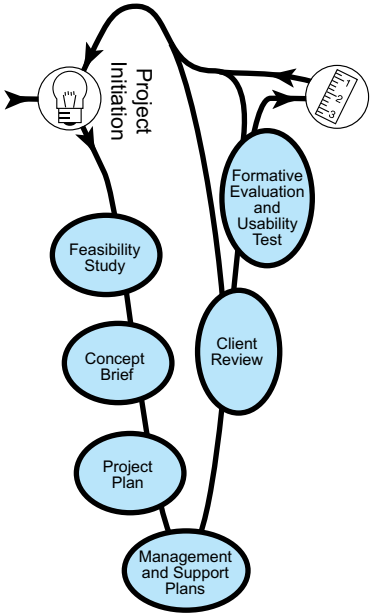
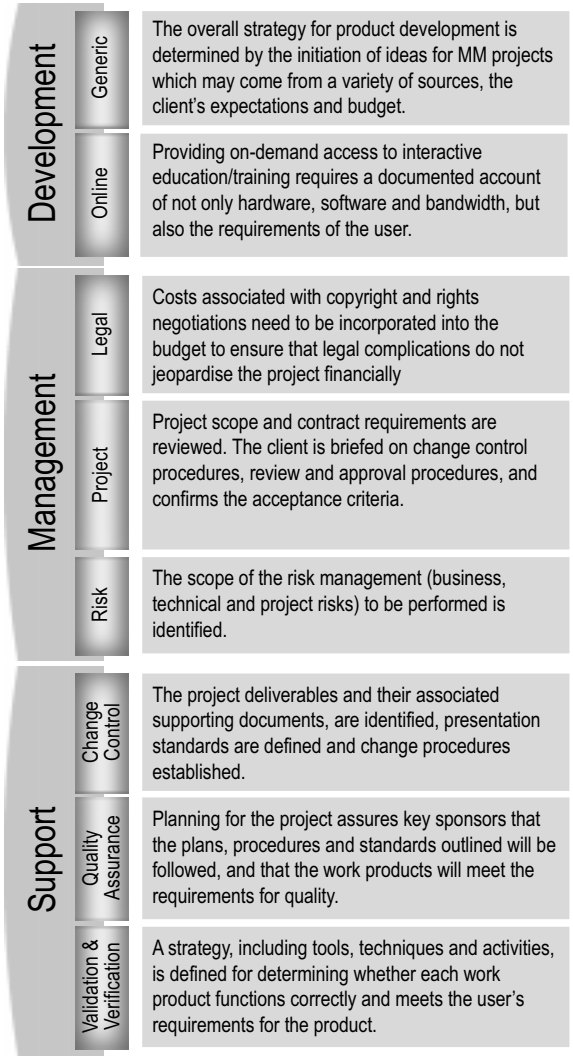
Initiation



