

DSDM

(Dynamic Systems Development Method)

and

TOGAF

(The Open Group Architecture Framework)

**A Joint publication of the DSDM Consortium and The
Open Group Architecture Forum**

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1. Introduction

1.1. Background

As Information Systems grow across departmental, division boundaries and even inter-company, the need to have a coherent technology strategy across the diverse business areas increases in order to ensure efficiency, robustness and business agility in the business and information systems.

If you consider the situation just after desktop PCs became popular, isolated pockets of data were developed that were embedded in a variety of proprietary formats and the only way to share the data was by printing reports from one application and maybe typing it in again to another. Businesses soon realised the inefficiency of this and, at some cost, implemented policies for common office automation packages.

It is considered that the inefficiencies that can be caused by having diverse underlying technologies that do not interoperate are possibly an order of magnitude higher than just having data in differing proprietary formats.

However, the task of implementing a coherent technology strategy could be orders of magnitude more difficult for those tasked with this activity.

Using a combination of the Dynamic Systems Development Method (DSDM) Framework and The Open Group Architecture Framework will help discover what architecture is currently in place, what architecture is needed that supports technology diversity and flexibility, and aid the projects defined for implementing the chosen architecture. The detail of how this can be achieved is beyond the scope of this paper.

1.2. Audience

This paper is intended to be read by anybody concerned with developing and implementing an enterprise architecture in an organisation, including senior business managers, IT directors, IT, data and business architects, and project managers. It is also intended to be read by anybody concerned with development projects in which architecture forms an important context for the work to be done.

1.3. Contributors

A Task Group reporting to both the DSDM UK Technical Workgroup and The Open Group Architecture Forum compiled this White Paper:

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2. Overview

This Executive Summary lists the main similarities and differences between DSDM and TOGAF. Following the Executive Summary, the White Paper gives a brief description of the two frameworks in isolation and then explains in detail where facets of each should be considered for use in the other.

2.1. *Using TOGAF Products and Techniques in DSDM*

- DSDM projects would be immediately and directly impacted by the use of TOGAF in the following ways:
- The TOGAF principles recognize a hierarchy of principles, including Enterprise / Business Principles, IT Principles; and Architecture Principles, where each set of principles provides context for the next. Architecture principles are divided into those that govern the architecture process, and those that govern the implementation of the architecture. It is particularly the latter that offer scope for synergy with DSDM, whose development principles fit in well with this hierarchy.
- The existence of enterprise architecture, whether as documentation or physical implementation, will aid each project team concentrate on the business elements of the project without having to take time to concentrate overly on the technical aspects. In particular, the existence of a well-developed Enterprise Architecture would have immediate and direct benefits for the definition of the System Architecture Definition (SAD).
- TOGAF includes a workshop-based technique – “Business Scenarios” – for identifying the key business drivers and requirements for IT architecture (and IT development generally), which complements very well DSDM’s “Facilitated Workshops” technique.
- TOGAF includes a lot of material on modelling in the architecture domain, for the purpose of developing “Architecture Views”– different views of an enterprise architecture aimed at assuring different stakeholders that their particular concerns are being addressed in the system being architected. This material enhances DSDM’s own material on modelling in the development domain.
- The Architecture Change Management process described in TOGAF is specifically aimed at establishing and supporting the implemented Enterprise Architecture as a **dynamic** architecture - that is, one having the flexibility to evolve rapidly in response to changes in the technology and business environment. The change management philosophy embedded in TOGAF is thus fully in tune with the philosophy and principles of DSDM.
- TOGAF has a Preliminary Phase, part of which consists of configuring the generic TOGAF framework to the specific environment in which it is to be used. This Preliminary Phase is very similar in concept to DSDM’s Pre-Project Phase.

In addition, TOGAF contributes to the development and content of several specific DSDM products, listed in the main body of the document.

2.2. Using DSDM Products and Techniques in TOGAF

The DSDM framework as a whole can be used within TOGAF as a means of carrying out the projects identified in TOGAF Phases E (Opportunities and Solutions), F (Migration Planning) and G (Implementation and Governance).

These phases of TOGAF are about a programme of projects to implement enterprise architecture. The main body of DSDM concentrates on the timely delivery of individual projects; however, more recently DSDM has been extended to cover the implementation of whole programmes of work (involving multiple interrelated projects) to meet business needs. The potential synergy between DSDM and TOGAF is particularly strong in light of this recent expansion in scope of DSDM.

Additionally, some of the principles and techniques of DSDM, such as timely delivery to meet business needs, timeboxing, and workshops, apply also to architecture design (TOGAF Phases A to D). It is important for architecture design to keep pace with changes in the business environment, and to demonstrate that it is not inhibiting the business from responding to its market.

TOGAF describes the steps to be taken in each phase to produce the various architecture products, but does not include management techniques whereby these steps may be effectively controlled. (TOGAF Version 8.1, published in December 2003, includes additional material on Architecture Governance, which complements, rather than conflicts with, DSDM management techniques.)

DSDM has a Pre-Project Phase, part of which consists of configuring the generic DSDM framework to the specific environment in which it is to be used. This Pre-Project Phase is very similar in concept to TOGAF's Preliminary Phase.

2.3. Certification

Both organizations operate a certification programme at various levels for their respective frameworks, which complement each other.

2.4. Commercial Considerations

There are different licensing models (including commercial licensing) for DSDM and TOGAF. The basis of this collaboration is that the results of the collaboration may be freely published and commercially exploited by each Consortium in its preferred way.

