DSDM - Dynamic Systems Development Method

Introduction

DSDM is a Rapid Application Development Method produced by a consortium of companies in the UK. Version 1 was launched in January 1995 and was quickly followed by Version 2 in October 1995 and Version 3 in September 1997. It is available in the public domain. The documentation can be obtained by becoming a member of the DSDM consortium. The consortium is represented in many Western European countries and in the USA and India.
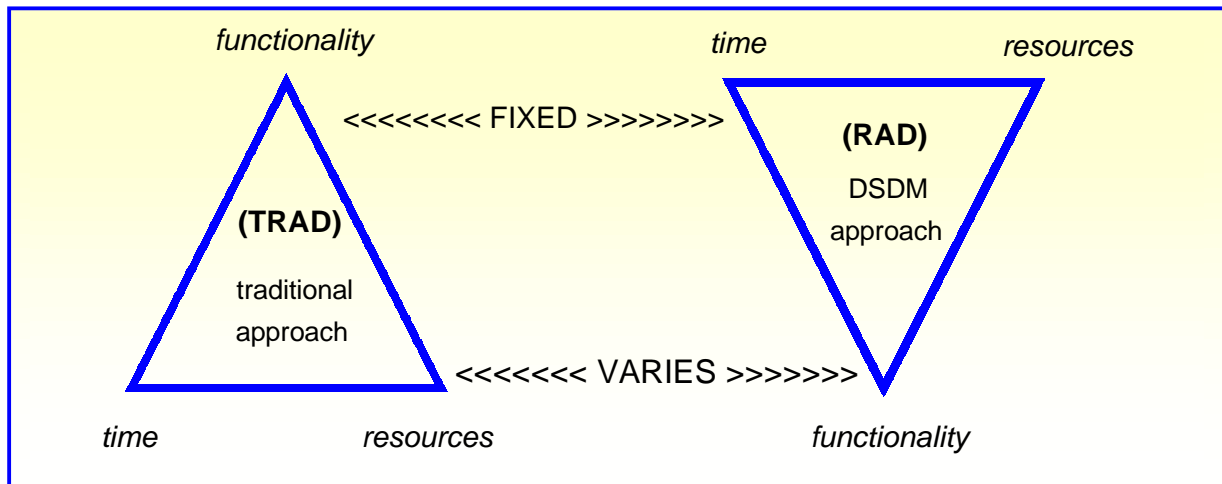
Rapid Application Development (RAD) originated in the mid 1980s and was formalised by DuPont with Rapid Iterative Production Prototyping and highlighted by James Martin in his publication on RAD in 1991. Its early emphasis was on rapid prototyping. As it is now perceived, its purpose is to produce working systems which are delivered with high speed, high quality, and low cost. DSDM seeks to bring together best practices in the development of systems using RAD concepts.

Special Features of RAD

The key features of RAD which distinguish it from other approaches to software development are:

- the use of a well defined framework, and within that the use of a range of well defined techniques, including prototyping
- the use of CASE tools for the design and development of the system and for support of the project
- aspects of project management such as 'time boxing' where the project is determined in terms of products (or deliverables) each of which are to be completed within short pre-set time slots.
- attention to re-use of existing products
- clearly defined roles, responsibilities, authorities for the personnel on the project
- the involvement of users through JAD (joint application development) workshops and other mechanisms

A major difference between the traditional approach and the RAD approach to a project is identified in this diagram.

functionality   time   resources

<<<<<<<< FIXED >>>>>>>>

(RAD)

DSDM

approach

(TRAD)

traditional

approach

<<<<<<< VARIES >>>>>>>

time   resources   functionality

It is one where a traditional project is delivering a functionality which is intended to represent all of the requirements irrespective of the time and resources involved, whereas a RAD project is strictly constrained in time and resources and is delivering the optimum functionality possible within those constraints.

Principles of DSDM

The use of DSDM is based on nine sound principles, which are fundamental to the success of the project:

1. Active user involvement (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 products/deliverables

The remaining principles relate to how to make the first four work:

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 life cycle
9. A collaborative and co-operative approach of all stakeholders is essential