		Initiation	Specifications	Design	Production	Review and Evaluation	Delivery and Implementation
Development	Generic	The overall strategy for product development is determined by the initiation of ideas for MM projects which may come from a variety of sources, the client's expectations and budget.	Detailed specifications are derived from the client's expectations, the user's requirements and the capability of the production unit or organisation.	The design solution identifies the key components, and relationships between, the technical, interface and educational requirements reflecting the primary purpose of communicating effectively with the end user.	Production of quality MM requires the utilisation of development environments and media integration strategies linked to the specifications and design solution.	Client review and user evaluation occurs at periodic intervals in the development process, and ensures that the final product meets the needs of the client/s.	Delivery and commissioning processes outlined at the planning stage are implemented.
	Online	Providing on-demand access to interactive education/training requires a documented account of not only hardware, software and bandwidth, but also the requirements of the user.	Course design for online delivery focuses on the objectives to be achieved and not on the means of achieving them, necessitating a shift in the instructional design paradigm.		Delivering course material online requires knowledge and understanding of technical issues so that the end user is not impeded by the limitations of the medium.	The review, assessment or evaluation, and modification of online course material will reflect the faster and more cost-effective process.	Once the course is operational, on-going management and maintenance strategies are implemented to ensure currency, correctness and applicability.
Management	Legal	Costs associated with copyright and rights negotiations need to be incorporated into the budget to ensure that legal complications do not jeopardise the project financially.	The diversity of inputs to multimedia means that there are more rights involved and therefore more clearances to obtain for both production and/or delivery of	Endeavour to incorporate a significant proportion of original material in online resources, and that linked materials are attributed to the respective authors.	All copyright restrictions and encumbrances are resolved before production commences.	Arrange any non-disclosures for outside parties involved in evaluation or acceptance testing.	Confirm that all licencing agreements have been finalised and that liability and insurance coverage has been arranged for the delivery of the product.
	Project	Project scope and contract requirements are reviewed. The client is briefed on change control procedures, review and approval procedures, and confirms the acceptance criteria.	Stated and implied needs of the client are matched with appropriate development methods, tools and skilled resources to supply a quality product.	A global overview of the project is derived once revisions of cost estimates, schedules, team participants and other matters are conducted in accordance with the concept brief and the detailed design	Each skill group, such as graphic artists, animators, programmers, goes about their tasks with appropriate guidance/support from the project manager.	Provide evidence that the project achieved what it was designed to do. Obtain independent evaluation of the expected outcomes from the use of the product.	Provide the handling, storage, packaging, preservation, and delivery mechanism to guarantee the product is shipped as built. Release notes and instructions for installation and setup are provided.
	Risk	The scope of the risk management (business, technical and project risks) to be performed is identified.	Potential risks are identified, analysed and assessed, and mitigation strategies, metrics and corrective actions outlined.	Identified risks are quantified and qualified and corrective strategies are validated.	Mitigation strategies and error trapping techniques are employed to reduce the impact of technical risks and risks associated with interface complexity and creativity.	Confirm that risk management strategies have achieved their purpose in all previous phases and that potential risks are minimised for on-going delivery and implementation.	Strategies to reduce technical risks from version control, documentation development, and pre-testing will be employed.
Support	Change Control	The project deliverables and their associated supporting documents, are identified, presentation standards are defined and change procedures established.	A baseline for the user's requirements for the system is established and defined, and changes to the baseline are agreed through a formal process.	The design solution is traceable to the requirements baseline, and agreed changes are reflected in both.	The integrity and consistency of the developed system is ensured through the enforcement of agreed standards and control of change.	Changes to the user's requirements identified during evaluation of the multimedia system are agreed through a formal process.	The configuration for the developed multimedia product to be implemented and distributed is defined and agreed, and placed under formal controls.
	Quality Assurance	Planning for the project assures key sponsors that the plans, procedures and standards outlined will be followed, and that the work products will meet the requirements for quality.	The QA group will confirm that the specification of user requirements has been reviewed for completeness and feasibility, and that any issues previously raised have been addressed.	Confidence is established that the design solution accurately reflects the user's requirements, and that the agreed standards are followed.	The developed system will be shown to be derived from the agreed design using defined actions and agreed standards.	The agreed steps for addressing issues raised in evaluation will be shown to have been followed.	The planned tasks for implementing and distributing the final product will be shown to have been followed.
	Validation & Verification	A strategy, including tools, techniques and activities, is defined for determining whether each work product functions correctly and meets the user's requirements for the product.	Criteria for verifying the system specification, and for demonstrating that the requirements have been satisfied, will be defined and applied.	The correctness and appropriateness of the design solution will be demonstrated through a process of design review.	The developed system and its components will be shown to be a robust and accurate reflection of the user's requirements.	Evaluation and testing will confirm that the user's requirements have been fully addressed as well as identify and rectify technical and other errors.	Verify that the implementation criteria have been fully adressed and that the product meets the client's and/or end user's requirements in an opertional environment.

INITIATION



Overview of the Phase

Multimedia projects originate from a variety of sources and for a variety of reasons. These may include:

- identification of need which may come from within the organisation or from external sources
- instruction to implement
- allocation of funds brought about by a rationalisation of funding usage or receipt of external funds.

Rationale for the project and the nature of the funding source influences all phases of the project.