2.5. Scope and Exclusions

This paper is an introduction to the topic of using DSDM with TOGAF and vice-versa, and is not intended to be a complete 'how to' guide.

The paper includes brief descriptions of both the DSDM Business Centred Development Framework and TOGAF; it does not, however, include detailed explanations for which the reader is advised to read the respective manuals available from <http://www.dsdm.org/> and <http://www.opengroup.org/architecture/togaf8/index8.htm>, but please read the Commercial Considerations section below.

At the time of writing this paper, DSDM version 4.2 includes details of how Extreme Programming (XP) techniques may be used in a DSDM project; this paper does not make reference to these details.

At the time of writing this paper, TOGAF exists in two versions, TOGAF Version 7 ("Technical Edition"), published in December 2001 and TOGAF Version 8 ("Enterprise Edition"), published in December 2002. This paper is concerned with collaboration between DSDM and TOGAF 8.

2.6. Structure

The remainder of the document is structured as follows.

- ***DSDM Framework Description*** gives a brief description of DSDM for The Open Group readers.
- ***TOGAF Framework Description*** gives a brief description of TOGAF for DSDM readers.
- ***Using TOGAF Products in DSDM*** explains where TOGAF may fit into DSDM projects.
- ***Using DSDM in TOGAF*** explains where DSDM practices may be used effectively in TOGAF.
- ***Combining DSDM and TOGAF*** explains how DSDM and TOGAF principles and techniques may be used effectively together.
- ***Certification*** explains the certification programmes of each organization.
- ***Commercial Considerations*** explains commercial considerations of using DSDM and TOGAF

3. DSDM Framework Description

DSDM was first published in 1995 and was at that time recognised as the only published Rapid Application Development (RAD) method in the world. Since then the method has been developed into a Framework for Business Centred Development and has emerged as one of the leaders of the Agile Alliance (<http://www.agilealliance.org/>).

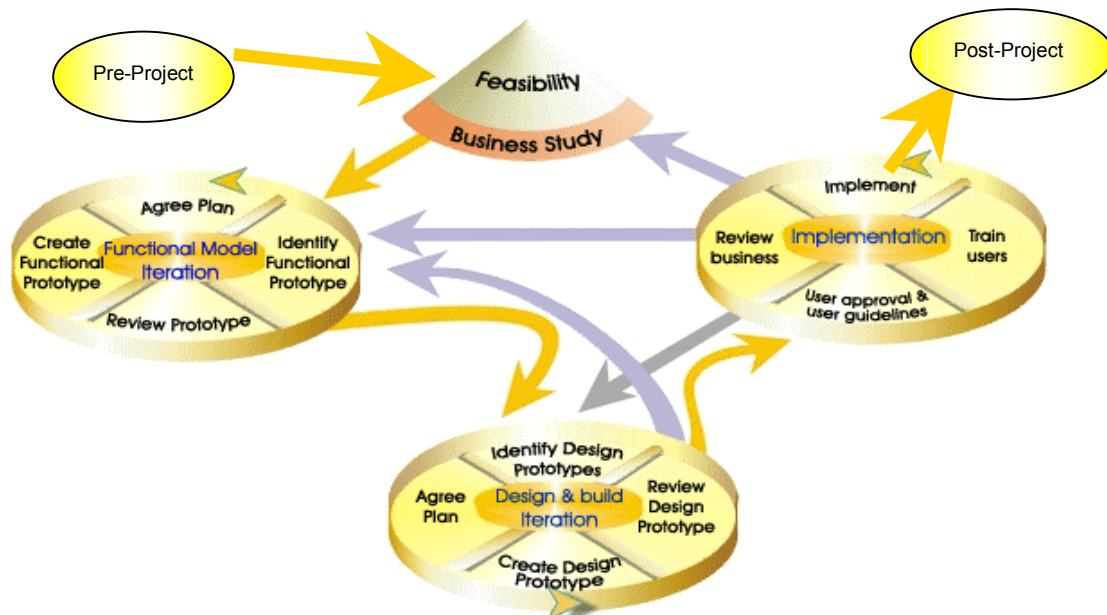
3.1. The Principles

The strength of DSDM lies in its principles; it is recognised that a framework will not hold the answers for all situations, and solutions that adhere to the Principles will most likely be robust. The Principles are:

1. Active user involvement is imperative
2. Teams must be empowered to make decisions
3. The focus is on frequent delivery of products
4. Fitness for business purpose is the essential criterion for acceptance of deliverables.
5. Iterative and incremental development is necessary to converge on an accurate business solution
6. All changes during development are reversible
7. Requirements are baselined at a high level
8. Testing is integrated throughout the lifecycle
9. A collaborative and co-operative approach between all stakeholders is essential

3.2. Lifecycle

DSDM recommends a complete lifecycle starting with Pre-Project work all the way through to Post-Project. It recommends iterative and incremental working but is product centric rather than activity based:



3.3. DSDM Phase Descriptions

The first three and last phases described below (Pre-Project; Feasibility and Business Studies; Post-Project) are concerned with the entire scope of the project whereas the second three (Functional Model and Design & Build Iterations; Implementation) form the iterative and incremental phases of development; each increment is made up of all three phases and the main iterations take place within the Functional Model and Design & Build Iteration phases.

