Integrated Information Infrastructure Reference Model.

Examining the methods and supporting tools suggests that there is a disconnect between The Open Group authors and the professionals in the information and records management community on applying best practices and techniques for creating an information architecture and applying information governance.

There is an argument that the community should create an information architecture framework compatible with TOGAF and promote information and records management best practice and techniques to the wider information technology community. A body such as the DLM Forum would be in a good position to achieve this.

Categories and Subject Descriptors

D.3.3 [Enterprise Architectures]: Enterprise Architecture Frameworks – *Information architectures, The Open Group.*

General Terms

Management, Documentation, Design.

Keywords

Information Governance, TOGAF.

1. INTRODUCTION

Effective information governance requires information architecture to be addressed. Where enterprise architecture has been defined and methods for developing an enterprise architecture have been

created there is no agreement on how to define information architecture and how it should be addressed.

This paper examines TOGAF, a widely adopted framework for creating an enterprise architecture and looks at where information governance fits in such a framework. From examining these components it may be possible to demonstrate how incorporating information and records management techniques into TOGAF an approach to developing an information architecture might be created.

2. TOGAF

The Open Group Architecture Framework (TOGAF) is a framework - a detailed method and a set of supporting tools - for developing an enterprise architecture. It may be used freely (subject to conditions of use) by any organization wishing to develop an enterprise architecture for use within that organization.

TOGAF was developed by members of The Open Group, working within the Architecture Forum (www.opengroup.org/architecture). The original development of TOGAF Version 1 in 1995 was based on the Technical Architecture Framework for Information Management (TAFIM), developed by the US Department of Defense (DoD).

Starting from this sound foundation, the members of The Open Group Architecture Forum have developed successive versions of TOGAF each year and published each one on The Open Group public web site.

3. ARCHITECTURE FRAMEWORK

An architecture framework is a tool which can be used for developing a broad range of different architectures. It describes a method for designing an information system in terms of a set of building blocks, and for showing how the building blocks fit together. It contains a set of tools, provides a common vocabulary and includes a list of recommended standards and compliant products that can be used to implement the building blocks.

The primary reason for developing an enterprise architecture is to support the business by providing the fundamental technology and process structure for an IT strategy. This in turn makes IT a responsive asset for a successful modern business strategy.

An information architecture framework should describe a set of tools, common vocabulary, recommended standards and techniques

which together form a set of building blocks for managing information.

4. INFORMATION GOVERNANCE

There is no universal definition of information governance as these two examples demonstrate.

The Information Governance Initiative defines information governance as the activities and technologies that organizations employ to maximize the value of their information while minimizing associated risks and costs [1].

Gartner defines information governance as the specification of decision rights and an accountability framework to encourage desirable behavior in the valuation, creation, storage, use, archival and deletion of information. It includes the processes, roles, standards and metrics that ensure the effective and efficient use of information in enabling an organization to achieve its goals. [2]

5. GOVERNANCE IN TOGAF

TOGAF focuses on “Architecture Governance”. TOGAF identifies that there is a hierarchy of governance structures, which, particularly in the larger enterprise, can include all of the following as distinct domains with their own disciplines and processes: Corporate governance; Technology governance; IT governance and Architecture governance. Within an organisation, governance may operate at different levels of scope such as organizational and geographic.

TOGAF incorporates information governance into IT governance. Governance is essentially about ensuring that business is conducted properly. It is less about overt control and strict adherence to rules, and more about guidance and effective and equitable usage of resources to ensure sustainability of an organization's strategic objectives.

5.1 Characteristics of Governance

TOGAF defines the characteristics of governance (adapted from Naidoo 2002) as:

Discipline

All involved parties will have a commitment to adhere to procedures, processes, and authority structures established by the organization.

Transparency

All actions implemented and their decision support will be available for inspection by authorized organization and provider parties.

Independence

All processes, decision-making, and mechanisms used will be established so as to minimize or avoid potential conflicts of interest.

Accountability

Identifiable groups within the organization - e.g., governance boards who take actions or make decisions - are authorized and accountable for their actions.

Responsibility

Each contracted party is required to act responsibly to the organization and its stakeholders.

Fairness

All decisions taken, processes used, and their implementation will not be allowed to create unfair advantage to any one particular party.