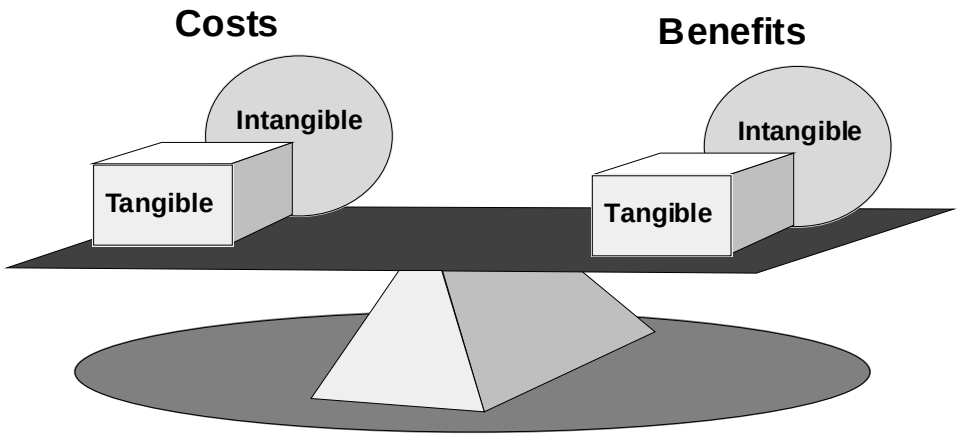
The initial discussion with a potential client (which seldom yields enough information to accurately estimate time, cost or resources) can be followed (or preceded) by a formal Request for Proposal (RFP). The Project Proposal, which forms the basis of the eventual contract between client and producer, includes estimates, the scope of the work, and a project plan within the framework of a Feasibility Study. At this stage, the key personnel of the project team will have been identified and meet to draft key reference points in the concept brief. The preliminary Project Plan includes strategic impact, the project life cycle, expectations, resources and the process for defining deliverables. Management of customer needs, general management, business impact, risk assessment, change control issues, quality and verification plans are also defined.

Key Features

- A clear understanding of the concept and requirements for the project is obtained.
- Response to a Request for Proposal (RFP) is generated.
- A Feasibility Study is performed.
- Required and available resources are identified.
- Desired project goals, scope, expected outcomes and level of audience are identified in the Concept Brief.
- A preliminary Project Plan is prepared which includes a management flowchart, defined standards and procedures, schedule of activities, estimates and a work breakdown structure.
- Change control policies are established.
- User requirements' acceptance criteria are outlined.
- Process and method of progress reviews are established.
- A Quality Assurance Committee / representative is appointed.

Initiation

The design solution identifies the key components, and the relationships between the technical, interface and educational requirements reflecting the primary purpose of communicating effectively with the end user.



Description

At this stage of planning, project goals are identified, and the subject and level of audience is defined. A cost/benefit analysis is performed and budget and timeline schedules are drafted to determine whether the project is viable from both an educational and business/management perspective. This can be achieved through a Feasibility Study which provides the framework for subsequent planning. One of the main objectives of a Feasibility Study is to gain commitment for the project from management and other personnel as well as confirm that the development group has the capability to deliver a quality product on time and within budget.

A major planning document is the Concept Brief which outlines the type of project, the target audience, content, basic design, resources, scope and requirements. The requirements definition is a simple, general description of the outcomes of the project. Major considerations are: effectiveness, rationale for interactive multimedia, technical merits, cost, amount of labour and timelines.

Tasks

Perform Feasibility Study

The Feasibility Study provides a measure of how beneficial or practical the development of the multimedia product will be to an organisation. This analysis is of prime importance in this phase, but can occur in all phases of development.

Usually the Feasibility Study is an internal working document. Some components may be provided to external groups, an example being the Business Case or Project Plan.

Develop a Concept Brief

Develop a sense of the scope and content of the project and, in particular, gain an understanding of the user's mental model of components, concepts and how they might wish to interact with the product. Define the aims and objectives of the product, including learning outcomes where appropriate.The Concept Brief provides the overall creative strategy for the product - its look and feel, its navigation and interface features.

Select team members

Hold a meeting with team members to brainstorm ideas, debate the appropriateness of multimedia and discuss alternatives.

Draft a Project Plan

Include a tentative development schedule with a critical path analysis, milestones with associated 'sign-off' procedures, and deliverables. Estimate time per task where possible, establish payment schedules and plan for prototyping, evaluation and implementation.

Determine hardware and software requirements

Identify the target platform, particularly if the client has very specific delivery platform requirements. Hardware constraints will impact on the level of complexity and integration of media elements, which in turn can affect the structure of the education/training package.