3.3.1. Pre-Project

Projects do not exist in a vacuum: they need to be set up correctly from the outset to ensure success. Pre-project activities will depend on local working practices for the initiation of projects. The evaluation and prioritisation of projects within an organisation's portfolio is beyond the scope of DSDM.

Key Products:

- Initial definition of the business problem to be addressed
- An outline scope for the investigation to take place during the Feasibility Study
- Decision to proceed with the project
- Visionary and Project Manager assigned to the project
- Initial plans for the Feasibility Study
- Confirmation of alignment of the project with the appropriate strategy
- Budget and resources allocated for the Feasibility Study at least and preferably the Business Study as well - with outline budget/resources approval for the development phases.
- The initial project governance in place, e.g. Project Board or Steering Committee

3.3.2. Feasibility Study

The objectives of the Feasibility Study are to establish whether a proposed development can meet the business requirements of the organisation; to assess the suitability of the application to DSDM development; to outline possible technical solutions to the business problem; and to obtain first-cut estimates of timescale and costs.

The Feasibility Study should only go to the level of detail required to assess whether a feasible solution exists or to select the most appropriate one. The detail of the requirements, risks, plans, costs, etc. for the solution will be developed in the later phases.

Key Products:

- Feasibility Report
- Feasibility Prototype (optional)
- Outline Plan
- Risk Log

3.3.3. Business Study

The objectives of the Business Study are to scope the business processes to be supported; outline the future development in terms of prototyping deliverables (defining which are incremental and which, if any, are throwaway) and prototyping controls; identify representatives of the user classes for prototyping activities; prioritise the requirements of the proposed system; reassess the risks of the project; provide a firm basis for technical development to proceed; and scope the non-functional requirements, in particular to decide the maintainability requirements.

Key Products:

- Business Area Definition
- Prioritised Requirements List
- Development Plan
- System Architecture Definition
- Updated Risk Log

3.3.4. Functional Model Iteration

The objectives of the Functional Model Iteration phase are to demonstrate the required functionality using a functional model consisting of both working software prototypes and static models (e.g. class models and data models); and record the non-functional requirements that may not be demonstrated by the working prototype.

Key Products:

- Functional Model including Functional Prototypes
- Non-functional Requirements List
- Functional Model Review Records
- Implementation Plan
- Timebox Plans
- Updated Risk Log

3.3.5. Design and Build Iteration

The objectives of the Design and Build Iteration Phase are to refine the Functional Prototypes to meet the non-functional requirements; and engineer the application so that it demonstrably satisfies user requirements.

Key Products:

- Timebox Plans
- Design Prototypes
- Design Prototyping Review Records
- Tested System
- Test Records

3.3.6. Implementation

The objectives of the Implementation phase are to place the Tested System in the users' working environment; train the users of the new system; determine the future development requirements; and train operators and support staff.

Key Products:

- User Documentation
- Trained User Population
- Delivered System
- Increment Review Document

3.3.7. Post-Project

The Post-Project phase contains the activities that occur once the project team have disbanded. These include support and maintenance activities and (optionally) a Post-Implementation Review to assess the system in use.

The objectives are to keep the Delivered System operational; assess whether or not the proposed benefits of the project as stated during its initial phases have been achieved; enable development processes to improve; and review the Delivered System in use.

Key Products:

- Post-Implementation Review Report
- Change Requests
- New releases of the Delivered System in response to Change Requests

3.4. Products

The phase products relevant to the purposes of this White Paper are:

Phase	Product
Pre-Project	Pre-Project Report
Feasibility Study	Feasibility Report
	Outline Plan
	Risk Log
Business Study	System Architecture Definition
	Prioritised Requirements List
	Development Plan
	Risk Log
Functional Model Iteration	Functional Model and Review Records
	Non-Functional Requirements List
	Timebox Plans
	Implementation Plan
	Risk Log
Design & Build Iteration	Timebox Plans
	Design Prototypes and Review Records
	Tested System
Implementation	User Documentation
	Delivered System
	Trained User Population
	Increment Review
Post-Project	Post Implementation Review Report

3.5. People

DSDM recognises that development of any kind within a business involves people, those that have to do the development and those that are impacted by change.

DSDM advice includes a full list of roles and, more importantly, responsibilities, including representatives of the end-user community. If this information and the advice given in the Techniques section below are followed, *all* stakeholders in the outcome of the development will be involved at the appropriate time.

3.6. Techniques

There are many techniques that may be used during any development and any that conform to the DSDM Principles may be applied on a DSDM project. The following paragraphs list with explanations the techniques that DSDM particularly recommends for use

3.6.1. Facilitated Workshops

Facilitated workshops are an important technique in keeping a project moving along quickly and in the right direction both in business and technical terms. They are used throughout DSDM projects to both create products and make decisions quickly incorporating a wide range of stakeholder views

3.6.2. Prototyping

Prototyping is fundamental to successful DSDM projects. This technique enables real user involvement in development activities from a very early stage and thereby enables the users in the project team to steer the developers in the right direction needed to achieve maximum business benefit. Prototyping encourages creativity. However, it needs to be controlled

3.6.3. Modelling

Guidance is provided about what to model, when and how, while enabling each organisation and project to determine the best set of models to produce in particular circumstances: one size does not fit all!

3.6.4. Configuration Management

Configuration Management is a key factor in managing the evolving products (both software and documents) that are created throughout the DSDM lifecycle from project initiation to the completion of the final delivery.

3.6.5. Support Environments

The support environment is an important factor in enabling fast delivery: a poor toolset or a non-interoperable technology infrastructure will hinder the creativity of developers within the teams.

