Historic England

Management of Research Projects in the Historic Environment

The MoRPHE Project Managers' Guide

Summary

This guide will help you plan and run an effective project. It is written for those planning research and research and development (R&D) projects in the historic environment.

Research and R&D projects funded by Historic England will be required as a condition of grant or contract to follow this guidance. Specifically this means:

- using in all communications the terminology for project roles, project stages and project documents covered in this guide and associated project planning notes, and as defined in the Glossary

- providing the key documents in the format set out in Appendix 2, with an accompanying document control grid and contact details

- following supplementary guidance for particular project types set out in the accompanying series of Project Planning Notes, and specific guidance for funding applicants

For others working in the historic environment sector, the guide provides good practice advice based on project management both in the sector and in industries as varied as construction and IT.

Contents

Introduction

The Management of Research Projects in the Historic Environment (MoRPHE) is a series of project-management guides designed to support the planning and implementation of both basic research and applied research and development projects in the historic-environment sector.

MoRPHE is aimed both at those involved in project development and implementation and at those who commission or sponsor research and are looking for accountability and project control. It offers a flexible approach which can be tailored to fit the needs of a range of situations.

Defining 'Projects'

A project is defined by the British Standards Institute as 'a unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or organisation to meet specific objectives within defined schedule, cost and performance parameters' (BS 6079-1, 2000). Most forms of research share these features and readily lend themselves to management as projects.

Defining 'Research and Development'

Research and development in the historic environment sector takes many forms. The definition adopted here is from the Frascati Manual 1993 (OECD 1994). 'Research and development' is defined as 'creative work under taken on a systematic basis in order to increase the stock of knowledge, including knowledge of humans, creatures and society, and the use of this stock of knowledge to devise new applications'. This covers basic research, applied (including strategic) research and experimental development, and applies equally to scientific, technological, arts and humanities and social science research.

What is covered by MoRPHE

This volume, the MoRPHE Project Managers Guide, covers general principles of good project management. It sets out:

- a statement of good practice;

- a checklist for project managers

- a generalised model for the conduct of projects;

- a suggested or typical project life cycle;

- a review of how the model and life cycle can be adapted to various operational contexts and levels of project complexity.

Suggested project planning techniques and checklists for the content of key project documents are presented in the appendices, along with a glossary.

Complementing and expanding on the MoRPHE Project Managers Guide is a series of Project Planning Notes and Technical Guides. The Project Planning Notes each address a specific type of project, with details on the setting of research objectives, issues to be considered in planning a project, relevant standards and guidelines and so forth. The Technical Guides address more general topics related to research in the historic environment. The MoRPHE series will be expanded and updated to provide a suite of supporting documents for project managers working in various areas of historic-environment research.

What is not covered by MoRPHE

This volume and the Project Planning Note series cover only project-management aspects of research work. MoRPHE does not replace or supersede existing good- practice standards and guidelines related to research procedures and techniques (Figure 1).

MoRPHE makes no assumptions about the use of software to assist in project management. Its focus is on the principles which underpin project management and which are relevant whichever software or paper-based system is in use.

Compliance with MoRPHE

MoRPHE presents general guidelines for project management rather than a standard specification for all historic-environment research projects. Where closer regulation of projects is required, more specific standards – for the assessment of funding applications or for contractors carrying out work under model contracts, for example – may be developed on the basis of the MoRPHE guidelines
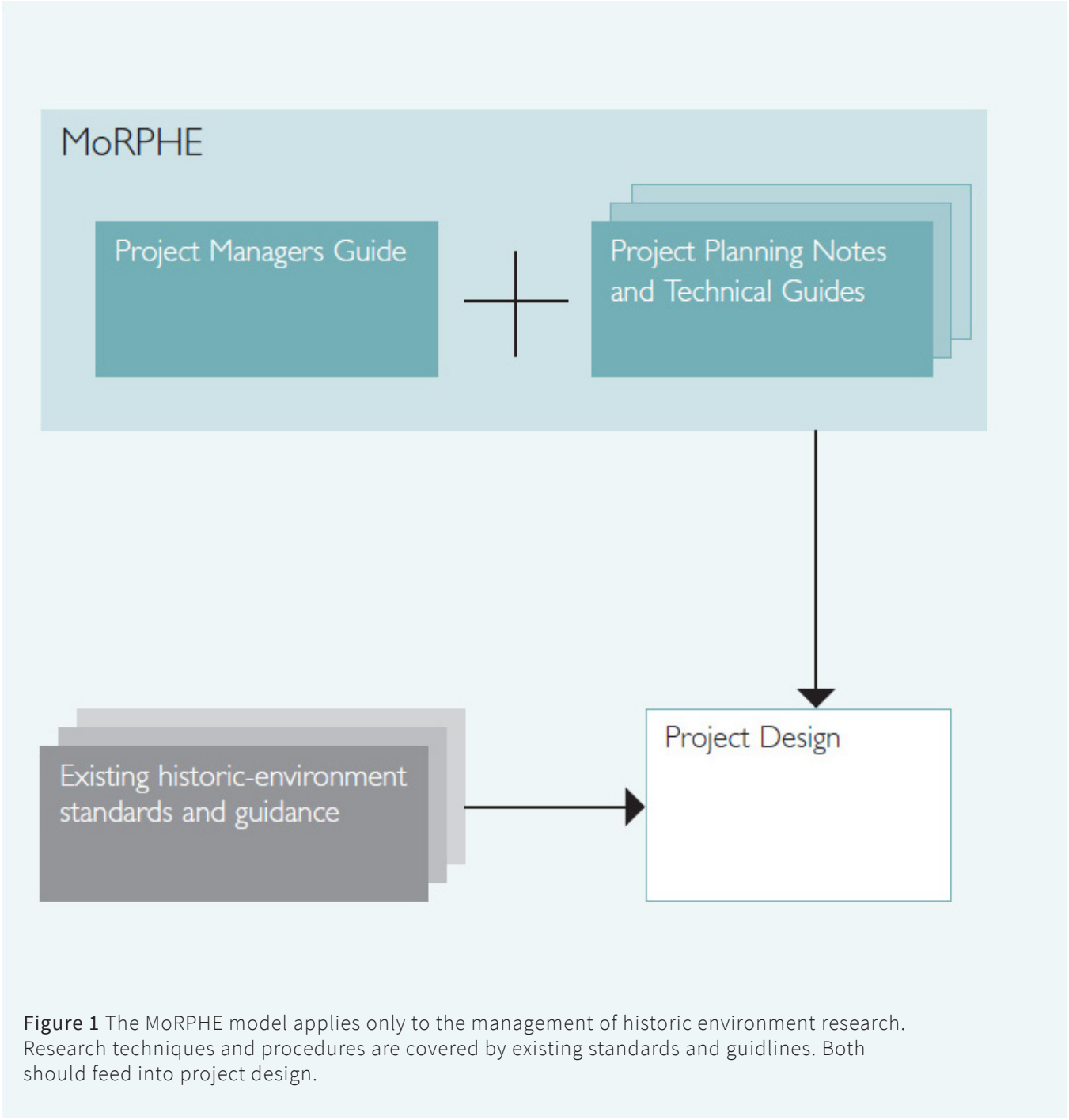
Figure 1 The MoRPHE model applies only to the management of historic environment research. Research techniques and procedures are covered by existing standards and guidlines. Both should feed into project design.

Statement of Good Practice

The following principles, aimed at promoting best outcomes in historic-environment projects, represent a framework within which the techniques and approaches set forth in this guide should be applied.

Basic research and applied research and development projects in the historic environment should seek to:

Create knowledge: advance society's understanding of the historic environment and/or apply such understanding to its management, care and enjoyment,

Seek involvement: engage those affected by project outcomes in assessing the quality and usefulness of those outcomes,

Build experience: contribute to an improvement in best practice in the management of future research projects,

Build for the future: anticipate how project results will be effectively disseminated, and archived for use by future generations.

In the design of a research project, it is important to:

Know where you are going: have clearly stated aims and objectives, which originate from and contribute to appropriate research agendas,

Get the right team: plan and manage the project so that appropriate experts, including field investigators, analysts and scientists, curators, archivists and data- management, publication and dissemination staff, are consulted,

Spend wisely: plan and manage the project so that resources contribute effectively and efficiently to the project's stated aims and objectives,

Plan flexibly: plan, routinely review and where necessary re-plan the project in a controlled manner to permit a flexible approach to the achievement of stated aims and objectives,

Share information and ideas: plan for and ensure effective communication within the project team,

Create opportunities: in the creation and management of the project team, take account of the continuing professional development of staff.

Checklist

- Do we have clear research or research and development Aims and Objectives?

- What level of planning, management and documentation is appropriate?

- Is everyone who is involved at this and future Stages aware of their role(s) in the project?

- How will we communicate, both as a Project Team and with Stakeholders?

- Have Project Executive and Sponsors agreed a commitment of staff and resources to our project?

- How far ahead can our project be planned?

- Have we allowed for foreseeable risks and uncertainty? Is there a clear procedure for managing unforeseeable changes to plans?

- Have we allowed enough time for planning and reviewing?

- How will the results of our project be archived and disseminated?

1 An Overview of MoRPHE

MoRPHE is aimed at projects with a focus on historic-environment research, which may take place in a variety of contexts.

For example they may be:

Threat-led, in response to a natural process, proposed development, change in agricultural use or other event offering a unique opportunity to study an historic asset;

Developed by a research organisation to enhance the understanding of the historic environment;

Commissioned to support strategy, for example in the management or presentation of the historic environment;

Part of a personal project such as postgraduate studies, or an amenity-society or volunteer activity.

The range of research aims and objectives, and the techniques and methods for addressing them, is also considerable, from fieldwork and laboratory-based analytical study to methodological development and social-attitudes research.

To support best practice in management across such a wide range of possible projects, MoRPHE provides a general model of project stages and identifies specific roles for participants. These should be adapted to the needs of each project, taking into account:the specific context and topic;

■ the complexity of the project;

■ the level of acceptable risk (that is, the uncertainty of outcome);

■ the level of control required by the project manager or sponsors.