Select the most appropriate development tools (graphics, audio/video requirements, authoring, project management etc) and ensure that there is sufficient storage for files and backups.

Initiation

The design solution identifies the key components, and the relationships between the technical, interface and educational requirements reflecting the primary purpose of communicating effectively with the end user.

Description

The three general communication categories of the Internet — World Wide Web; electronic mail and newsgroups; and direct communication through IRC (chat) and voice or video conferencing together provide an information-rich environment which requires a new focus on instructional design and teaching and training. For example, Internet based instruction could be grouped into three categories: Stand alone courses in which most materials are delivered by the Internet; Web courses coupled with face-to-face meetings; Web resources which can be integrated into larger courses or provide supporting activities. Several components of Web based instruction include: Computer Based Training or Computer Aided Learning, Hypermedia/text and Computer Mediated Communication.

On-demand access to Internet based instruction requires consideration of the extent to which it is integrated into the structure and mission of the client group. It also needs to take account of the end users' requirements, network capabilities and bandwidth.

Tasks

Review all possible modes of Internet delivery

These may include: mailing lists (listservs); newsgroups; Internet Relay Chat (IRC); Structured Group Activity (eg QuestWriter); MUDS and MOOs; WWW site; Collaboration tools (eg Lotus Notes). In addition, consider how the end product will be distributed — Internet or Intranet.

Determine hardware and software requirements

Calculate hardware and software configuration requirements for both development activities and the end user. Should the design focus on the attributes of a particular web browser, for example? Consider the growing emphasis on electronic distribution and online linkages for CD-ROM products (the hybrid CD-ROM).

Estimate specific online development costs

- software tools for content creation
- training to use software tools
- version control, tracking of changes, assets etc

Consider the advantages and disadvantages

The Internet can be both a delivery medium for education and training and a content provider. This major advantage can be a disadvantage as too many links can confuse the user, content may change or links can be broken. Web based instruction can have a global market, be easily updated and provide access to a diverse body of resources. Online services are most effective when they are decentralised, that is, when control is more in the hands of users than providers.

Review content selection process

Selecting specific content for online courses is a much more intensive process than for traditional curriculum development. The Internet currently is a reactive environment which responds to requests for information. Quality Web based instruction should make use of tools and applications (such as Java applets) which provide flexible learning options and a more interactive and dynamic environment.

Initiation

It is desirable to incorporate a significant proportion of original material in online resources, and ensure that linked materials are attributed to the respective authors.

Description

An understanding of legal issues is critical to success in developing and disributing multimedia works. Essential proprietary or copyright material needs to be identified, defined and costed. Most development contracts contain clauses which require the developer to indemnify the client/user against breach of copyright or misuse of information.

Current Australian copyright laws do not adequately address converging technologies with multimedia production involving the negotiation of rights which encompass film production, computer programs (which are protected as a literary work), runtime licences, text, illustrations and sound recordings.

In an online environment, different parts of the product may be used by different people. The reuse of content in a variety of products developed for different clients needs to be considered. Multimedia material delivered on the WWW does not always contain copyright notices. It is, however, still protected by copyright laws.

Tasks

Review contract for legal issues

Perform a contract review before signing to identify all legal issues and requirements. Include in the contract with the client, other subcontractors and/or casual staff a list of terms that may become legally binding.

Negotiate with client

Negotiate with the client to determine the strategy to manage the identification, use, and compensation for proprietary or copyright material.

Establish control registers

Establish an Intellectual Property Register and a Software Register to assist in controlling the insertion, and use, of proprietary materials for the project and resulting product(s).

Develop estimates and contingencies

Develop estimates and contingencies for the budget to obtain clearances to use proprietary materials on the project and in the resulting product(s). Where use of patents may be required, the process can be complex and time consuming. Searches at the national or international level of patent offices may be required, and should be included in the estimation of costs.

Obtain appropriate rights and clearances

Obtain copyright protection for original works of authorship (for example, text, music, graphics, illustrations, photographs, software) which may be an outcome of the project (if agreed to by the client).

Clear all legal requirements in acquiring content particularly authorisation for electronic retransmission and embedding of other people's links into a WWW site.

Initiation

A global overview of the project is derived once revisions of cost estimates, schedules, team members and other matters are conducted in accordance with the Concept Brief and the detailed Design Document.