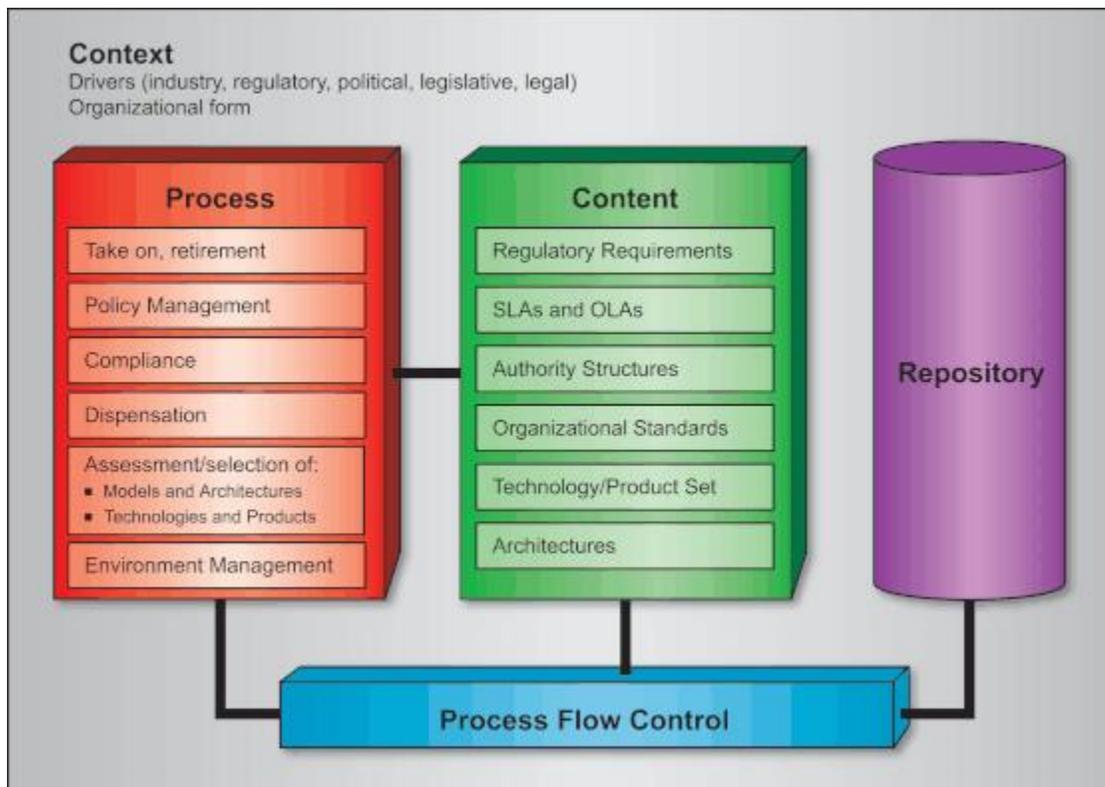


Figure1: TOGAF - Architecture Governance Framework - Conceptual Structure

5.2 TOGAF Recommendations

TOGAF recommends COBIT for IT Governance. COBIT also addresses information security and thus introduces the idea of controls on information.

TOGAF identifies that IT Governance and Architecture Governance should be a board-level responsibility. By implication, Information Governance should also be a board-level responsibility. As further justification for this approach, ISO 27001 also identifies that Information Security should be a board-level responsibility.

Phase G of the TOGAF Architecture Development Method (ADM) refers to implementation governance. This is generally considered as an aspect of IT Governance and concerns itself with the realization of the architecture through change projects. Implementation governance extends to the realization of information management through change projects – as identified in Stage F of DIRKS [3] for example.

DIRKS itself is one of the few formal methods in information and records management. It appears to be falling out of favor with the information and records management community but, in common with other methods, this may be because it has been poorly applied rather than in any inherent faults with the method itself. Developed in the 1990's it is probably due for a review to see whether or how it can be incorporated into a modern information architecture framework.

6. ARCHITECTURAL GOVERNANCE FRAMEWORK

TOGAF introduces the idea of an Architectural Governance Framework.

Conceptually, architecture governance is an approach, a series of processes, a cultural orientation, and set of owned responsibilities that ensure the integrity and effectiveness of the organization's architectures.

The framework splits process, content, and context. This allows the introduction of new governance material (legal, regulatory, standards-based, or legislative) without unduly impacting the processes. This ensures that the framework is flexible. The processes are typically independent of the content and implement a proven best practice approach to active governance.

