

**North Carolina**  
**Department of Environment and Natural Resources**



**DENR ENTERPRISE PROGRAM MANAGEMENT  
OFFICE (DENR EPMO)**

**METHODOLOGY**

**PROJECT INITIATION PHASE**

**Information Technology Division**

## PHASE I: PROJECT INITIATION

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### CHANGE HISTORY

TYPE OF CHANGE	DATE	VERSION
Added Appendix A	April 19, 2007	1.1
Reference to SB991 Project Approval Form deleted; per advice from Gaye May	April 24, 2007	1.2
Modified Pre-planning Step	June 28, 2009	1.3
Modified by David Johnson	August 21, 2009	1.4

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## INTRODUCTION

This document is the departmental System Development Lifecycle Development Methodology and is intended to align with the State of North Carolina PPM Workflow methodology. Refer to the next section for details.

It is to be used by all divisions who will be developing projects that are sufficiently large and complex to meet the threshold criteria established by the State-appointed Office of Information Technology Services (OITS)..(See the Documentation Appendix for a listing of threshold criteria.) In the event that your project does not surpass the threshold, please see the Small Project and RAD Appendix. This appendix lays out an abbreviated method that you can customize to meet your particular needs.

Once the application has been developed and tested, the metadata describing this application should be recorded in the Catalog of Electronic Databases. It is a legal requirement that the department keeps track of its data as public records, and the Catalog is the department's repository of this information. For technical questions and to be given a password to enter data into the Catalog contact the CED administrator in ITS. The information should be included for projects of any size including those projects developed with the small project and RAD methods.

Project managers should review this methodology thoroughly prior to initiating the project. In addition, all project team members and other interested clients should participate in a training session that familiarizes them with the overall methodology and its purposes. The project manager is responsible for arranging the training session.

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## STATE OF NORTH CAROLINA PPM WORKFLOW

The PPM Workflow approach consists of 5 Phases. Each phase consists of 3 stages, namely Signoff, Review and Approval and Gate Approval. Specific deliverables are required to be produced by ‘Contributors’ and signed-off by the appropriate Reviewers and Approvers within DENR, prior to being submitted for ‘Gate Approval’ to the State CIO (SCIO). Gate Approval is central to the planning and execution of programs and projects for all State agencies and the Exit criteria of a current phase drive the Entrance criteria for the next phase.

Click the link below to view the matrix of Roles and Responsibilities of Contributors, Reviewers and Approvers at Agency and State levels.

[http://www.scio.nc.gov/documents/docs\\_PortfolioManagmentInitiative/Roles%20and%20Responsibilities.pdf](http://www.scio.nc.gov/documents/docs_PortfolioManagmentInitiative/Roles%20and%20Responsibilities.pdf)

A total of 3 Gates ‘straddle’ the 5 Phases and specific Exit and Entrance criteria is required to be met before a project can arrive at and pass through each Gate.

Gate 1 straddles the Project Initiation Phase and the Planning and Design Phase. If the project intends to arrive at and pass through Gate 1 then it needs to complete all the deliverables for the Initiation Phase and in addition prepare preliminary deliverables for the next phase, i.e. the Planning and Design Phase. This makes it eligible to pass through the Gate and into the Planning and Design Phase. All required deliverables are to be met, reviewed and signed off by appropriate DENR representatives. As a next step the entire package of deliverables is then sent to the SCIO for Gate Approval. This approach also holds true for Gate 2 and Gate 3 approvals.

However, the duration of the Project Initiation Phase should not exceed 90 days from the project’s Start Date “Start Date” (as entered into the PPM tool). The project should be submitted for Gate 1 Planning and Design approval before the expiry of the 90 day cycle.. If at the end of the 90 day period DENR PMO determines that it is unable to seek gate approval for Planning and Design, the project must be cancelled or put in an on-hold status.

When a project is moved to the “On-Hold” status; work on the project **does not** move forward. When it is determined that work on the project will resume, then DENR PMO must request the On-Hold status be removed. When requesting to change the status of a project the EPMD Quality Assurance staff must be notified in writing with a copy to the assigned PMA.

The document “**Recommendation: Limit Project Initiation Phase to 90 Days**” containing the full details of this restriction is located at:

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[http://portal.ncdenr.org/c/document\\_library/get\\_file?p\\_1\\_id=17988&folderId=260801&name=DLFE-6911.doc](http://portal.ncdenr.org/c/document_library/get_file?p_1_id=17988&folderId=260801&name=DLFE-6911.doc)

Gate 2 straddles the Planning and Design and the Execution and Build phases.  
Gate 3 straddles the Execution and Build and Implementation phases

The Requirements, Deliverables and Approvals for each Phase are represented in the Workflow chart. Click on the link below for an expanded view of the chart and a summarized list of tasks and deliverables for each Phase.

[http://www.scio.state.nc.us/documents/docs\\_PortfolioManagementInitiative/NC\\_PPM\\_Workflow.pdf](http://www.scio.state.nc.us/documents/docs_PortfolioManagementInitiative/NC_PPM_Workflow.pdf)

### PRE-PLANNING STEP

#### Feasibility Study

##### Purpose

This initial study prepares the groundwork for creating the necessary information for each artifact in the Project Initiation and Planning phases, such as determining the initial scope of the project, assimilating information about the costs, benefits, and risks associated with the proposed application and the related development project. It is also intended to identify any benefits that may occur regarding staff productivity, customer satisfaction, or significant savings of supplies or materials. An overall assessment of these general factors should be undertaken to determine whether the project is worth pursuing.