Description

The purpose of activities within Project Management is to define the processes necessary to establish, coordinate and manage a multimedia project and all the resources required to develop the product. In the initiation stage of multimedia development, this will require the scope of work to be planned, defined, verified, and placed under change control procedures.

Once the contract requirements are established, the Project Manager confirms the feasibility by checking that the resources (personnel, materials, technology, and environment) required to execute and manage the project are available, adequate, and appropriate and that the timescales for completion are achievable.

Procedures for communication with the client, change controls, review and approval of work products, and their Acceptance Criteria are established.

A client briefing is conducted to confirm the procedures to be used for the project.

Tasks

Initiate the project

A Business Case (or contract) that identifies the business need for the project is developed and any constraints or assumptions are identified and recorded.

Plan and define the scope of work

Plan the scope of work specified by the team, and determine that achievement is feasible. A Scope Statement includes project justification, project product(s) to be created, project deliverables, and project objectives (or critical success factors).

Develop Work Breakdown Structure (WBS)

Subdivide the major project deliverables into smaller components to improve the accuracy of time, cost and resource estimates; to define a baseline for performance measurement and control; and to facilitate clear responsibility assignments. Each component is described in terms of how the work of the project will be performed and how results will be verified.

Review requirements (contract)

Perform a contract review to establish that both the client and the project can meet their requirements and commitment.

Define basic procedures

Procedures for communication with the client, change control, review and approvals of work products, and their Acceptance Criteria, are established.

Conduct client briefing

Conduct client briefing, and, with the agreement of all parties concerned, modify the requirements to achieve the completion criteria. Confirm the Acceptance Criteria.

Perform Scope Change Control

The Scope Change Control system, integrated with the overall change control system, includes scope change requests, tracking system, and approval levels to authorise changes. These changes are fed back through the planning process, technical and planning documents are updated as needed, and stakeholders are notified.

Initiation

Identified risks are quantified and qualified and corrective strategies are validated.

Description

Because risk management usually involves 'trade-offs' between many factors, it is essential to understand the scope of risk management to be performed by the project, so that critical issues can be minimised before they impact the project. Reduction of risk (and maximising opportunities) in a project is a 'win-win' situation with all project people gaining from the increased possibility of success. It is possible, however, for a project to be exposed to risks that are beyond the Project Manager's scope and the organisation's capability to resolve. Dependence on outside organisations is an example of one such risk factor. The Project Manager and team must seek the assistance of senior management, project sponsors and stakeholders in proactive identification and reduction of risk(s).

The scope of risk management is determined by reviewing the severity, probability, and type of risks for identification and management. In some projects it may be necessary to assign a full-time Risk Management Officer.

Tasks

Identify stakeholder risk tolerance

Different stakeholders will have different tolerances for risk. Analysis of stakeholders will provide an indication of risk tolerance which can be used to screen both inputs and outputs to risk quantification.

Establish risk management scope

Define and document the scope of risk management to be performed by the project. Internal or external risks may be managed differently. Also consider opportunities.

The scope will cover:

SCOPE	Opportunities	Risks
Internal		
External		

Establish risk reporting framework

Presentation of risk information is important. Project team members will often be aware of risks first. An anonymous communications channel for reporting this information may be used.

Identify risk minimisation process

Where risks are outside the scope of the project to identify and manage, define a minimisation process to advise the client.

Allocate resources for risk assessment and control

Where the risk management is likely to be substantial, consider the appointment of a Risk Management Officer.

Initiation

The design solution is traceable to the requirements baseline, and agreed changes are reflected in both.

Description

The purpose of change control activities is firstly to define the various deliverables from the project, and then to ensure that changes to these products occur in a controlled manner. The broad description of the end product flows from the Feasibility Study, which also provides a picture of the size, scope and complexity of the project and product. The level of documentation is determined by these factors and also by the nature of the client/producer relationship. The more formal the contractual relationship, in general, the more constrained is the documentation. Many contracts, for example, may require that certain specified deliverables are produced, or that products conform in content and presentation to specified standards.

The policies, procedures and mechanisms for controlling change within the project have to be defined and agreed. Depending on the scope of the project, this may cover a range of techniques from standards for version control to the establishment of formal configuration management systems.