4. TOGAF Description

TOGAF, at version 8, is a framework for developing Enterprise Architecture, with a detailed method and a set of supporting tools and resources.

4.1. Structure

The following is the four-part structure of the TOGAF 8 documentation:

- **PART I: Introduction** provides a high-level introduction to some of the key concepts behind IT architecture and in particular the TOGAF approach.
- **PART II: Architecture Development Method (ADM)** is the core of TOGAF. It describes the *TOGAF Architecture Development Method* - a step-by-step approach to developing IT architecture.
- **Part III: Enterprise Continuum** describes a set of generic architectural reference models and a framework (the Enterprise Continuum itself) that positions with respect to one another the different reference models encountered within the industry. The Continuum is an aid to communication between IT customers, architects, and developers and vendors supplying products to fulfil the functions defined in the architecture. One of these reference models is the TOGAF Foundation Architecture, which comprises a *Technical Reference Model (TRM)* and The Open Group's *Standards Information Base (SIB)* – an open database of standards for populating the TRM.
- **PART IV: Resources** comprises the TOGAF Resource Base - a set of tools and techniques available for use in applying TOGAF and the TOGAF ADM. Many of these resources are in effect extensions to the ADM, extracted in order to keep the ADM descriptive text concise and readable.

4.2. ADM

The TOGAF Architecture Development Method (ADM) forms the core of TOGAF. It is this part of TOGAF that this paper concentrates on as giving the best opportunity for combining DSDM and TOGAF techniques.

The ADM is a generic method for architecture development, which emphasises the importance of business goals and requirements as the principal drivers for architecture development. As with DSDM, the ADM may be modified or extended to suit specific needs. Hence, one of the tasks before applying the ADM to a specific situation will be to review the ADM and tailor it if necessary to the circumstances of the enterprise concerned. This activity may well produce an organization-specific ADM.

Built-in to the ADM is the concept of an organization having its own “Enterprise Continuum” – its own defined set of reference models, patterns, principles, and other reusable assets, taken from TOGAF and/or industry at large, which are approved for use in developing architectures within the organization concerned. In practice, the organization’s own Enterprise Continuum will typically be instantiated by way of a corporate repository tool.

4.3. *Architecture Principles*

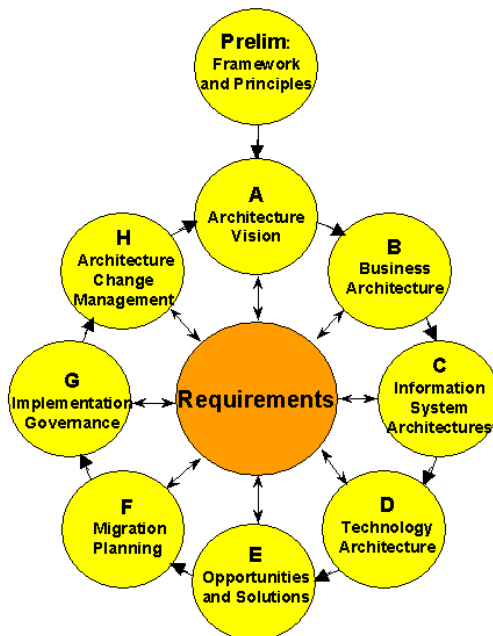
Principles may be established at any or all of three levels:

- Enterprise principles provide a basis for decision-making throughout an enterprise, and inform how the organization sets about fulfilling its mission. Such enterprise-level principles are commonly found in government and not-for-profit organizations, but are encountered in commercial organizations also, as a means of harmonizing decision making across a distributed organization.
- Information Technology (IT) principles provide guidance on the use and deployment of all IT resources and assets across the enterprise. They are developed in order to make the information environment as productive and cost-effective as possible.
- Architecture principles are a subset of IT Principles that relate to Architecture work. They reflect a level of consensus across the enterprise, and embody the spirit and thinking the enterprise architecture. Architecture principles can be further divided into:
 - Principles that govern the architecture process, affecting the development, maintenance, and use of the enterprise architecture; and
 - Principles that govern the implementation of the architecture, establishing the first tenets and related guidance for designing and developing information systems.

These sets of principles form a hierarchy, in that IT principles will be informed by, and elaborate on, the principles at the enterprise level; and architecture principles will likewise be informed by the principles at the two higher levels.

4.4. *Lifecycle*

The following is the TOGAF 8 lifecycle.



The phases are iterative, both within each phase and among phases.

Throughout the phases of the cycle there needs to be frequent validation of the results against the original motivation to take the architecture through a new cycle (for example, business requirements, financial and timing constraints). This continuous validation assures that the architecture is meeting the needs of the business.

The activities within the phases address both technical and organizational issues.

Note that output is generated throughout the process, and that the output in an early phase may be modified in a later phase.

In practice, organisations have found that ADM Phases A-D, done iteratively, form a complete first stage of an architecture development project, resulting in the target Enterprise Architecture. Phases E-G address the implementation planning required to implement that architecture; these phases identify the programme of work that will deliver the architecture, perhaps through a phased implementation. The key products here are the Implementation Plan and the Architecture Contract.