Part 2 provides greater detail on the stages in a project's life cycle. Part 3 illustrates how the model may be applied in various operational contexts, and how the complexity of a project can be ascertained.

Many terms are used in the following sections with quite specific meanings, as set out in Appendix 2 and in the Glossary.

1.1 The MoRPHE procedural model

The MoRPHE model is illustrated in Figure 2. Projects are initially motivated by, and plans reviewed against, a variety of Drivers (see Glossary) (left-hand column). These may include research agendas, organisational strategies or project briefs issued by local- authorities; others may be appropriate, depending on the context. Projects proceed through a series of Stages (central column) and are planned, managed and assessed on the basis of project Documents (right-hand column).

Start-up is the first formal Stage in the process, covering a project's initial identification and early planning. A Project Proposal provides an initial statement of Aims and Objectives and of the Business Case (see Glossary), and a general plan of how the project is expected to develop during the Initiation Stage. An initial estimate of project costs, including those for Initiation, is presented – although no funds or other resources are committed to the project at this point.

Review Point R1 is a decision in principle, based on the Project Proposal, about whether to develop the project further. If approved, the project proceeds to the Initiation Stage. At this Review Point, resources must be committed to support Initiation. If the project is to proceed no further, no additional time or funds are required.

Initiation is the project's design Stage. Time and resources are required to ensure the creation of an effective, viable Project Design. The Project Design articulates Aims and Objectives and the Business Case in detail, identifies Stakeholders (see Glossary) and proposes project Execution Stages and the Products to be completed in each of them. Uncertainties, potential problems and opportunities are documented in a Risk Log (see Glossary). A Project Team is proposed and relevant staff consulted as to availability. Plans are developed for communication within the Team and with Stakeholders, and for Review Points (see Glossary).

Aims, Objectives, Products and Tasks

Four terms are used with quite specific meanings in MoRPHE. Working from the most general to the most specific these are (with related examples):

Aims General subject areas of research and development work (The economic base for Roman settlements in a particular area);

Objectives Specific research questions that contribute towards Aims (Evidence for animal husbandry from excavated sites);

Products Specified items whose completion contributes towards Objectives (Completed report on the analysis of faunal remains);

Tasks The work under taken to develop a Product (Analysis of cattle bones).

Planning for a project as a whole will generally focus on Aims, Objectives and Products. Plans for each Execution Stage will tend to focus on Products and Tasks.
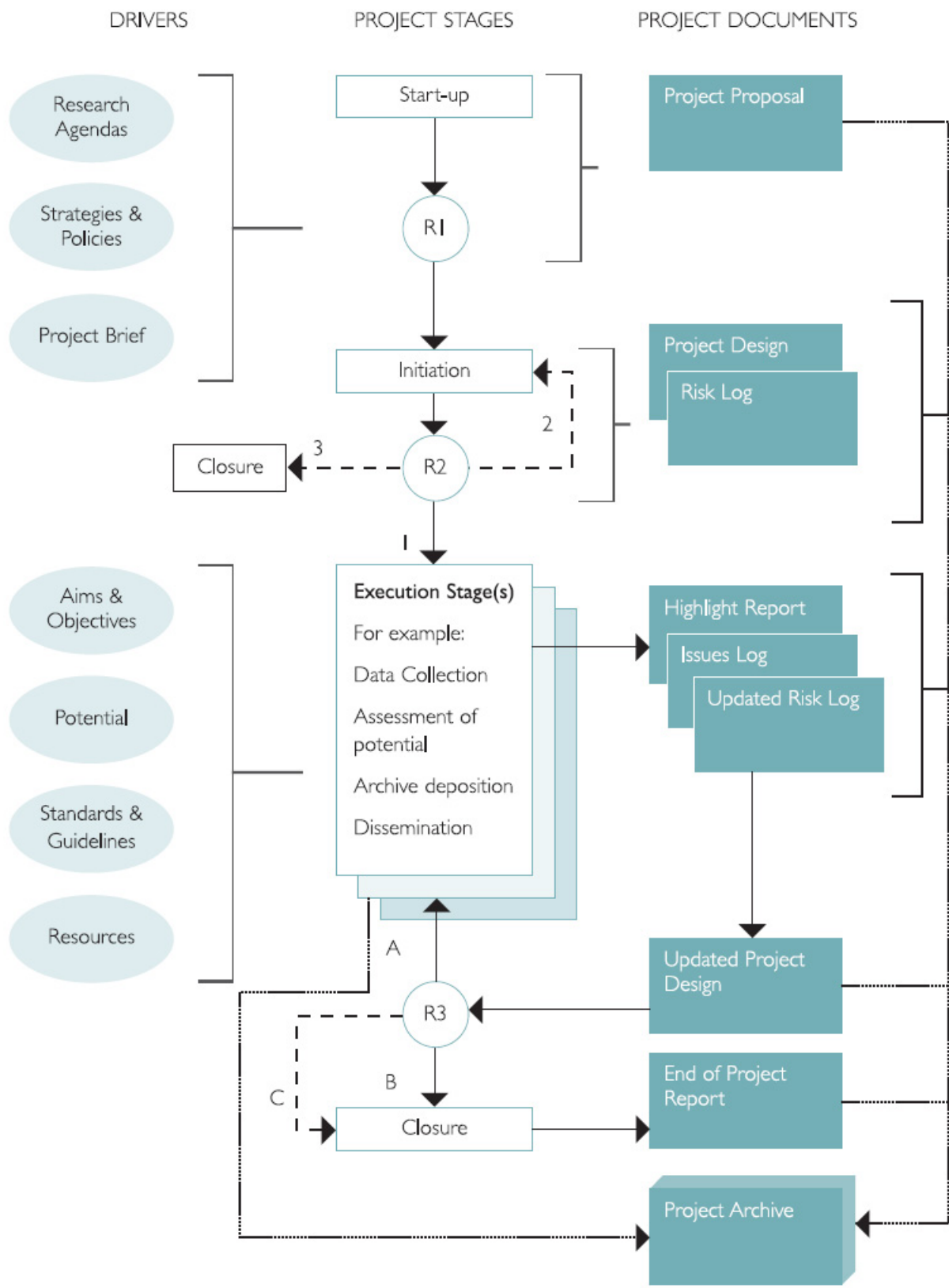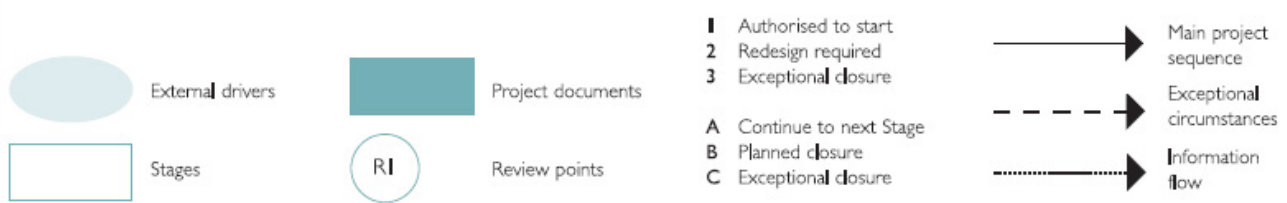
Figure 2 The Generic MoRPHE project model

For familiar, well understood project types covered by established procedures, Initiation may consist simply of an agreement by those involved that the Project Proposal is a suitable basis for managing the project. In this case the Project Proposal in effect becomes the Project Design.

Review Point R2 is a decision on whether to authorise the project on the basis of the Project Design. Possible outcomes are:

1. Project authorisation and commitment of resources to the first Execution Stage (or to the whole project if planned as a single Stage);

2. Repetition of the Initiation Stage with the aim of revising the Project Design (for example, to alter the scope of the proposed work);

3. Exceptional Project Closure without further work

Execution refers to the project's research work, including Stage or Stages of collection, assessment and analysis of data, report preparation, user consultation, documentation, peer review, testing etc. The number, duration and Products of the Execution Stage(s) will have been set out in the Project Design. Each Stage will also involve:

- Preparation of the archive of that Stage's results and documentation of how the results were achieved;

- Dissemination of the Stage's results or Products;

- Project-management activities as specified in the Project Design, including Highlight Reports, Issue Log (see Glossary), review of the Risk Logand planning for andunforeseen changes;

- Assessment of the potential of the results, or products to achieve the Aims and Objectives of the project.

Review Point R3 is a review, conducted at the conclusion of each Execution Stage, of the project's progress against its Aims and Objectives. The review may generate an Updated Project Design, to be applied to subsequent Execution Stages. The nature and format of the review will have been set out in the Project Design or any existing updates to it. The outcome is either:

A. Acceptance of an Updated Project Design and commitment of resources to the next Execution Stage;

B. Planned Closure when all planned Execution Stages are agreed to be complete;

C. Exceptional Closure if the project is not producing the expected results.

Closure is the project's final planned Stage. Checks are made to ensure that all Tasks and Products have been completed, Aims and Objectives have been met, lessons learned from the project have been recorded, and recommendations for future evaluation, where applicable, have been documented in an End-of-Project Report.

Following Closure the completed project archive will consist of the products of the Execution Stages and the Project Documents.

Sample Execution Stage	Product examples	Archive Product examples	Dissemination Product examples
Desk-based research	Existing information sources identified. Decision based on report.	Updated HER records. Completed assessment report.	Signposting record.
Pilot study	Study area defined. Sampling strategy defined. Decision based on report.	Pilot study report filed.	News item.
Field Investigation	Access agreement signed. Site infrastructure established. Storage arrangement for archive agreed. Staff briefings conducted. Interventions made. Data captured. Potential of data assessed. Conformance to standards checked.	Digital archive established. Metadata for files captured. Paper archive established. Artefact archive processed for storage.	Signposting record Interim reports. Online display. News coverage.
Peer review / consultation	Peer list agreed. Questionnaire developed. Questionnaire circulated. Responses received. Responses analysed.	Report on consultation.	Summary report circulated.
Formal R&D product roll-out	Products made available to users. Maintenance Plan agreed.	Maintenance information filed.	News item. Case study.
Assessment of data potential	Archive accessed. Sampling approach agreed. Assessment undertaken for analysis.	Report on potential.	Summary report.
Analysis	Archive accessed. Analysis undertaken. Report production. Images produced/sourced.	Report on analysis. Updated HER entries. Updated NMR entries.	Report published. Signposting record updated to show progress.
Archive Deposition	Data archive deposited with archive holder. Paper archive deposited. Artefact and ecofact archive deposited with archive holder.	Agreements with archive holder filed.	Signposting record updated to record location of archive.