Tasks

Determine documentation requirements

Identify the requirements for each document, including: title (meaningful and easily understood); audience (the target audience for each product should be explicitly identified); purpose (should be clear and understood by all involved parties); objectives (clearly written which derive from the purpose of the document, the phase in which it is developed, and the nature of the project).

Define standards for documentation

Define the standards to be followed in generating the documents.These standards should address: Presentation of the documents - font, size, page layout, headers and footers; the goal should be to present a consistent 'look and feel' for all of the project's documents.

Authorship and status - how and where the authors are identified, how the status of the document (draft or final, version number, date of production) is shown.

Agree on a strategy for change control

In conjunction with the client, agree on the procedures to be followed for controlling change in work products and requirements. These procedures should address: (1) how requests for change to basic requirements will be handled; (2) what information is needed to accompany a request for change; and (3) who has authority to approve requests for change.

Establish configuration management system

Where required, a library or system to control access to products/assets in the course of development should be set up. Automated tools are available for this; otherwise, a 'System Librarian' should be appointed.

Identify configuration items

Identify each work product to be placed under configuration management. All work products require some degree of control; however, only key technical items (such as the Specifications Document, the Design Document, the prototypes or released systems) may need to be formally controlled.

Initiation

The QA group confirms that the specification of user requirements has been reviewed for completeness and feasibility, and that any issues previously raised have been addressed.

Description

The purpose of the quality assurance activities is to assure that the work products being produced - both final and interim - meet the agreed quality criteria, and are produced in accordance with the defined standards and procedures for the project.

In general, quality assurance is achieved by reviewing records of product development, and auditing the project to ensure that the plans, procedures and standards have been followed. In this phase, the quality assurance tasks are concerned with defining the mechanism by which the assurance will be obtained, and setting out the required assurance tasks in a plan. Assurance includes ensuring that problems and issues raised during the project are addressed and resolved.

Additionally, where the goal of the product is to meet learning objectives, quality assurance is concerned as much with confirming that these objectives are achieved, as with ensuring the reliability and functionality of the product.

Tasks

Select quality criteria

The criteria must be demonstrable - in terms of conforming to standards, following procedures, demonstrating specific product characteristics, or meeting defined learning objectives. Criteria may include: process - the need to meet budget and schedule requirements; product - reliability, usability or portability of the system. Where a strong contractual arrangement exists, stringent criteria may be invoked to provide evidence that the contract is being met.

Standards may be developed internally, and documented in a Quality Management System; or are available from international and professional standards organizations, including ANSI/IEEE 730, Standard for Software Quality Assurance Plans, or US Military Standard 498.

Define quality records

Define the quality records that will demonstrate conformance to the quality criteria and determine their retention period. The records will include items such as meeting minutes, review records, test case results, change requests and task assignments. The intent is to provide objective evidence that the procedures and standards required have been followed.

Develop Quality Plan

Document the quality criteria for the project, and identify and schedule the review and audit tasks required. The outline for the plan may be defined in the organisation's Quality Management System. For smaller projects, the Quality Plan may be incorporated into the Project Plan.

Establish independence of quality assurance function

Within a large organisation, there may be a separate QA group responsible for all aspects of the function and reporting to senior management. For small producers, possible solutions may include assigning the QA responsibilities to one member of the project team, with separate reporting responsibilities for that function; alternatively, independent consultants can be employed to fill the assurance role, reporting to both the producer and the client.

Initiation

The correctness and appropriateness of the design solution are demonstrated through a process of design review.

Description

Verification and validation (V&V) activities are concerned with demonstrating the quality and functionality of the product. Verification is concerned with showing that each work product correctly reflects the requirements for its development; validation is concerned with showing that the final product meets the client's requirements.

In most projects, verification is achieved through review processes, while validation involves some form of dynamic testing of components and of the system under development. Obviously, some multimedia components may not be suitable for dynamic testing in isolation; however, the use of suitable 'harnesses' can allow testing of most components in a suitable environment.

The activities associated with verification and validation are concerned with ensuring that the criteria to be evaluated have been adequately documented, and that an adequate set of tools and techniques are available to conduct the V&V activities.

Tasks

Select work products

Identify the work products that are to undergo verification and/or validation. These will depend on the nature of the project, and particularly on the extent to which newly developed components, such as text or graphics, or project-specific video or audio are utilised.