Information governance should adopt the same approach. All the elements of Architectural Governance Framework are applicable to an Information Governance Framework.

An important aspect is the presence of a repository to store all the governance related information.

7. GOVERNANCE REPOSITORY

An information governance repository should hold the information needed to apply governance effectively. This may include items such as governance requirements; stakeholders; sources of requirements; classification and retention and disposal schedules.

7.1 Governance Requirements

Documenting governance requirements is essential for demonstrating that the controls applied to information are necessary and effective. Requirements may be related to the storage of information (whether physical or electronic), the security and access to information, the retention and disposal of information.

7.2 Stakeholders

Governance requirements may be related to one or more stakeholders who have an interest in the information. Stakeholders might be specific individuals or organisations. For convenience they can be grouped together where they share a common interest in a class of information.

7.3 Sources of Requirements

Identifying the source of a requirement is important to verify that the requirement has been documented accurately. An example of a source might be a piece of legislation that requires an organization to retain a document for a specified period of time. A source might also be a standard or a procedure document. It could equally be the whim of the Chief Executive or a Director.

7.4 Classification

Classification is the framework on which access controls and disposal schedules can be applied. Classification itself serves five useful purposes:

1. It provides context for information. A single document is generally less useful than a set of related documents.
2. It can organize storage. For physical storage systems it is essential to have a classification structure to enable items to be stored in a consistent fashion and to be retrieved reliably. In electronic storage systems classification is not required to retrieve information but still may offer significant benefits in retrieving information effectively and efficiently by improving performance.
3. To browse for information. Browsing (as opposed to searching) is necessary for effective information retrieval.
4. To apply access controls.
5. To apply disposal schedules.

There are many different approaches to classifying information all of which have their strengths and weaknesses. Records managers typically prefer functional classification schemes because these often change less over long periods of time. Engineering and oil and gas companies may use an asset-based classification scheme to organize their information. Subject based classification systems are useful for searching. One of the most common, but least effective systems of classification is organization based. Many shared file servers use folder structures based upon organizational structures. They are simple to implement but tend to degrade rapidly as many organisations change their structures regularly.

7.5 Disposal Schedules

A governance repository should hold the disposal schedules that the organization applies to information. Many organizations have a schedule but fail to implement it effectively. This is due to the schedule being related to the type of information instead of being related to how that information is organized and stored.

8. ORGANISATION STRUCTURE

The Architecture Governance Framework also identifies an Organisation Structure.

At the top of this structure is the Chief Information Officer (CIO) or Chief Technology Officer (CTO). The IGI advocates the creation of a Chief Information Governance Officer (CIGO) [4]. This is from the finding that most CIOs are in fact only responsible for technology infrastructure, and not the information itself. As the report recognizes, a title in itself is meaningless. Projects are underway to define the role of a CIGO and, if adopted, the CIGO

must be placed within the Organisation Structure of the Architecture Governance Framework.

Beneath the CIO, the TOGAF defines three distinct areas of stewardship: Develop; Implement and Deploy. It is in the “Develop” area that an Information Architect would sit. TOGAF distinguishes between Enterprise Architects and Domain Architects. The role of an Information Architect needs to cover both enterprise architecture and domain architecture.

TOGAF recognizes that a large organization may need a number of specialist architecture roles. It has recognized Foundation Architects, System Architects, Industry Architects and Organization Architects. Unfortunately the role of an Information Architect has not been recognized. This may be due in part to the lack of a universally agreed definition for information architecture.

Instead TOGAF does refer to a Data Architecture, describing the structure of an organization's logical and physical data assets and data management resources. This could be extended to become an Information Architecture, describing the structure of an organization's logical and physical information assets and information management resources. There may be significant advantages by not distinguishing between structured data and unstructured information when creating an architecture.

In the “Implement” area sits the Programme Management Office (PMO). Getting the PMO to recognize the significance of information architecture can make an important contribution to the success of an information governance framework.

In the “Deploy” area is placed Service Management. In many organisations the role of a local information manager (often referred to with terms such as “Information Champion” is recognized as necessary in order to apply controls successfully at a local level. This is usually combined with a central information management or records management function that takes responsibility for corporate level matters. This type of structure (or an equivalent) must be reflected in a Governance framework.