Table 1. Examples of project Execution Stages and associated products. Project Stages and products are established in outline at the initiation Stage but may be subject to change according to results and review. They may be detailed in Product Descriptions appended to the Project design. Stage and product planning should be informed by existing good-practice guidance, by organisational policies and by MoRPHE Project Planning Notes. (Note project documents, such as Highlight Reports are omitted from the table, but should also be included in plans).

1.2 MoRPHE project roles

Projects are frequently under taken by temporary Project Teams brought together for the specific project. Use of agreed and understood roles as set out in this section can assist in bringing such a team together relatively quickly. Stakeholders work outside the Project Team, but have an interest, and need to be kept informed.

The composition of Project Teams and their relationship with Stakeholders may be well established through existing professional guidance. However, there will often be a requirement to amend and adapt roles for each project. Illustrative organisational diagrams for projects of high and low complexity are shown in Figures 3a and 3b.

1.2.1 Project Team
A project generally requires the creation of a team to work together for the duration of the project. The team may be drawn from a variety of disciplines, departments or organisations, and may also include temporary staff and consultants.

Project Team roles are described below. Clarifying these roles, and documenting them clearly in the Project Design, will greatly enhance team members' ability to work collaboratively. This is particularly important when roles within a project differ significantly from roles outside the project.

A project is a valuable opportunity for staff development. In the descriptions of project roles which follow, relevant skills and aptitudes are noted as an indication of potential areas for personal and professional development.

Project Executive There should be a single individual with ultimate responsibility for the project's outcome. The Project Executive is the final decision-maker, responsible for setting overall direction and for conducting formal reviews, while delegating day-to- day management to the Project Manager as set out in the Project Design. The Project Executive needs the authority to commit staff and resources to the

project, and so will typically have managerial and/or budgetary responsibility. Important aptitudes for this role include organisational awareness, the ability to negotiate for resources and chair discussions, readiness and ability to delegate authority, and effective decision-making.

Project Management The Project Manager oversees the project's day-to-day operation. Responsibilities include preparation of the Project Design, project planning, identification of Risks, monitoring of costs and timetable, preparation of Highlight Reports and maintenance of an Issue Log. The Project Manager ensures that the project produces the work agreed in the Project Design, provides evidence on which Project Assurance is based and drafts the End-of-Project Report. Valuable strengths for this role include staff-management skills, organisational ability and effective communication and inter-personal skills.

Experts These team members provide the project's expertise, as archaeologists, scientists, surveyors, editors, archivists and so forth. Working closely with the Project Manager, they under take aspects of the project in accordance with (and may contribute to) the Project Design. They are well placed to raise Issues and monitor Risks. In complex projects, or those involving several organisations, an **Expert Team Leader** may manage expert teams and liaise on their behalf with the Project Manager. Useful skills, in addition to specialist expertise, include team-working and communication.

Project Assurance Assurance refers to the monitoring of a project's progress against the Project Design, including its alignment with research Aims and Objectives and the Business Case and its compliance with relevant standards and guidelines. Assurance is one aspect of the Project Executive role, although for practical reasons it may be delegated, for example to a **Project Assurance Officer** or **Project Board.** Project Board members can widen the range of available expertise, and may represent the range of Stakeholders. Team-working, communication and meeting skills are useful in this role.
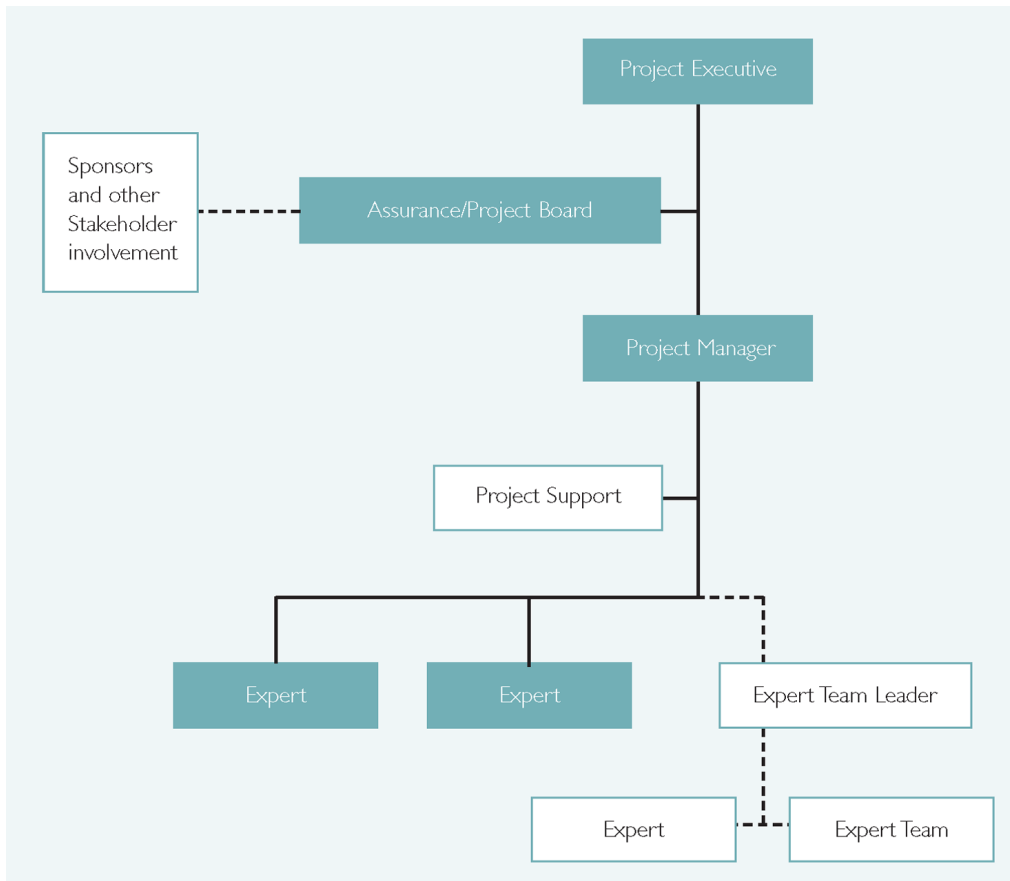
Figure 3a. The full range of possible MoRPHE project roles. The composition of the Project Board and Project Executive may be influenced by Sponsors. Sponsers or other Stakeholders may provide Project Assurance. The Project Manager may work directly with Experts, or via an Expert Team leader, and may or may not have Project Support.

Figure 3b. A small Project Team illustrating combined roles. The Project Manager also has the Project Executive decision-making role, and is directly responsible for the work of the Experts. A financial Sponsor provides Assurance that the project is on track. One of the Expert Team members also provides Project Support.

While the Project Manager is responsible for monitoring and documenting progress, Project Assurance represents an independent check in the interests of accountability. Project Assurance, therefore, should not be part of the Project Manager's role.

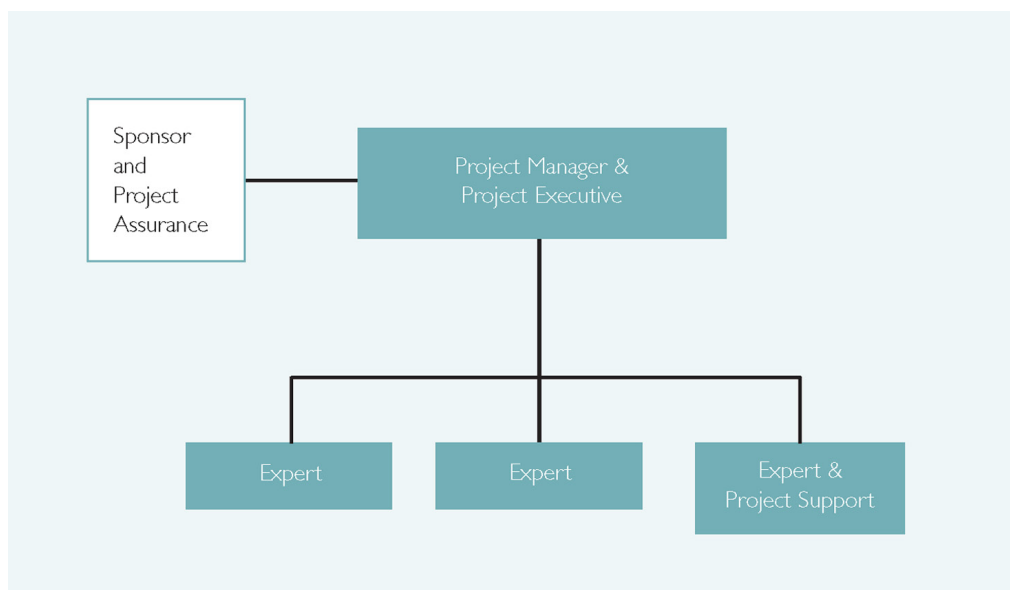**Project Support** In some research projects this optional role may be important to ensure proper version control of Products. Various versions of specifications, information systems, reports or licenses, for example, may be developed in the course of a project, and it may be helpful to define a specific Project Support role to ensure that current or correct versions are in use. More generally, Project Support can offer administrative assistance, minute taking and record management. Useful skills are good organisation and record-keeping.