Where reliability is identified as a critical factor, the need for comprehensive V&V is greatest. The reliability of multimedia systems normally must be high; however, some components may have lesser requirements, and the extent of V&V can be reduced accordingly. The key issue is the risk associated with failing to meet requirements.

Identify verification methods and techniques

Identify the methods, techniques and standards (including checklists and test methods) to be used in conducting the work product V&V. Techniques may include: (1) design reviews, (2) inspections of documents or programmes, (3) unit, component and integration testing, (4) usability testing and interface evaluation.

Establish completion criteria

Establish the completion criteria for successful completion of work product V&V.

These criteria will normally specify the extent of review or testing activities required, and the level of unresolved defects permitted before progressing to the next phase or stage of development; in some cases, more specific and quantitative measures of completeness may be specified.

Establish a plan for verification and validation

Document and approve a high level plan for verification and validation activities. The plan should document the strategic choices of the scale and nature of these activities, and set out a schedule for performance.

Establish problem reporting system

Establish a system for recording the incidence, nature and resolution of problems found during verification and validation. The system should record not only the symptoms, but also the severity of the problem, and the likely impact.

Work Products

Documentation Requirements

These may be incorporated in the feasibility report; in the initial statement of requirements; or in the contract.

Documentation Standard

Standards for presentation and layout of documents are required.

Configuration Management Plan

Configuration management requirements may be defined in the Quality Plan or Project Plan.

Configuration Management System

In less complex systems, this may be simply defined standards for version control; for large systems, formal configuration is required.

Quality Plan

Depending on the size of the project and the nature of the contractual arrangements, this may be incorporated into the Project Plan.

Quality Criteria

These may be identified in the Feasibility Study, or may be contained in the contract.

Audit Schedule

This should be documented as part of the overall project schedule.

Quality Records Index

An index of the records to be recorded and retained by the project should be developed at an early stage.

Verification & Validation Plan

An overall strategy for the extent and nature of review activities in the project is developed.

Acceptance Criteria

Criteria that represent the minimum acceptable status of the end product should be agreed and documented, perhaps in the contract.

Intellectual Property Acquisition Plan/Register

The IP Plan and register assist in the control of proprietary and other copyright materials.

Software Acquisition Plan/Register

New purchases, upgrades and associated costs can be tracked.

Response to Request for Proposal

A clearly written, comprehensive response to an RFT provides the client with preliminary ideas and costs.

Feasibility Study

A measure of how beneficial or practical the development of the product will be to an organisation.

Concept Brief

Preliminary project information on the objectives, look and feel of the product and expected outcomes can be detailed in the Concept Brief or Project Plan.

Business Case (or Contract)

A signed agreement which identifies the time-frame, monetary considerations, copyright and licensing requirements, performance and quality requirements, and any standards or procedures to be used.

Scope Statement

A clear identification of what is included in the project.

Work Breakdown Structure

A deliverable oriented grouping of project elements.

Cost Estimate

Resources required and quantity required for each WBS item are defined.

Project Schedule

Activities are defined, sequenced, and duration estimated. Expected start and finish dates are determined. Milestones, completion of major deliverables and key external interfaces, are identified.

Risk Analysis Model

Questionnaire-based risk assessment is common.

Questions to Confirm this Phase

Have the purpose and message of the product as described in the RFP been explained?

Have requirements and expectations of the client, developer and/or users for the product been presented?

Can the organisation undertake this project?

Can a balance be maintained between purpose and feasibility?

Have good communications channels been established with client?

Have operating environments been targeted, resources described and delivery platforms outlined?

Have copyright/licensing agreements issues been determined for each of the components?

Have the documents which need to be developed during the project been considered and standards for presentation defined?

Have procedures been agreed with the client for approving changes to the requirements?

Do the requirements cover non-functional quality criteria as well as functional issues?

Do the plans for the project adequately address issues of quality assurance and management (eg through a Quality Plan)?

Have arrangements been made for quality assurance that ensure adequate independence?

What is the overall strategy for product testing?

Has a system for recording and tracking problems been established?

Is there a contract for the development of this multimedia product?

Is there a clear and written understanding of the client acceptance criteria?

Has a Project Manager and a technical leader been appointed for this project?

Is this a high risk project?

NOTES