The RAD Process in DSDM

This diagram shows an incremental prototyping approach moving anticlockwise from the top. Dark arrows show the transfer points from one phase of the lifecycle to the next. The light arrows show the points where the development can easily return to an earlier phase. Each iteration in the functional model and in the system design and build goes through steps involving identifying, agreeing, creating, and reviewing. Changes raised in the review are incorporated in the next iteration. The implementation stage includes steps of gaining user approval, training, implementation, and business review.
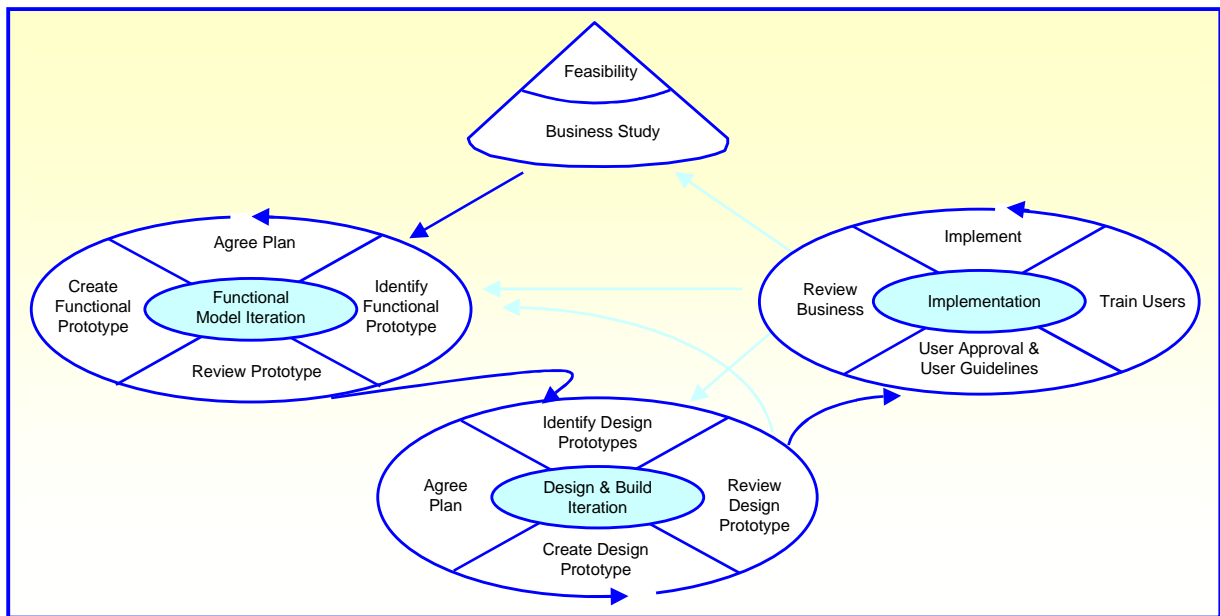
Benefits of using DSDM

The RAD approach implicit in DSDM presents a number of distinct advantages over other approaches to software development. Users are more likely to claim ownership of the system from an early stage thus ensuring commitment to the success of the project. There is a reduced risk in building the wrong system; the system is more likely to meet the users' real requirements. Users are better trained when it comes to operating the system; and the implementation of the system is much smoother.

What DSDM is Not

RAD has been criticised as a means by which the developer jumps straight into coding as a "quick and dirty" unstructured alternative to good practice.

The use of RAD in its correct context does not imply that at all. DSDM addresses the work of the project in an orderly manner within a well-defined framework. It can be described as a holistic approach with a full software development life cycle, method tailoring, team structure, project planning and control, estimating, risk assessment, metrics, skills and responsibilities, user involvement, prototyping management, configuration management including change control, development environment, testing and quality assurance.

Selecting a Project

It is recognised that RAD, including use of DSDM, does not suit every type of project. DSDM includes guidelines on the selection of projects suitable for use of a DSDM approach described as a 'suitability filter'.

A project is very likely to include:

- clear-cut ownership, with owner involvement and commitment
- a clearly defined user group, with an expectation of achieving active user involvement
- a time constraint
- requirements that are not yet established at a detailed level and that may not be fixed
- high visibility on functionality in the system, and possibly using graphical user interface
- not perceived as complex in computation (this is relative)

Achieving Success with DSDM - CSFs

Where a project does not comfortably fit the suitability filtering, DSDM may suit if it contains the following CSFs:

- whole-hearted commitment by users and senior management
- easy communication between developers and users, working together without interruption
- a stable team dedicated to the project
- highly skilled team, limited time for learning
- the team is empowered, authority is given to make decisions quickly
- project control capable, easily, of supporting iterative development
- small team, minimising the overhead of management and communication, achieving ownership
- change management with a flexibility to cope with iterative development
- development environment that is suitable and in place

CSE Role

The CSE assists software organisations in selecting and achieving good practice in software development. DSDM is a set of practices which are especially appropriate to certain types of projects; the concepts and principles on which DSDM is grounded are applicable across many projects so the CSE is pleased to endorse these principles.

The CSE provides an awareness of the features of methods, techniques, and tools to formalise the software development process. The CSE provides specific training courses on DSDM and hosts the Irish DSDM User Group.

Further Information:

- http://www.dsdm.org/

- Dynamic System Development Method: The Method in Practice: Jennifer Stapleton, Addison Wesley ISBN 0-201-17889-3, 1997. This is one of the many books on DSDM available in the CSE Library.