These distinct roles may often be combined, so that a team member assumes more than one role. It is not uncommon, for example, for the Project Manager to be part of the Expert Team, involved in research or development work as well as in running the project (although this approach runs the risk that research may take precedence over management). Where project methodology is well established by professional practice it is entirely appropriate for the Project Manager to double as Project Executive, with overall responsibility for decision-making and commitment of resources. Independent Assurance is particularly important in this case.

An important exception to this idea is that, in the interest of an independent assessment of the project, the roles of Project Assurance and Project Manager should never be held by the same person.

1.2.2 Stakeholders

The Project Manager should identify, and establish working relationships with, the project's Stakeholders: those who are outside the Project Team but have an interest in, or whose work will be affected by the project's outcome. Stakeholders should be kept informed of progress, and may provide comment or contribute to reviews, for example by meeting as an advisor y panel. Key Stakeholders will usually include:

Sponsors or their representatives, who may be providing funds for the project. (A Sponsor who has commissioned research work should be directly involved via the Project Assurance role.)

Users of the project's Products, particularly when applied research is directed towards the development of new techniques, methodologies, systems, facilities or equipment. Examples include staff responsible for Product maintenance following project completion, and representatives of the readership of a new manual.

Curators: who will maintain the research archive and derived information for future generations. Examples include staff of local and national Historic Environment Records, museums and record offices.

2 The Project Life Cycle

The following sections provide further detail on the work needed and the Issues to be considered during a project's Start-up, Initiation, Execution and Closure Stages. The extent of work in each Stage will depend on the nature of the project. Part 3 gives examples of how MoRPHE guidelines may be adapted to particular circumstances.

2.1 Start-up

Every project begins with a decision that a particular piece of work is necessary or desirable. Such a decision may be expressed formally, for example as a research agenda, an organisational target or management directive, a recommendation from an earlier project, a requirement of an ongoing programme or a brief issued by a local-authority archaeologist or conservation officer. Alternatively it might be identified informally, for example in discussion among colleagues

The objective of the Start-up Stage is to develop the initial decision into a Project Proposal, ideally with as little cost (principally staff time) as possible, as no resources will yet have been made available to the project. In a commercial context, Project Proposals may be solicited from more than one contractor in response to a Project Brief (see Glossary) as part of tendering for a project.

A Project Proposal checklist is included in Appendix 2. The main considerations at Start-up are the documentation of Aims and Objectives and of the Business Case, and an estimate of the time and resources that will be required.

2.1.1 Research Aims and Objectives and the Business Case

Basic research and applied research and development projects respond to two motivations: their own Aims and Objectives, and the practical needs and requirements of the organisations involved, referred to as the Business Case.

Research Aims and Objectives arising typically from established agendas or from professional discourse, are a project's driving force. A project should advance the understanding and management of the historic environment, or support that understanding through the development of new products, techniques, systems etc.

Business Case The Business Case links the project to corporate strategies and targets. The host organisation (or, for commissioned research, the Sponsor) must be satisfied that the proposed work is appropriately specified, is in line with the organisation's strategic aims, is feasible within the available resources, meets appropriate organisational standards and has adopted the best available approach. The project's potential benefits must justify its anticipated cost.

These elements should be set out clearly at the start of the project, before substantial funds and time are committed. Their appropriateness should be the subject of ongoing critical review during the project, with changes made as necessary, documented in the Project Design.

2.1.2 Timetable, costs and other resources

At this stage it is difficult to make an accurate forecast of the time and resources a project will require. Experience with similar projects is the most useful guide, and where possible, experienced staff and the records of previous projects should be consulted. Time and resources must be adequate not only for a project's Execution but for its management, including planning, estimating, monitoring, reporting and progress review. MoRPHE Project Planning Notes accompanying this guide identify factors to be considered for specific types of projects.

2.2 Review Point R1

Start-up concludes with the first Review Point, R1. Here a decision in principle is made as to whether the project is viable and justifies further planning. The decision- making process will vary between projects but, at a minimum, the Sponsor and/or Project Executive must be involved, as they are in a position to provide resources to the project.

A successful review should result in a commitment of time and resources to the Initiation Stage. If they are not already in place, a Project Executive and Project Manager should be appointed to guide the Initiation Stage.

In competitive tendering, Review Point R1 is when Project Proposals from potential contractors are assessed. Either a single contractor may be selected to continue the project or, for larger projects, a short-list may be created with further planning work required from short-listed contractors during Initiation.

2.3 Initiation

The Initiation Stage is when the previously agreed Project Proposal is expanded into a Project Design, which should provide enough detail to permit authorisation of the full project at Review Point R2. The Project Manager under takes the majority of work during this Stage, in the following areas.

2.3.1 Development of the Project Design

Production of the Project Design requires a considered balancing among the following factors (see Figure 4), all of which must be documented:

■ An understanding of the project's background, including any pilot studies or previous related projects;

■ Consideration of the research subject's known or suspected potential to advance knowledge and understanding, as an aid in formulating project Aims and Objectives;

■ Identification and justification of proposed research and/or development methods and the products they will deliver;

■ The application of these factors as the basis for proposed resources (timetable, costs, skills etc).
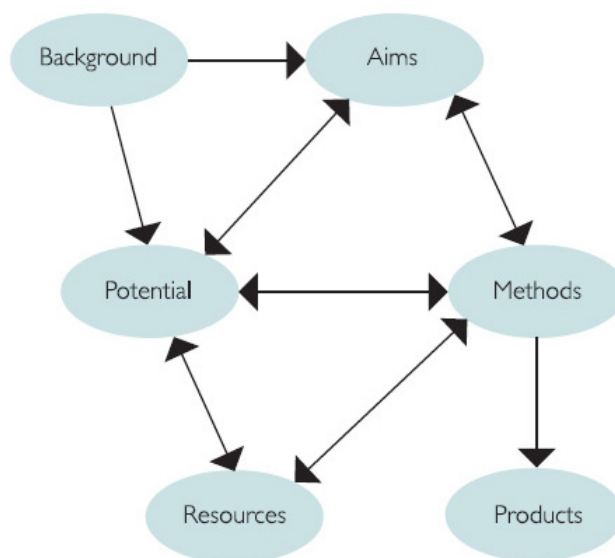

Figure 4.
Balancing competing needs in a research and development Project Design

Once a project is underway, the review process provides opportunities for updating the Project Design. Effective review requires ongoing attention to questions such as whether the potential of the evidence supports the Aims and Objectives, optimal research methods and the adequacy of resources. Because the relationship between these elements is dynamic, projects need some built-in flexibility to allow for redirection.

Appendix 2 includes a Project Design checklist.

2.3.2 Identification and management of Risk

'Risk' in this context means uncertainty of outcome. The unpredictable nature of the historic environment makes the outcomes of research projects characteristically difficult to anticipate. Managing Risk involves foreseeing areas of uncertainty and planning countermeasures (see Glossary) which are consistent with a project's Aims and Objectives and its resources.

Risks can be positive (the opportunities presented by unexpected discoveries, for example) as well as negative (as in the failure of equipment or prolonged bad weather).

Health and Safety Risks

In the MoRPHE framework, Risk is used in a technical sense to mean the uncertainty of outcome that affects all projects. Health and safety risks represent a specific case of this. Historic-environment research, including field research in disued buildings, remote areas, excavation trenches and marine and shoreline environments, has particular health and safety risks. These are not covered in this manual. All projects must take steps to identify, assess and reduce these in line with legislative requirements and best practice

As with costs and timetable, the identification of Risks becomes easier with experience in a particular research area. Staff or records from previous related projects can assist. MoRPHE Project Planning Notes give examples of particular areas of Risk that might be encountered.

The following Risk-management procedure should be part of the Initiation Stage:

■ Identification of potential Risks, positive as well as negative, facing the project, and documentation in a Risk Log (see Appendix 2 for a template);

■ Estimation of the probability of each Risk occurring and the impact it could have on project cost, quality, timetable and staffing;

■ Making allowance for Contingency (see Glossary), outlining the counter measures to be applied to each Risk and the likely effect on project costs and timetable;

■ Nomination of a Project Team member to monitor actual occurrences of identified Risks.

As an example, consider a project's reliance on a particular specialist to contribute key skills at a certain point in the work. In treating this as a project Risk, the approach is to estimate the likelihood that the specialist might be unavailable (checking with them if possible) and the impact this would have on the work. Countermeasures can then be specified either to reduce the probability of this happening (for example regular consultation with the specialist), or to reduce the impact should it in fact occur. For example, might other project work continue without their contribution, perhaps with a rearrangement of the timetable? What would be the impact of extending the timetable to allow a later contribution? Could a different specialist be used, and what would be the cost implications? Such considerations allow planned Contingency arrangements, identifying the best option and any associated costs or additional time.

2.3.3 Creation of an effective Project Team

A Project Team – including members under taking the project's work and those involved in its management – is assembled at this Stage. Commitments are provisional, pending project authorisation at Review Point R2. Matters to consider include:

- Identification of qualified staff (bearing in mind any opportunities for less experienced staff to gain career and personal development);

- Consultation with relevant staff and/or external contractors about availability and the likely timetable and scale of commitment;

- Ensuring that the forward job plan (or equivalent document) for each

- Project Team member makes allowance for project work;

- Exceptions to normal line-management arrangements, for example delegation to the Project Manager of authority to direct the work of all project staff;

- Early consideration of any training required by Project Team members to fulfill project roles.

Effective communication within the Project Team is crucial. Adequate time and resources should be budgeted for project meetings and other forms of collaboration, for example via email or the Internet. Circulation of the Project Brief or Project Proposal will assist potential project team members gauge the likely nature of their involvement.

Team Management

The management of temporary teams, such as those set up for projects, lies outside the scope of this manual. However, best practice as generally applied to recruitment and secondment, team development, motivation, management and personal development apply equally to project teams. If a staff member is working for a Project Manager who is not their usual line manager, the two managers should agree on what contribution the Project Manager should make to the staff member's formal performance and development review or equivalent staff-development system.

2.3.4 Planning of Products and Stages

The Project Manager is responsible for project planning working closely with relevant Experts and Stakeholders.