4.5. Phase Descriptions

4.5.1. Preliminary Phase: Framework and Principles

The preliminary phase is about defining "How we do Architecture" in the enterprise concerned. Specific objectives of this phase include:

- Ensuring that everyone involved is committed to the success of the architectural process.
- Defining the architecture principles that will underpin any architecture work.
- Defining the "architecture footprint" for the organization - the people responsible for performing architecture work, where they are located, and their responsibilities.
- Defining the framework and detailed methodologies that are going to be used to develop enterprise architectures in the organization concerned (typically, an adaptation of the generic TOGAF ADM).
- Setting up and monitoring a process (normally including a pilot project) to confirm the fitness for purpose of the defined framework.
- If necessary, defining criteria for evaluating architecture tools, repositories and repository management processes, to be used to capture, publish, and maintain architecture artefacts.

Key products of this phase:

- Framework Definition
- Architecture Principles
- Restatement of, or reference to, Business Principles, Business Goals and Business Drivers

4.5.2. Phase A Architecture Vision

The objectives of this phase are to identify and/or clarify the enterprise's strategic business drivers and goals, to define the relevant business requirements that apply to this evolution of the architecture, and to define an architecture vision that demonstrates a response to those requirements. The aim is to articulate an architecture vision that enables the business goals, responds to the strategic drivers, conforms to the principles, and addresses the key stakeholder concerns and objectives.

Key products of this phase:

- Approved Statement of Architecture Work / Project Definition
- Refined statements of Business Principles, Goals and Strategic Drivers
- Architecture Vision / Business Scenario, including:
 - Business Baseline Version 1
 - Technical Baseline Version 1
 - Business Architecture Version 1

- Technical Architecture Version 1

4.5.3. Phase B Business Architecture

The objectives of this phase are to describe the current baseline Business Architecture and to develop a target Business Architecture that describes the enterprise's product and/or service strategy and the organizational, functional, process, information, and geographic aspects of the business environment. The phase also analyzes the gaps between the baseline and target Business Architectures, and demonstrates how relevant stakeholder concerns are addressed in the target Business Architecture.

Key products of this phase:

- Target Business Architecture - Version 2 (detailed)
- Baseline Business Architecture - Version 2 (detailed) - if appropriate
- Gap analysis results
- Updated business requirements
- Technical requirements (drivers for the Technical Architecture work)

4.5.4. Phase C Information and Systems Architectures

The objective of this phase is to develop target architectures covering either or both (depending on project scope) of the Data and Application Systems domains, in either order. (Advocates exist for both sequences, and TOGAF does not mandate any particular sequence.)

Data Architecture: The objective here is to define the major types and sources of data necessary to support the business, in a way that is understandable by stakeholders; complete and consistent; and stable. This effort is NOT concerned with database design. The goal is to define the data entities relevant to the enterprise, not to design logical or physical storage systems. (However, linkages to existing files and databases may be developed, and may demonstrate significant areas for improvement.)

Applications Architecture: The objective here is to define the major kinds of application system necessary to process the data and support the business. This effort is NOT concerned with applications systems design. The goal is to define what kinds of applications are relevant to the enterprise, and what those applications need to do in order to manage data and present information to the human and computer actors in the enterprise. The applications are not described as computer systems, but as logical groups of capabilities that manage the data objects in the data architecture and support the business functions in the Business Architecture. The applications and their capabilities are defined without reference to particular technologies. (Applications are stable and relatively unchanging over time, whereas the technology used to implement them will change over time.)

Key products of this phase:

- Target Data Architecture
- Target Applications Architecture
- Gap analysis
- Areas where the Business Architecture may need to change to cater for changes in the Data and/or Applications Architecture
- Constraints on the Technology Architecture about to be designed.
- Updated business requirements (if appropriate)

4.5.5. Phase D Technology Architecture

The objective of this phase is to identify a target technology architecture that will form the basis of the following implementation work.

A technology architecture describes the software and networking infrastructure intended to support the deployment of core, mission-critical applications. (This type of software is sometimes referred to as "middleware".)

This phase is described in greater detail than the others, forming the core of the "Technical Edition" of TOGAF published in TOGAF Version 7.

Key products of this phase:

- Technology Baseline Description - if appropriate
- Target Technology Architecture Version 1
- Gap analysis
- Viewpoints addressing key stakeholder concerns, and views corresponding to the selected viewpoints.

4.5.6. Phase E Opportunities and Solutions

The objectives of this phase are to:

- Evaluate and select among the implementation options identified in the development of the various target architectures (for example, build-versus-buy-versus-reuse options, and sub-options within those major options)
- Identify the strategic parameters for change, and the top-level work packages or projects to be undertaken in moving from the current environment to the target;
- Assess the dependencies, costs, and benefits of the various projects; and
- Generate an overall implementation and migration strategy and a high-level implementation plan.

Key products of this phase:

- Implementation and migration strategy
- High-level implementation plan
- Project list

4.5.7. Phase F Migration Planning

The objective of this phase is to sort the various implementation projects into priority order. Activities include assessing the dependencies, costs and benefits of the various migration projects. The prioritized list of projects will go on to form the basis of the detailed implementation and migration plan.

Key products of this phase:

- Detailed implementation and migration plan

4.5.8. Phase G Implementation Governance

The objectives of this phase are to:

- Formulate recommendations for each implementation project,
- Construct an architecture contract to govern the overall implementation and deployment process, and
- Perform appropriate governance functions while the system is being implemented and deployed; in particular, ensure conformance with the defined architecture by implementation projects and other projects

This phase brings together all the information needed for successful management of the various implementation projects. In parallel with this phase is the execution of an organization specific development process, where the actual development happens.