TOGAF recognizes that these three areas must be aligned if they are to be successful.

9. CAPABILITY MATURITY MODELS

TOGAF incorporates the concept of Architecture Maturity Models. Information Governance already has the Information Governance Maturity Model [5] developed by ARMA as part of the Generally Accepted Recordkeeping Principles (GARP).

The Information Governance Maturity Model (Maturity Model) – which is based on the Principles, as well as the established body of standards, best practices, and legal/regulatory requirements that surround information governance – begins to paint a more complete picture of what effective information governance is. It defines the characteristics of information governance programs at differing levels of maturity, completeness, and effectiveness.

For each of the eight principles, the Maturity Model describes characteristics that are typical for its five levels of maturity: from level 1 (sub-standard) to level 5 (transformational). Referencing the Maturity Model alone is a high-level evaluation, a more in-depth analysis likely will be necessary in order to develop the most effective improvement strategy. An Information Architecture Framework should provide the methods and tools to develop this strategy.

The benefits of capability maturity models are well documented for software and systems engineering. Their application to enterprise architecture has been a recent development, stimulated by the increasing interest in enterprise architecture in recent years,

combined with the lack of maturity in this discipline. The same can also be said for information architecture.

10. INTEGRATED INFORMATION INFRASTRUCTURE REFERENCE MODEL AND BOUNDARYLESS INFORMATION FLOW

TOGAF defines boundaryless information flow as the requirement to get information to the right people at the right time in a secure, reliable manner, in order to support the operations that are core to the extended enterprise.

Information and records management might describe this requirement as one of “accessibility”. It is important to recognize that this does not imply that there should be no boundaries, but that they are “permeable”. The problem that TOGAF is attempting to address with boundaryless information flow is in part caused by the organizational instead of functional classification of information.

Integrated information infrastructure has been introduced in TOGAF to provide integrated information so that different and potentially conflicting pieces of information are not distributed throughout different systems and integrated access to that information so that staff can access all the information they need and have a right to, through one convenient interface.

The Integrated Information Infrastructure Reference Model (III-RM) takes an architectural approach to addressing this problem. It identifies five components: business applications; infrastructure applications; an application platform; the interfaces and a “quality backplane”. What is notable by its absence is any reference to a classification scheme or any approach which looks at the information itself. This would appear to be a major weakness in TOGAF and demonstrates the need for TOGAF to incorporate information governance best practice.

11. HOW TO PROCEED?

In trying to create a framework for information governance and architecture two alternative approaches are possible. The first would be to modify TOGAF to place greater emphasis on information governance and architecture and to adopt the techniques that information and records management professionals have developed.

An alternative approach would be to set up an Information Architecture Framework as a stand-alone approach, separate but needing to interface with an Enterprise Architecture Framework.

The first approach would need to be adopted by The Open Group members themselves. Over time it is possible, indeed perhaps likely, that TOGAF will recognize the increased importance of information architecture and adopt more techniques developed by information and records management professionals.

The second approach would need an organization such as the DLM Forum to support a project to create an Information Architecture Framework.

For organisations that already are using TOGAF or wish to develop an enterprise architecture then the first approach would be more useful.

For organisations without an enterprise architecture and have no intentions to develop one, an information manager could find an Information Architecture Framework extremely useful.

The two approaches are not incompatible. An Information Architecture Framework could be created first and then if it proves

useful to enterprise architectures be incorporated into TOGAF at a later date.

12. DEVELOPING AN INFORMATION ARCHITECTURE FRAMEWORK

There are a number of different methods and tools that would contribute to an information architecture framework.

A starting point would be the definition of an information governance repository with suggestions on the different elements that should be present in such a repository. As an example, the information management strategy elements within such a repository might include a records management plan, an information security management system with an associated access control policy, an evidential weight strategy, an access to information strategy, an email management strategy and a capture and scanning policy amongst others. Each of these elements could be defined based upon existing best practice within the information and records management community.

Classification is an example of an information management method that would benefit from being included in an information architecture framework. Outside of the information and records management community the techniques for creating and maintaining a classification scheme and the benefits from having done so are poorly understood.

By promoting these techniques through a framework and ensuring that such a framework is compatible with TOGAF, greater understanding of information governance and information management could be developed in the wider information technology community and this would be a good thing.

13. ACKNOWLEDGMENTS

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14. REFERENCES

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