Product-based planning

Planning should start with an identification of the project's Products: outputs or items – a completed report or survey, a deposited archive or a newly launched website, for example – to be created in fulfilment of project Aims and Objectives. The Products of familiar projects may be well understood at the outset, and prescribed in established standards and guidelines. MoRPHE Project Planning Notes provide indicators of Products relevant to particular project types.

In the planning of more innovative or 'one-off' projects, it may be useful to identify and describe the required Products during Initiation. Product Descriptions aid in the development of a consensus about what needs to be done, and provide some specifications for the work. See Appendix 1 for further details on Product based planning.

Once the Products have been identified, the Tasks needed to create them can be identified and initial judgements can be made about specialist involvement, equipment requirements, work time and costs.

Defining Products

The generic term Product refers to the outputs or other completed items which issue from historic-environment research. A research project will typically generate a range of specialist Products, the highest-level one being a published report on the results and their significance, supported by a properly curated and accessible archive. For project planning it will be necessary to break this down into convenient intermediate Products.

Project Stages

Adopting a staged approach breaks a complex project down into more readily planned and managed steps, and facilitates control over progress, budgets and timetable. MoRPHE Project Planning Notes offer guidelines on Stages appropriate to particular project types.

Planning during the Initiation Stage should identify appropriate project Execution Stages and document them in the Project Design. Differing projects need not have the same number or sequence of Execution Stages, and Stages need not be equal in duration nor in resource requirements. The number of Execution Stages must take account of a number of factors:

Level of control The number of Stages should reflect the required level of project control. Each Stage concludes with a Review Point (R3). A larger number of Stages offers greater control, at the cost of greater project-management expenditure, while a smaller number of Stages offers a more straightforward project flow, but with fewer Review Points.

Technical work involved The various phases of technical work, and the need to involve specific personnel and skills at particular points, may suggest a suitable division into Stages.

Standards and Guidelines Existing professional guidelines, standard agreements or specifications which require project review at particular times can be used to set project Stages and Review Points.

For example, if fieldwork for a data collection project looks likely to be long and expensive, it can be divided into two or more Execution Stages. The Review Point R3 at the conclusion of each Stage provides a formal opportunity to assess and review information collected to date, to consult Sponsors and other Stakeholders, and if necessary to update the Project Design for subsequent fieldwork.

2.3.5 Management of documentation

A records-management structure should be established at the Initiation Stage. Although computerisation makes it relatively easy to find, maintain and re-organise documents without a detailed file plan, agreed headings will aid in collaborative work such as the sharing of digital file stores, and in the archiving of project-management documents at Closure. At a minimum the following headings will be helpful:

- Project-management documents (chiefly the Project Design, associated logs and reports, and meeting notes);

- Project-review documents;

- Products arising from project Execution, including draft reports, digital files, feed-back from testing or consultation, correspondence and contracts; these may be further subdivided by Execution Stage.

2.4 Review Point R2

This review, at the conclusion of the Initiation Stage, involves examination of the Project Design by Sponsors and by those invited to participate in the Project Team, and a decision on whether to proceed with the project. It is important that sufficient time and resources be allocated for this review. A meeting of the proposed Project Team to discuss a near-final draft of the Project Design may be appropriate.

The decision to authorise the project rests with the Project Executive and Sponsors. Resources are initially committed to the first Execution Stage in line with the proposed project Stages. Commitment to subsequent stages is dependent on successful reviews at Review Point 3. Upon authorisation, project records are established, communication networks set up and budgetary and other resource-accounting systems put in place by the Project Manager. Project Team members are notified and a start date is agreed.

2.5 Execution

Execution refers to the Stage(s) during which the Expert Team under takes the basic research and/or applied research and development work that forms the project's focus. Project-management Tasks associated with Execution include the following:

2.5.1 Project Direction
Overall direction is part of the Project Executive's role (except in projects where this role is delegated to the Project Manager). However this should not require day-to-day involvement in ever y decision. Instead the Project Design will have identified key junctures where the Project Executive may intervene, according to the nature and complexity of the project. These include:

■ **Highlight Reports:** at each Stage of work the Project manager furnishes the Project Executive with a progress report. The format and timing are agreed in the Project Design.

■ **Review Points:** a key component of the Project Executive role is to ensure that project reviews are effective, for example as chair of meetings where review decisions are made.

2.5.2 Continuous review
During the Execution Stage(s) the Project Manager should encourage a culture of ongoing critical review of research results against the project's Aims and Objectives. This process can operate at two levels: within the Project Team for lesser changes, and with the involvement of the Project Executive and Sponsors for any Issues (see Glossary) that might require a Variation (see Glossary) to the timetable or costs.

The review process can be represented as a cycle: Act, Report, Plan, Decide, Act (see Figure 5). Within the Project Team, as work proceeds ('Act') any new Issue (for example a new discovery) is shared at team meetings or circulated ('Report'). The Project Manager evaluates the discovery with the Project Team ('Plan') and decides whether to divert resources to follow it up ('Decide'). This flexible approach is consistent with the unpredictable nature of historic-environment research.

If consideration of an Issue within the Project Team suggests the need for additional resources, the process will be similar but more formal.
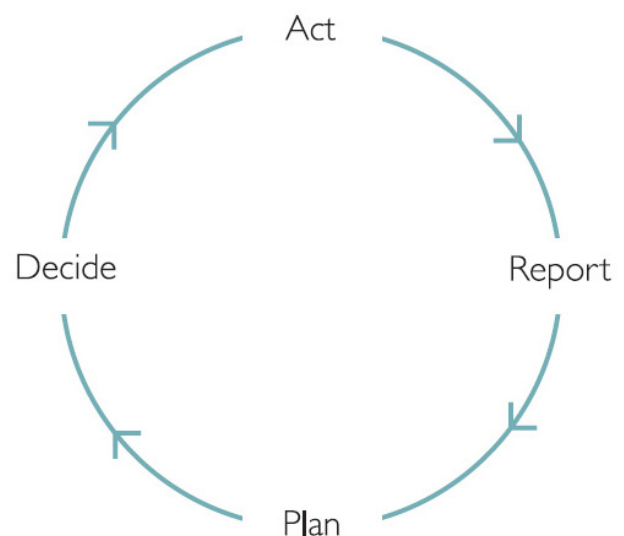

Figure 5. Cycle of continuous review. This should operate both formally, at each Stage, and more informally, on an ongoing basis within the Project Team.

The discovery is recorded in the Issue Log by the Project Manager, and the Project Executive, Sponsors and other Stakeholders are informed ('Report') in the next Highlight Report. The Project Manager then drafts an Updated Project Design ('Plan'). If the planned additional work exceeds the agreed budget or time Tolerance (see Glossary), or affects compliance to specified standards for the current Stage, the Project Executive and Sponsors are informed.

In effect the project jumps ahead to the next Review Point R3 ('Decide'). The Project Executive and Sponsors must then decide whether to:

- accept the proposed update and agree a Variation in budget or timetable;

- reject it without further action, ruling it out for the current project;

- require the Project Manager to re-plan the current Execution Stage, for example to adjust the scope of the work;

- consider closing the project if forecast changes to its scope, budget, timetable or quality would exceed available resources.

See Section 2.6 for more detail on the formal review process (Review Point R3) which concludes each Execution Stage.

2.5.3 Archive preparation
Historic-environment research projects are normally expected to maintain archives to be curated for posterity. An archive should be part of ever y project which compiles unique information – such as photographs or surveys of historic buildings prior to a change of use, maps of an historic landscape or an archaeological excavation's site archive – about the historic environment. Archive considerations should be addressed specifically in the Project Design.

Project Managers should make full use of available expertise in project- records management, archive preparation and the dissemination of results. Project managers should consult at an early stage

with the appropriate sector lead bodies in order to ensure the application of appropriate standards and guidelines.

The project archive should be systematically organised as it is acquired following current standards for creation, maintenance, ordering, formatting and indexing. It should contain:

- all physical evidence (artefacts, samples etc) and information (in all relevant digital or paper-based formats including, text, data, and images) collected in pursuit of project Aims and Objectives.

- full detail on how the project reached its goals, including the Project Proposal, (Updated) Project Design, Risk Log, Issues Log, Highlight Reports and End-of- project Report.

The archive should demonstrate how the project responded to management and research questions set out in its Aims and Objectives. Archive should be selected for inclusion on this basis, and actively compiled and indexed as it is acquired, throughout the project's life cycle. Archive extraneous to these purposes may be considered for disposal as the project progresses.

The archive is considered complete only at project Closure. It should be capable of independent third-party interrogation, via specific mechanisms as set out explicitly in the Project Design.

2.5.4 Dissemination
Dissemination of results is fundamental to the success of any historic-environment research project. It is the means by which the research becomes useful to the profession and to the wider public. In some cases dissemination may be a project's main focus, requiring separate planning in several Stages. The Products of the project and the scale, approach and means of their dissemination must be set out in the Project Design and agreed by the Project Team, and should always be a matter for review.

There are many approaches to dissemination. A combination of approaches will generally be appropriate.

Signposting This is the most basic form, effectively a public notice that the project is in progress or has been completed. A signposting service for site-based historic environment projects, for example, is provided by the OASIS (Online AccesS to the Index of archaeological investigationS) website, ads.ahds.ac.uk/project/oasis. Signposting might form a specific project Task.

Case study Consideration should be given to the production of a case study, generally prepared late in a project's life cycle, to highlight how it has been under taken rather than its results. Case studies are an important way to share experience in methodologies, including project management.

Publication Common examples of higher-profile dissemination are the publication of a peer-reviewed journal article or full-scale academic monograph, the mounting of an online resource or an exhibition. It is essential to identify the appropriate audience – public, professional or academic – and to address its specific interests and requirements for access.

Outreach Wherever possible, opportunities for outreach and local community engagement should be built into dissemination plans.

Dissemination Products should demonstrate the importance of the project's results. They should present information in a balanced, logical, accessible and structured way. Where possible, attention should be drawn to the potential for future study within the parameters of the project.