This phase establishes the formal connection between architecture and the implementation organization, through the Architecture Contract.

Key products of this phase:

- Implementation recommendations
- Architecture Contract
- The architecture-compliant implemented system

Note: the implemented system is actually an output of the development process, not the architecture process. However, given the importance of this output, it is stated here as an output of the architecture development method. The direct involvement of architecture staff in implementation will vary according to organizational policy. Implementation governance is closely allied to overall IT and Architecture Governance, discussed in Part IV of TOGAF.

4.5.9. Phase H Architecture Change Management

The objective of this phase is to establish an Architecture Change Management process for the new Enterprise Architecture baseline that is achieved with completion of the Implementation Governance phase. This process will typically provide for the continual monitoring of such things as new developments in technology and changes in the business environment, and for determining whether to formally initiate a new architecture evolution cycle.

This phase also provides for changes to the Framework and Principles set up in the Preliminary Phase.

The goal of an Architecture Change Management process is to ensure that changes to the architecture are managed in a cohesive and architected way, and to establish and support the implemented Enterprise Architecture as a **dynamic** architecture - that is, one having the flexibility to evolve rapidly in response to changes in the technology and business environment.

Key products of this phase:

- Architecture updates
- Changes to Architecture Framework and Principles
- New Request for Architecture Work (to move to another cycle)

5. Using TOGAF in DSDM

5.1. Products

There are 2 areas of business development DSDM projects that would be immediately and directly impacted by the use of TOGAF:

- **Pre-Project** - Although the pre-project activities and products are not formally specified in DSDM, it is clear that the existence of an enterprise or technical architecture, whether as documentation or physical implementation, will aid each project team to concentrate on the business elements of the project without having to take time to concentrate overly on the technical aspects.
- **Business Study – System Architecture Definition (SAD)** - The definition of the SAD includes elements that would be contributed by some of the output from the TOGAF ADM, e.g. for a web based development, part of the TOGAF ADM would specify target browsers, web services protocols, client/server functionality patterns, development language patterns and data storage/retrieval techniques.

In addition to the above impacts, the architectures developed using TOGAF would contribute to the development and content of DSDM products, as follows:

Product	TOGAF Contribution
Feasibility Report	<ul style="list-style-type: none">• High-level technical e.g. hardware and software platforms• Identify at a high level the interfaces necessary to existing data and applications• To identify which systems (whether automated or not) might be impacted by the new system and which might need to change in order to accommodate it
Risk Log	Technical risk should be reduced
Development Plan	Non-functional architecture implementation dependencies
Non-Functional Requirements List	Performance requirements may be limited by technical architecture requirements
Implementation Plan	Technical Architecture implementation requirements
Design Prototypes and Review Records	Design prototypes include technical architecture
Tested System	Tested system includes technical architecture and design patterns
User Documentation	For operations – reuse/reference TOGAF output documentation
Delivered System	System deployed within technical architecture
Trained User Population	For operations – architecture training done once –used everywhere

All of the above impacts would require at least one complete TOGAF ADM cycle to have taken place before DSDM projects can take advantage of the TOGAF outputs.

5.2. *Techniques*

- **Business Scenarios:** TOGAF includes a workshop-based technique – “Business Scenarios” – for identifying the key business drivers and requirements for IT architecture (and IT development generally), which complements very well DSDM’s “Facilitated Workshops” technique.
 - See: http://www.opengroup.org/architecture/togaf8-doc/arch/p4/bus_scen/bus_scen.htm
- **Architecture Views:** TOGAF includes a lot of material on modelling in the architecture domain, for the purpose of developing “Architecture Views”– different views of an enterprise architecture aimed at assuring different stakeholders that their particular concerns are being addressed in the system being architected. This material complements DSDM’s own material on modelling in the development domain.
 - See: http://www.opengroup.org/architecture/togaf8-doc/arch/p4/views/vus_intro.htm, and the whole set of views described in Part IV of TOGAF
- **Architecture Change Management:** The Architecture Change Management process described in TOGAF is specifically aimed at establishing and supporting the implemented Enterprise Architecture as a **dynamic** architecture - that is, one having the flexibility to evolve rapidly in response to changes in the technology and business environment. The change management philosophy embedded in TOGAF is thus fully in tune with the philosophy and principles of DSDM.

6. Using DSDM in TOGAF

The DSDM framework as a whole can be used within TOGAF as a means of carrying out the projects identified in TOGAF Phases E (Opportunities and Solutions), F (Migration Planning) and G (Implementation and Governance).

These phases of TOGAF are about a programme of projects to implement an enterprise architecture. To date DSDM has concentrated on the timely delivery of individual projects; however, DSDM is in the process of being augmented to cover the implementation of whole programmes of work (involving multiple interrelated projects) to meet business needs. The potential synergy between DSDM and TOGAF is particularly strong in light of this expanded scope of DSDM.

Additionally, some of the principles and techniques of DSDM, such as timely delivery to meet business needs, timeboxing, and workshops, apply also to architecture design (TOGAF Phases A to D). It is important for architecture design to keep pace with changes in the business environment, and to demonstrate that it is not inhibiting the business from responding to its market.

TOGAF describes the steps to be taken in each phase to produce the various architecture products, but does not include management techniques whereby these steps may be effectively controlled. (TOGAF Version 8.1, published in December 2003, includes additional material on Architecture Governance, which complements, rather than conflicts with, DSDM management techniques.)

7. Certification

Both organizations operate a certification programme at various levels for their respective frameworks, which complement each other.