2.6 Review Point R3

Each Stage in a project's Execution concludes with a formal review, aimed at an agreement about the completion of that Stage and the authorisation of the next Stage. The review's scale, format, formality and level of participation will have

been set out in the Project Design. At a minimum the review should involve the Project Executive, the Project Manager and Project Assurance (or Project Board). Where possible the wider Project Team and Stakeholders should be encouraged to participate. An open, honest review process is the aim.

The review should include the following Tasks:

■   An Updated Project Design should be prepared in advance of the review, with detailed plans and costs for any subsequent Execution Stage, adjustments to project organisation, or other changes.

■   Aims and Objectives and the Business Case should be reviewed.

■   Project status against timetable, budget and standards should be assessed.

■   Risk-management measures should be reviewed.

■   Any Issues recorded during the current Stage, and any proposals to change the project's scope, timetable, budget or quality, should be documented, along with recommendations on how the changes might be made.

■   Progress with archive preparation and dissemination should be reviewed and updated if necessary.

■   Lessons learned from experience in the Stage should be noted. These can prove invaluable in improving later Stages or future projects.

The outcome of the review will generally be an agreement that the work of the current Stage has been completed successfully, and that the project should continue as planned to the next Execution Stage or to Closure. Issues may be raised indicating that further revision of the Project Design is needed before the next Stage can begin. In exceptional cases where the fundamental

rationale for the project has changed, this is an opportunity to close the project in a controlled way.

EXCEPTIONAL PROJECT CLOSURE

To avoid commitment of time and resources to a project that is not providing the anticipated results, exceptional Closure – at either Review Point R2 or a Review Point R3 – must be retained as an option. However, this is a serious step, and can be controversial and unpopular. Experts who have committed time and energy to a project may feel an implied criticism and frustration at a change in plans. The Project Executive and Project Manager have a responsibility to ensure that, if this option is taken, it is done openly, with opportunities for consultation with the whole Project Team. The exceptional circumstances leading to Closure must be clearly stated and must relate to the nature of the information uncovered by the research and its relevance to the project's Aims and Objectives and the Business Case. Closure is an opportunity for all participants to openly assess what went well, even if the end result is not as planned, and what lessons can be learned for future projects.

2.7 Closure

Controlled Closure ensures that a project has a defined and agreed end-point. It is the responsibility of the Project Executive to formally close a project, first ensuring that:

- All agreed work covered by the Project Design has been completed, or changes to the original agreement have been adequately documented;

- All Sponsors and other Stakeholders, and all organisations who have provided staff or services, are advised that the project is coming to an end;

- Staff affected by temporary project-related changes to line management are told when normal management will resume;

- Temporary staff and contractors are told when their contracts will end;

- All invoices for work under taken are received and paid;

- Any useful lessons for later projects are documented.

- Where appropriate, a Post-Project Evaluation Plan should be drawn up, with attention drawn to potential areas of study not fully explored within the project parameters.

The Project Manager and Project Executive should document these in an End-of- Project Report to Sponsors and any Stakeholders or managers who have committed staff to the project (see Appendix 2 for a suitable format). A copy should be deposited in the project archive.

This marks the formal completion of a project.

3 Adapting MoRPHE

MoRPHE is designed to be applicable to a wide range of operational contexts and levels of complexity.

3.1 Allowing for project context

The operational context of a project may affect:

- the choice of Aims and Objectives;

- the approach to Start-up and Initiation;

- the organisation of the Project Team;

- the decision-making process;

- the degree of documentation required.

The following sections introduce some particular situations and associated Issues.

3.1.1 Commissioned research

In most cases commissioned research is expected to contribute specifically to the Aims and Objectives of the commissioning organisation. Commissioned research needs well documented Start-up and Initiation Stages to ensure the accountable and transparent use of its budget. Time must be allowed for appropriate consultation and comment, possibly including several iterations of the Project Design, ahead of project approval.

The Project Team is generally assembled by the commissioned organisation, although the commissioning organisation, as a Sponsor, typically retains control, either via the Project Assurance role or by providing a Project Executive.

Day-to-day decision-making is generally the responsibility of the commissioned organisation. The Sponsor is typically involved in all Stage reviews.

A Project Proposal is needed in support of the initial application, and a Project Design in support of formal authorisation. A formal funding agreement is generally used to set out indicators of required progress towards agreed Aims and Objectives which will trigger the release of funds for each Stage. Highlight Reports can be used to monitor progress.

3.1.2 Threat-led research

Research is frequently triggered by an application for permission for proposed land or building development (construction, renovation or a change in agricultural land use, for example) which threatens the destruction of an historic asset (an entire building or its significant features, an archaeological site etc). Threat-led research can contribute significantly to local, regional or national research agendas. Development within a planning system that recognises the value of the historic environment can give rise to research opportunities and resources which might otherwise be unavailable.

Start-up and Initiation in this context are well established and clearly specified in professional guidance such as that issued by the Chartered Institute of Field Archaeologists and the Association of Local Government Archaeological Officers. Such guidance should be used to ensure that projects in this context can be established quickly.

Following, or in some cases as part of the application process a Project Brief is issued by the local planning authority, and Project Proposals solicited from suitable contractors (for example

archaeological units). Start-up concludes, at Review Point R1, with the selection of the most suitable Proposal. During Initiation the contractor, local- authority staff and the applicant (or applicant's consultant) establish and approve a Project Design (which may be referred to in this context as a 'written scheme of investigation' or 'specification').

The Project Team is generally assembled by the contractor. Project Executive and Project Management roles are typically combined. Local- authority archaeology or conservation staff should provide Project Assurance. Stakeholders include the applicant (or applicant's consultant) as Sponsor, as well as local museum, archive or historic- environment record staff responsible for the curation of the material and documentary archive and the incorporation of the results into local records.

3.1.3 Research Programmes and Sub-programmes

Projects may well form part of a broader Programme of research. Projects that form part of a programme (or in some cases a Sub-programme of an overarching Programme) will have common Aims but are planned, and possibly resourced and staffed, separately. As an example, investigations such as archaeological intervention, geophysical survey and social-issue research might all work towards a common Aim of improved heritage management in an urban area.

In such situations, overall research Aims are expected to remain fairly constant across the projects in a Programme or Sub-programme. To ensure this it is important that there be continuity between the projects. This continuity may be the responsibility of a Programme or Sub-programme Co-ordinator, who would be an important Stakeholder (or possibly Sponsor with a formal Assurance role) in all the separate projects that contribute to the programme. In particular the Programme or Sub-programme Co-ordinator should contribute to Review Points R1 and R2 to ensure that all projects contribute effectively to the Aims of the Programme or Sub-programme.

Organisations running multiple simultaneous projects must ensure that staff and equipment availability are co-ordinated between projects. To avoid overloading key staff, project Review Points should be planned so as to ensure availability.

3.2 Allowing for project complexity

An understanding of a project's overall complexity will assist in identifying which elements of the project model, project roles or items of documentation are essential and which are dispensable. Greater complexity will generally require a more rigorous application of MoRPHE principles and greater expenditure on project management. Complexity is not necessarily indicated by higher overall project cost or duration.

In general a more complex project will have:

- more Stakeholders;

- more numerous or more severe Risks;

- more fixed deadlines, budgets and standards;

- more innovative working style or approach;

- a higher public or organisational profile.

If a particular project shows most of these traits, the full MoRPHE model for procedures and project roles should be applied to support effective management and accountability. In less complex projects, roles may be simplified and/or combined, fewer Execution Stages may be used and plans may be less detailed.

The precautionary principle should apply. Project Managers should initially treat a project as complex, aiming for a detailed approach, and planning for appropriate commitment to planning, reviews etc. It may be possible to scale down the resources devoted to project management once a project is underway and going well. It is much more difficult to introduce more rigorous management later in a project.

Appendix 1:

Planning Techniques

Product-based planning

This technique is derived from the PRINCE2 project-management methodology (OGC 2005) widely used in the UK public sector. It is helpful in developing an initial plan for project work or for (re-)planning complex Stages. It focuses attention on the particular Products – the results or outputs – needed to fulfil the project's Aims and Objectives, rather than on the Tasks needed to produce them.

The technique involves the following steps:

1. Create a hierarchical list. Identify the one overall outcome that would demonstrate the success of the project or Stage (for example, 'an accessible project archive'). Draft a Product Description for that outcome (see Appendix 2 for the content of a typical Product Description).

2. Break down this overall project outcome into a more specific list of Products. Try to couch it in terms of finished items (for example, 'an agreement on where archive items will be deposited') rather than the Tasks needed to produce them (e.g. 'deposit archive'). Some entries may usefully be broken down into sub-products. Some groups of Products may suggest themselves, and these can be included as a general heading, to be broken down into greater detail later. Include key decisions or legal arrangements (such as a signed contract or a permission granted) as well as material

Products (such as a completed survey, draft text or website).

3. Include documents (e.g. the Project Design) and decisions (e.g. Review Points) needed for managing the project.

4. Remember to include any necessary Products which are assumed to exist (for example, the results of earlier work).

5. Apply MoRPHE Project Planning Notes and Technical Guides and other guidelines and standards to identify relevant Products. Refer to experience with other similar projects.

Product based planning is an opportunity for group work: consult and communicate. It helps to state the obvious! Go into more detail in innovative or unfamiliar areas; the diagram can always be trimmed later.

Once the list of Products is completed, create a draft Product Description (see the checklist in Appendix 2) for each one, including at a minimum its name, purpose and quality criteria, and a reference number. Additional details can be added later.

Identify any dependencies between Products (for example, which must be completed before others can star t). A flow diagram may be useful here.

Identify the Tasks needed for the creation of each Product. Estimate the time needed to deliver each Product, at least roughly or as a likely range, and add this information to the flow diagram.

With this information in hand it is possible to make preliminary judgments about:

- the earliest point at which work can start on each Product (the sum of the creation times for all earlier Products upon which this one depends);

- the so-called 'critical path': the sequence, on the flow diagram, of Products that have minimal or no margin for slippage;

- the likely overall minimum time required for the project (the sum of the creation times for all Products on the longest branch of the flow diagram).

To these estimates must be added information on when key Project Team members are available to work on each Product or to attend meetings, plus other likely commitments such as holidays.

This technique can then form the basis of a graphic representation of the project's planned course, for example the traditional Gantt chart.

Estimation

Time and costs

It is essential to make forecasts of time and costs to assist in project planning and funding. It should be recognised, however, that these are estimates and that unforeseen events may require their alteration. The objective is a transparent relationship between estimated and actual costs so that informed decisions can be made during the project, and lessons can be learned for the future.

In the interest of accurate estimates:

- Adequate time should be devoted to the planning of each Stage;

- Representatives of each specialist area within a project should be consulted;

- Reference should be made to performance records for previous projects;

- Tolerances should be established during project planning.

Staff costs

Staff costs generally constitute a large proportion of project costs. For purposes of estimating the cost of staff time allocated to a project, a standard year may be taken as 220 working days (a calendar year minus weekends, statutory holidays and a general estimate of holiday entitlement), or 44 working weeks. This, multiplied by the number of hours in a working week, gives an estimate for the number of working hours per year (1,650 hours based on a 37.5-hour week or 1,584 hours based on a 36-hour week, for example). Annual salary (or an estimate at the centre of a particular pay band or grade) divided by the number of working weeks, days or hours per year gives an estimated weekly, daily or hourly pay rate.

Note that the 220-day working year takes no account of personal circumstances e.g. sick leave, maternity or paternity leave or other similar entitlements.

Resource accounting

Expenditure of time and money can only be successfully controlled if it is recorded.

Time: All participants should keep an appropriately detailed record of time spent on project Tasks. The Project Manager should define the Task headings under which activities are recorded, and the appropriate level of record, so that records can be grouped and trends observed. These headings might correspond, for example, to the Act-Report-Plan-Decide cycle set out in Section 2.5.2: time spent on project Tasks ('Act'), on meetings and report preparation ('Report'), on Project Design updates and other planning actions ('Plan') and on formal reviews ('Decide').

Budget: The Project Manager must also ensure that an appropriate record is kept of the project's various budgets and of expenditures against them.

Appendix 2:

Key Project Documents

This appendix presents suggested section headings for key project documents. The Project Manager is responsible for version control of these documents, and will generally be the only one authorised to change them. Superseded versions should be retained until project Closure. The final versions will form part of the project archive.

Document-control grid

To assist with version control, the first page of each project document (except Highlight Reports, which generally have only a single version) should have a table giving details of the document, as follows:

Title:	Official title of this document (followed by 'Working Title' if appropriate)
Author(s):	Author names (plus job title, organisation and contact details)
Derivation:	Processes or previous documents which have given rise this version of this document (for example, 'Discussion at Star t-up meeting', 'Peer review comments from version 1')
Origination Date:	Date when the first version of this document was created; this shouldn't be changed on later versions
Reviser(s):	People involved in creating this version, for example by commenting or supplying text
Date of last revision:	People involved in creating this version, for example by commenting or supplying text
Version:	Version number for this document; use decimal fractions for early drafts (0.1, 0.2 etc), and increments of whole numbers for issued versions (1.0, 2.0), with minor changes indicated by decimal fractions (for example, 2.1 for a minor edit to version 2.0)
Status	Draft, Consultation Draft, Final etc
Summary of Changes	List of major changes in this version compared with the previous version, especially items which need attention from reviewers
Circulation:	Who this version of this document has been circulated to
Required Action:	Action required of recipients (for example, 'Comment by 1st August to author', 'For discussion on 17th July'); be specific!
File Name/Location:	Digital filename/Location in project files of this version of this document
Approval:	Provide space for signature on a hard copy of the final approved version, to indicate that it is complete; use 'Not required' for earlier drafts

Project Proposal

A Project Proposal is the first document produced once the need for a project has been identified. It is an outline, intended to provide sufficient detail to assess, at Review Point R1, whether resources should be committed to Initiation. The format may be informal, reflecting the fact that no resources are at this stage assigned to the project, but the following headings should be considered. In a competitive tendering context, the content and format will be more closely defined by the invitation to tender.

Project name: Give a name for the project, to assist in identification.

Background: Describe the context and motivation for carrying out the project at this time. Refer to previous work. For site-related research, provide a location map or grid reference.

Research Aims and Objectives: Identify the project's research Aims and Objectives, or otherwise answer the question 'what will this project aim to achieve?' Couching these as questions may be helpful. What is the potential of available data or information sources to answer these questions?

Business Case: Describe why this project should be under taken at this time, by the proposed Project Team. What are the organisational strategies driving the project? In the case of publicly funded research, what will be the public benefit?

Methods statement: Outline how the research Aims and Objectives will be achieved. What techniques or approaches will be employed? How do these maximise the potential of the area of study to provide information? How will the results be archived and disseminated? Where appropriate, reference should be made to professional standards and guidelines, and to organisational procedures manuals.

Stages, Products and Tasks: Outline how the project will proceed.

Project scope: Be clear about what is out of scope, that is, relevant but not included in the current proposal.

Interfaces: Where appropriate note any connections/links which need to be established between this and other project(s) or work preceding, concurrent with or following on from it.

Proposed Project Team: Who will be on the Project Team, in what Role? Estimated overall budget: What is the estimated overall cost (including staff time, and non-staff items, such as equipment or travel costs)?

Estimated overall timescale: How long is it estimated the project will take to complete?

Project Design

The Project Design is the key project management document in the MoRPHE methodology. It should set out all the information needed for the project to be authorised at Review Point R2. It will be subject to update towards the end of each Execution Stage, and reviewed at Review Point R3.

A Project Design should be a comprehensive, free-standing document that assumes no prior knowledge of the project and its circumstances on the reader's part. The style should be concise; length is no substitute for clarity. Extensive supplementary information should generally take the form of an appendix to the main document.

Description of the project
Information in this section is unlikely to change during the project life.

Project name: Give a name for the project, to assist in identification.

Summary description: Describe the project in two or three sentences, in a manner suitable for wide circulation to a professional audience.

Background: Describe the context and motivation for carrying out the project at this time. Refer to

previous work. For site-related research provide a location map or grid reference.

Research Aims and Objectives: Identify the project's research Aims and Objectives, or otherwise answer the question 'what will this project aim to achieve?'. Couching these as questions may be helpful.

Business Case: Describe why this project should be under taken at this time, by the proposed Project Team. What are the organisational strategies driving the project? In the case of publicly funded research, what will be the public benefit?

Project scope: Be clear about what is out of scope, that is, relevant but not included in the current.

Interfaces: Where appropriate note any connections/links which need to be established between this and other project(s) or work preceding, concurrent with or following on from it.

Communications: Explain how the Project Team will communicate, both internally (via scheduled meetings, email discussions and so forth) and externally (with Sponsors and other Stakeholders). Specify the format, frequency and circulation of Highlight Reports.

Project review: Describe how and when progress will be assessed:

- Give an estimated timetable for Review Points R3 (the review after each Execution Stage), and specify who will be involved;

- Describe the process for continuous review (including identification of those with authority to approve Project Design, timetable and other changes);

- Document agreed Tolerances on timetable and costs for each Stage.

Health and safety: For all projects a health and safety statement should be included. In most cases this can refer to established organisational policies.

Resources and programming
Information in the following categories may change during any project re-planning.

Project Team structure: Describe the key roles and responsibilities of Project Management and any specialists. Include time commitments expected from those involved part-time.

Methods statement: Detail how the research Aims and Objectives will be achieved. What techniques or approaches will be employed? How do these maximise the potential of the area of study to provide information? How will the results be archived and disseminated? Where appropriate, reference should be made to professional standards and guidelines, and to organisational procedures manuals.

Stages, Products and Tasks: Describe in detail how the project will proceed. Identify Stages, their Products and the Tasks needed to produce them. Typically these might be tabulated, with a reference number or name for each Product, who it is assigned to, and planned start and end dates for the Product. Detailed Product Descriptions can be appended to the project Design.

An estimated end date should be given for each Stage. If required, Tolerances (for completion before or after deadlines) may be included. Remember to schedule updates of project-management documents (Project Design, Risk Log and Issues Log) and to allow sufficient time for reviews.

For research-focused projects, specific reference should be made to the preparation of a project archive (including the policy for retention and disposal of archive material) and the dissemination of results or Products.

Ownership: What legal agreements are proposed for the ownership of project Products and Archive material (for example, material remains from excavation, and intellectual-property rights for

photography, written text and other works).

Risk Log: Append the project Risk Log as an annexe.

Budget: Set out the proposed budget, including estimates, for each financial year, of:

- staff costs;

- any contractor costs;

- non-staff costs such as transport and office consumables;

- overheads;

- capital-equipment purchases;

- estimated total cost of the project; any required Tolerance on total cost should be specified separately.

Risk Log

The Risk Log is a planning tool created at the Initiation Stage. It serves to document and assist in the monitoring of project Risks (uncertainties in outcome). It should be checked during reviews to assess whether the likelihood of each Risk has changed, and whether any anticipated Risks are in fact occurring. The Risk Log will generally take the form of a table with the following columns:

Risk number: For identification.

Description: Description of the Risk.

Probability: Probability of the Risk occurring (high, medium, low).

Impact: Likely impact of the Risk (high, medium, low).

Countermeasures: Agreed action(s) to avoid or reduce the impact or probability of this Risk.

Estimated time/cost: An estimate of time and cost for agreed countermeasures for each Risk;

the sum of countermeasures for all Risks would be an estimate of the required Contingency. Contingency funds or agreed extensions to timetable are only accessed if an anticipated Risk occurs.

Owner: A member of the Project Team responsible for monitoring this Risk and notifying the Project Manager if it occurs. This should be someone 'close to the problem'.

Date this entry last updated: The Risk Log should be reviewed formally, at least at Review Point R3.

Product Description

Product Descriptions are in effect specifications for a piece of work. They are prepared during Initiation, or as soon as the need for a Product is identified. A compiled set of Product Descriptions should be appended to the Project Design. These will need to be updated as each Stage is planned or reviewed.