7.1. DSDM

Accreditation is available from the DSDM Consortium in the following areas:

- Foundation
- Practitioner
- Project Manager
- Trainer
- Examiner
- Consultant
- Training Organisations

See <http://www.dsdm.org/en/training/accreditation.asp>.

7.2. TOGAF

Certification is available from The Open Group for TOGAF in the following areas:

- Architecture tools which support TOGAF7
- Training courses which instruct in TOGAF7
- Architects trained in the use of TOGAF7
- Professional services offered in support of TOGAF7

See <http://www.opengroup.org/certification/togaf7> for details.

8. Commercial Considerations

There are different licensing models (including commercial licensing) for DSDM and TOGAF. The basis of the collaboration between the two organizations is that the results of the collaboration may be freely published and commercially exploited by each Consortium in its preferred way.

8.1. Use of DSDM

The DSDM Consortium is a membership organisation and use of the DSDM IPR is limited to full members who are licensed to use the Framework. Membership levels range from Personal to Vendor and a fee is required for each. Please see <http://www.dsdm.org/en/membership/levels.asp> for more information.

8.2. Use of TOGAF

There are several licensing models for the use of TOGAF ranging from free for non-commercial use to a corporate commercial use licence. There are variations to these licences and fees depending on Open Group and Architecture Forum membership. Please see <http://www.opengroup.org/architecture/togaf8/index8.htm#download> for more information.

8.3. Use of this White Paper

It is perhaps worth repeating here the following excerpt from the collaboration agreement:

“A white paper targeted for publication in August 03, which will:

- Explain the rationale for the collaboration
- Outline areas of commonality
- Highlight those areas of each method where the other's principles are relevant
- Give joint advice on use of TOGAF and DSDM in combination
- Generate recommendations for possible future work

To be published and leveraged freely by the Consortia, each in its own preferred way; e.g.:

- On the DSDM White Papers web site and CD, and possible subsequent integration into the DSDM framework;
- In Part IV of TOGAF next edition (Resource Base), and possible subsequent integration into the "core" TOGAF ADM as part of TOGAF next edition +1.”

Appendix A: Consortia Information

About The DSDM Consortium (<http://www.dsdm.org>)

The 16 founding members of the DSDM Consortium met for the first time in January 1994. The organisations had the single objective of jointly developing and promoting an independent RAD framework.

At a meeting in February, it was agreed that a high level framework should be produced in time for the next full meeting in March. At the March meeting of the Consortium, the high level framework was approved by the 36 members unanimously.

The basic concepts have remained in place since that time, but the framework has been developed and refined over the life of the Consortium. It has been found to be applicable in nearly every technical and business environment where systems are needed quickly.

About The Open Group (<http://www.opengroup.org>)

The mission of The Open Group is to drive the creation of Boundaryless Information Flow achieved by:

- Working with customers to capture, understand and address current and emerging requirements, establish policies, and share best practices;
- Working with suppliers, consortia and standards bodies to develop consensus and facilitate interoperability, to evolve and integrate specifications and open source technologies;
- Offering a comprehensive set of services to enhance the operational efficiency of consortia; and
- Developing and operating the industry's premier certification service and encouraging procurement of certified products.

Appendix B: Consortia Agreement

Findings of the DSDM Consortium and The Open Group Partnership Workshop – 23 Jan 03

The [DSDM Consortium](#) and [The Open Group](#) held a workshop to discuss the benefits of entering into a partnership agreement between the two organisations at The Open Group offices, Reading.

Attendees:

DSDM:

Steve Ash,

The Open Group:

Stephen Cook, Reading University

Chris Greenslade, Frietuna Consultants

Stuart Murray, Computacenter

John Spencer, The Open Group

DSDM and The Open Group:

David Harrison, Popkin Software

Participating by teleconference:

The Open Group:

Ian McCall, IBM

DSDM and The Open Group:

Einar Dehli, Computas, A/S

Kjetil Strand, Computas A/S

Why Should We Collaborate/Enter Partnership?

Overall Rationale

Both organisations:

- Have an open framework / method that advocates and enables strong linkage between IT and the business
- Develop non-proprietary products
- Aspire to offer end-to-end aid to development
 - Vision through to implementation and benefits realization

The Open Group Architecture Framework ([TOGAF](#)) and DSDM are complementary standards.

- TOGAF concerned primarily with architecture programmes.
- DSDM concerned primarily with implementation projects.

Potential Benefits specific to The Open Group Organisation

- Elements of DSDM would enhance Architecture Development Method (ADM).
 - Help avoid 'analysis paralysis'
 - DSDM could be recommended in entirety as technique for implementing TOGAF
 - Elements of DSDM could be usable all levels of TOGAF projects.

Potential Benefits for Open Group Members/TOGAF users

- Strengthened TOGAF
- Exposure to DSDM
- Enhance the Open ethic

Potential Benefits for the DSDM Consortium

- Wider visibility for DSDM – Geographic

Potential Benefits for DSDM Members

- Enhanced Framework
 - Architecture specific advice for Pre-Project and System Architecture Definition (SAD)
 - Escalate DSDM ideas to a higher level
 - Architecture Programme Management
- Become part of a wider networking organisation
- Greater visibility and use for DSDM – the TOGAF architecture development method would set the expectation that the programme of architecture implementation projects should be done “the DSDM way”.

Potential Benefits for Members of Both Organisations

- Collaboration to advance not competition.
- Greater opportunity for knowledge sharing
- Potential to inspire further work
- A combined / integrated set of TOGAF/DSDM methods would create a critical mass of open methods / frameworks that would attract support from tools vendors

Why Shouldn't We Collaborate/Enter Partnership?

The following were considered to be the risks to collaboration/partnership, and the associated mitigations:

- There may not be sufficient resource to carry out the necessary work.
 - So need to focus on something tangible, useful and achievable with the limited resources available - apply DSDM principles to the work!
- There may be financial loss to either organisation due to fall in membership where companies are currently members of both organisations and only continue with one membership.
 - However, the two organizations do address different problem spaces, so each should be able to build on the collaborative work in a way that demonstrates value to its own specific constituency

- Both TOGAF and DSDM may lose individual identities.
 - However, as above – they address different problem spaces
- There may be a negative impact on companies offering certified services for TOGAF if the work is carried out too quickly thus reducing the return on any investment for accreditation of particular versions of either framework.
 - This should be manageable, with the proposed approach of adopting new concepts as “optional” initially
- The Open Group have no current position with respect to the Agile Alliance (<http://www.agilealliance.com>) of which DSDM is a member and advocate. If The Open Group does not subscribe to the Agile Alliance Principles, collaboration would not be appropriate.
 - The Open Group needs to review the Agile Alliance. However, no reason at present to believe there should be a problem.

Initial Collaboration/Partnership Decision

Given the balance of potential benefits to risks, the workshop decided that further initial work was justified.

First Product

The first product to be produced will be a business case to be presented to the management of both organisations to obtain authorisation for further work.

The following is the workshop output toward the first product:

Vision Statement

The Open Group Architecture Forum aims to provide a core set of architecture capabilities to enable enterprises to develop integrated information infrastructures that address their business needs.

The DSDM Consortium aims to provide a framework for business-centred development.

Collaboration between the two organizations aims to provide:

- A cross-fertilization of TOGAF and DSDM which will improve each individually, and
- A combination of TOGAF and DSDM that will result in an integrated, open, and agile method for the complete systems lifecycle (covering business goals, enterprise architecture, and system design through to implementation, and realization of envisioned business benefits).

Benefits

For The Open Group / Architecture Forum:

- Strengthened TOGAF through exposure to DSDM
- Specific elements of DSDM would enhance Architecture Development Method (ADM).
 - DSDM could be recommended in entirety as a technique for implementing TOGAF
 - Elements of DSDM could be usable all levels of TOGAF projects.
- Enhance the "Open" ethic

For the DSDM Consortium

- Enhanced Framework
 - Architecture specific advice for Pre-Project and System Architecture Definition (SAD)
 - Escalate DSDM ideas to a higher level
 - Architecture Programme Management
- Wider networking through working with a global organization
- Greater visibility and use for DSDM – the TOGAF architecture development method would set the expectation that architecture implementation should be done "the DSDM way".
- For both organisations
- Collaboration, not competition.
- Greater opportunity for knowledge sharing
- Potential to inspire further work
- A combined / integrated set of TOGAF / DSDM methods would create a critical mass of open methods / frameworks that would attract support from tools vendors (when each alone might fail to do so)

A longer-term vision for the industry at large is a combined initiative focused on the development and promulgation of open methods in all aspects of IT ("The Open Methods Alliance"?).

The immediate Deliverables

A white paper targeted for publication in August 03, which will:

- Explain the rationale for the collaboration
- Outline areas of commonality
- Highlight those areas of each method where the other's principles are relevant
- Give joint advice on use of TOGAF and DSDM in combination
- Generate recommendations for possible future work

To be published and leveraged freely by the Consortia, each in its own preferred way; e.g.:

- On the DSDM White Papers web site and CD, and possible subsequent integration into the DSDM framework;
- In Part IV of TOGAF next edition (Resource Base), and possible subsequent integration into the "core" TOGAF ADM as part of TOGAF next edition +1.

The implications In Terms of Membership

- Favourable meeting attendance and membership rates for members of the other consortium
- Access to each other's member collateral is achieved via joining at the preferential membership rates (above)
- Suggestions for refining this model to be developed as part of the on-going collaborative work

The Anticipated Risks and Mitigations

The potential risks that are foreseen all have mitigations, and are deemed acceptable by the Partnership Workgroup:

- Lack of resources to do the work effectively
 - "Same volunteers" won't work - needs to generate new activists in order to succeed
 - Need to do something tangible, useful and achievable with the limited resources available - apply DSDM principles to the work!
- Loss of membership
 - Cross-membership provisions (above) seeks to address this
 - The two organizations address different problem spaces, and each should be able to build on the collaborative work in a way that demonstrates value to its own constituency
- TOGAF and DSDM become too "tightly coupled"
 - Need to leave TOGAF and DSDM "loosely coupled", so that using one should not require use of the other
- Adverse "churn" impact on companies already providing products and services in one area
 - Need to ensure phased adoption, ensuring reasonable ROI on existing investments
- Other collaborations / alliances may have adverse impact: e.g., DSDM are part of the "Agile Alliance"
 - Architecture Forum members need to review "Agile Alliance" manifesto and principles, and ensure no problems. However, there is no reason at present to believe there should be a problem.

Implementation Considerations

- Consider doing work in regions where both consortia have strong representations (not just UK)
- Invite offers to host working meetings
- Joint working group - work-in-progress can be hosted by either DSDM or Architecture Forum web site (or both)