Product number: For identification.

Product title: For identification and reference; generally couched in terms of something completed or accomplished (for example, 'Edited text' or 'Survey drawing completed').

Purpose of the Product: What project Objectives will this Product satisfy?

Composition: What will the Product consist of?

Derived from: Identify the source(s) of the Product's components.

Format and presentation: Describe the product's appearance.

Allocated to: Who on the Project Team will undertake the work? Where this is not known, the required skills should be documented.

Quality criteria and method: How will the quality of the Product be checked? Quote relevant standards or guidelines.

Person/group responsible for quality assurance: Who on the Project team (or Stakeholders) will be involved in checking the quality of the Product? Person/Group Responsible for approval: Who on the Project Team will approve the final version of the Product?

Planned completion date: Estimated date or stage in the project for the first draft or prototype, and planned date for delivery or completion.

The following fictional Product Description illustrates the use of the headings and a typical level of detail:

Product number: P12

Product title: Agreed dissemination strategy (Farleigh Court)

Purpose of the Product: Sets out in detail the approach to dissemination of project results. Need agreement on this to plan Stage 3 (the Dissemination Stage)

Composition: The strategy will: identify the target audiences; identify means by which these audiences might be reached; identify the preferred option; give estimated specific costs and time requirements for the preferred option

Derived from: Guidance on dissemination, consultation with the Project Team. Format and presentation: Word document (NB may also need a .pdf copy for the website? Check with team)

Allocated to: John Maloney (Outreach Officer)

Quality criteria and method: Check against communication strategy. Is the list of audiences complete? Is the preferred option appropriate and within budget?

Person/group responsible for quality assurance: Mark Smith (Farleigh Court Project Manager)

Person/group responsible for approval: Gale de Vere (Communications Manager)

Planned completion date: During Stage 2 (Survey). JM to Draft by late May. Final agreed by end of June

Issues Log

An Issues Log is created once a project is authorised at Review Point R2. It provides a record, in a single document, of all unforeseen events, results and discoveries, requests for changes to completed Products, discussion or review outcomes and other Issues that might otherwise be dispersed among various project documents. It should be updated by the Project Manager whenever an Issue is raised, and again when the Issue is resolved. In less complex projects the Issues Log may serve as a substitute for formal project meeting minutes.

The Issues Log will generally take the form of a table with the following columns:

Issue number: For identification.

Description of the Issue:

Raised by:

Date raised:

Resolution: Document proposed solution(s) for any open Issues, or agreed resolution(s) for closed Issues.

Date this entry last updated:

Status: Open or, when all necessary actions have been taken, closed.

Priority: As assessed by the Project Manager. Typically Issues should be noted as 'High' when requiring urgent attention (for example a discussion with the Project Executive), or 'Low' for those noted for information.

Highlight Report

Highlight Reports provide brief informative statements of progress. Their format, frequency and circulation should be set out in the Project Design. For example an approach useful when staff are receiving reports from many projects is the 'traffic-light' system, in which Schedule, Budget and Resources are noted as red (for immediate attention), amber (problem foreseen) or green (according to plan) with any accompanying notes.

Date: Report date.

Circulated to: Circulation list for this report.

Period covered: Normally since the last project meeting or last Highlight Report.

Schedule status: Is the overall project on schedule, ahead of schedule or falling behind?

Budget status: Is the overall project on budget, underspent or overspent?

Resources: Does the overall project have the resources (staff, time, equipment etc) it needs?

Products and Tasks completed during this period: i.e. since the last Highlight Report

Products and Tasks to be completed during the next period: i.e. before the next Highlight Report.

Project Risks: Have there been any changes in the status or likelihood of Risks documented in the Risk Log? Have any new Risks been noted?

Project Issues: Do any new Issues need attention? Include here any other project news.End-of-

End-of-Project Report

This report should be lodged in the project archive and presented to the Sponsor. Where key lessons learned may assist in the planning of future projects, they should be circulated more widely. It should include the following.

Project Closure date: The agreed date for the conclusion of the project.

Lessons learned: What useful lessons were learned during the project which might be applicable to similar projects in future? Which project-management processes, tools and techniques worked well and which ones caused problems? What recommendations can be made? How can these be shared with other projects

Post-Project Evaluation Plan: How should the project be evaluated, and when will this be appropriate? The scale of the evaluation process should be consistent with the size of the project. Items to consider for future evaluation in the light of experience include:

- Did the project achieve the stated Aims and Objectives?

- Which project processes worked successfully and why?

- Which project processes encountered problems and why?

- Did quality-assurance procedures work well?

- Was the Project Team sufficiently skilled, trained and empowered?

- Were sufficient Risk strategies in place and managed?

- Were allocated time and resources sufficient?

Glossary

This section defines particular project-management terms as used in MoRPHE. Equivalent terms for other project-management approaches are given where possible

Aims General subject areas or directions for research, generally identified in a research agenda or derived from strategic plans. For project planning purposes these are generally translated into specific Objectives.

Business Case The justification for establishing and continuing a project in a particular way. As used in MoRPHE this refers to the basis upon which an organisation under takes a project. It complements the project's Aims and Objectives.

Closure The controlled ending of a project, generally at the completion of its planned work, or in exceptional circumstances if the project is no longer able to achieve its stated Aims and Objectives.

Contingency Refers to resources (principally time and money) set aside to fund agreed countermeasures to project Risks identified during planning. Contrasts with Variation which is not included in the original budget.

Countermeasure A planned response to an anticipated Risk to a project, setting out what will be done to reduce the probability that it will happen, or the impact that it would have.

Driver The operational or strategic motivation for a project, often documented in strategic or departmental plans, research agendas etc.

End-of-Project Report A report informing Stakeholders about project Closure, the location of project archives, any outstanding Issues, and suggestions for future work, the latter formulated where appropriate as a Post-Project Evaluation Plan.

Execution Refers to the main Stage(s) of project work undertaken by the Expert Team. Projects may have one or more Execution Stages.

Highlight Report A progress report from the Project Manager to the Project Executive, highlighting in particular the state of the project's schedule, budget and other resources. The report's format, content and frequency are set out in the Project Design.

Initiation The detailed planning Stage of a project, leading to the authorisation of work and the commitment of time and resources.

Issue An unforeseen discovery, comment, query or suggested change to the project arising during project Execution, which may require an Updated Project Design.

Issue Log A document listing Issues raised during the project, and used for keeping track of who has raised the issue, comments made, suggested solutions and the status etc.

Objectives Specific research questions to be addressed by a project, which contribute to its high- level Aims.

Post-Project Evaluation Plan A plan, prepared during Closure, for the evaluation of a project's approach, outcomes and Products. This is, in effect, the Brief for a separate, subsequent project, under taken in the light of experience.

Product A completed item of work that can be usefully planned (sometimes called an output, or deliverable) of a specific project Task or Tasks, contributing to the project's Objectives.

Project Board A temporary group (sometimes called a steering group) representing key Stakeholders, formed where appropriate to assist the Project Executive in ensuring that a project is progressing as specified in the Project Design.

Project Brief A document (sometimes referred to as a project outline or mandate) outlining the need for a project and the circumstances for a project to address.

Product Description Specification of a Product's purpose, composition, derivation and quality criteria, aimed at ensuring a shared understanding of the Product. It may be derived from existing guidelines, standards or specifications where these exist.

Project Design A key project- management document (also known as a Project Initiation Document or Project Specification) which sets out a project's Aims and Objectives, Business Case, approach, implementation plan and schedule. It may be revised (as an Updated Project Design) at Review Points or as required.

Project Executive The project- management role (elsewhere referred to as Senior Responsible Owner or Project Director) with responsibility for taking key decisions, leading reviews and assigning budget and other resources. In some projects this role may be combined with that of Project Manager.

Project Manager The person with the authority and responsibility to manage the project on a day-to-day basis, as agreed in the Project Design. In some projects this may be combined with role of Project Executive.

Project Proposal A document prepared in response to a Projects original Driver with enough detail to support a decision on whether to proceed to Initiation.

Project Team The group of all those with a defined role in a project and who are active in implementing some part of it. This includes Experts, the Project Manager, Project Executive and Project Assurance (or Project Board). The term generally does not include Stakeholders, who have an interest but are not active in project implementation.

Review Point A formal review of the progress of a project against its stated Aims and Objectives. Review Points offer opportunities to update the Project Design, to redirect the project or, exceptionally, to close it. MoRPHE specifies three types of Review Points: at Star t-up, at Initiation and at the conclusion of each planned Execution Stage. In large-scale projects these may be referred to as Gateway Reviews.

Risk An area of uncertainty identified during project planning. Its anticipation allows for appropriate planning for Contingency, and for monitoring procedures to be put in place. Risks are to be distinguished from Issues, which refer to unforeseen developments.

Risk Log A document, created during Start-up and developed throughout a project's life cycle, which identifies, evaluates and suggests countermeasures for all project Risks.

Sponsor A principle Stakeholder in a project, who may often provide funding and/or set research Aims and Objectives.

Stage A Stage is a section or element of a project. Projects are divided into Stages to assist in their planning and periodic review. Star t-up, Initiation, Execution and Closure are the standard Stages.

Stakeholders This refers collectively to all par ties with an active interest in a project or its outcome, but with no involvement in its direction or Assurance. Includes Sponsors, and those whose work will be affected by the project.

Start-up The process by which an idea or suggestion for a project is developed into a Project Proposal, for early consideration against research agendas, strategies or programmes.

Task A specific piece of work which contributes to a project Product.

Tolerance An agreed flexibility in a project Stage's time or budget or quality of work. If one of these parameters is forecast to fall outside an agreed Tolerance, a review should be under taken and a Variation considered.

Variation Additional funding or time (not included in the original estimated budget, and exceeding any agreed Tolerance) requested for a change in a project's direction or scope, generally in response to an unforeseen Issue. This contrasts with Contingency, which is a planned response to project Risk.

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