A feasibility study is also a pre-requisite for deriving information for all items, including the under mentioned additional items requested by the EPMO in the Project Initiation and Planning phases for all projects costing over \$500K.

- Costs for the Initiation and Planning phases
- Budget related information
- Enterprise Architecture Questionnaire

[http://portal.ncdenr.org/c/document\\_library/get\\_file?p\\_1\\_id=17988&folderId=260801&name=DLFE-6912.doc](http://portal.ncdenr.org/c/document_library/get_file?p_1_id=17988&folderId=260801&name=DLFE-6912.doc)

- Security Questions
- Service Component Reference Model (to be completed by EPMO)
- Project Manager Interview (to be completed by EPMO)
- Proposed Budget – Level 1 Budget Cost Tab

[http://portal.ncdenr.org/c/document\\_library/get\\_file?p\\_1\\_id=17988&folderId=260801&name=DLFE-6820.xls](http://portal.ncdenr.org/c/document_library/get_file?p_1_id=17988&folderId=260801&name=DLFE-6820.xls)

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- Financial Benefits – Level 1 Benefit Tab

[http://portal.ncdenr.org/c/document\\_library/get\\_file?p\\_l\\_id=17988&folderId=260801&name=DLFE-6822.xls](http://portal.ncdenr.org/c/document_library/get_file?p_l_id=17988&folderId=260801&name=DLFE-6822.xls)

- Alternatives Analysis if investment cost is over \$10 million  
Form can also be found on the EPMO website at the following address:  
[http://www.epmo.scio.nc.gov/documents/docs\\_misc/alternatives%20analysis.doc](http://www.epmo.scio.nc.gov/documents/docs_misc/alternatives%20analysis.doc)

Click the object below to view the form.

[http://www.epmo.scio.nc.gov/documents/docs\\_misc/Alternatives%20Analysis.doc](http://www.epmo.scio.nc.gov/documents/docs_misc/Alternatives%20Analysis.doc)

- Business Driver Impact Statements – Strategic Impact Tab
- Summary Risk Profile – Risk Tab

The attachment below addresses the information requirements for the Strategic Impact and Risk Tabs. Again, this template provides the means to collect information related to these topics before final entry into the PPM Tool.

[http://portal.ncdenr.org/c/document\\_library/get\\_file?p\\_l\\_id=17988&folderId=260801&name=DLFE-6824.doc](http://portal.ncdenr.org/c/document_library/get_file?p_l_id=17988&folderId=260801&name=DLFE-6824.doc)

- Procurement Plan

Projects over \$500K are approved for one workflow phase at a time, and are required to return for State Chief Information Office (SCIO) approval before the end of each phase. Projects under \$500K are initially approved at the agency and statewide levels (not SCIO) and are then “registered” for the remainder of the project.

### **Objectives**

- Identification and description of current business process, processes associated with the proposed application.
- Based on a review of the relevant business process or processes, a listing and description of the problems and/or opportunities the proposed application is intended to address.
- Identification of reasonable alternative application solutions and listing of anticipated advantages and disadvantages for each of the solutions.

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- Selection of preferred solutions (no more than two or three) from the initial list of alternatives.
- Estimation of the costs, benefits, and risks associated with this selection (these selections).
- An initial statement of project scope
- Final recommendation.

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**Steps to Complete the Feasibility Study Report prior to inserting relevant details in specific deliverables required to be completed for Gate 1 Approval**

Step	Description	Inputs	Outputs	Resources
1	Establish the Feasibility Study Team		Team Roster	Project Manager and Project Sponsor
2	Prepare and obtain signatures approving the initial project scope	Application Notification	Approved Scope Statement	Project Manager and Project Sponsor and other client management where appropriate
3	Develop an initial description of the relevant, existing business process	Application Notification, Any Existing Workflow or Business Process Documents	Initial Process Description and/or workflow diagram	Team/process experts
4	Identify Problems and Opportunities Associated with the Business Process	Process description and Associated Workflow Diagrams	Statement of Problems, Opportunities	Team/process experts
5	Brainstorm Alternative Solutions and Related Advantages and Disadvantages	Process Description and/or Any Associated Workflow Diagrams, Statement of Problems, Opportunities	List of Alternatives with Respective Advantages and Disadvantages	Team/process experts/technology experts

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Step	Description	Inputs	Outputs	Resources
6	Select Preferred Alternative and Conduct Cost/Benefit/Risk Analysis	List of Alternatives with Respective Advantages and Disadvantages, Process Description and Associated Workflow Diagrams, Statement of Problems, Opportunities	Cost/Benefit/Risk Analysis and Recommendation	Team
7	Prepare Feasibility Study Report	Results from Previous Steps	Feasibility Study Report	Team
8	Obtain Approval and Commitment to Continue	Feasibility Study Report	Signed Feasibility Study Report	Team, Project Sponsor

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## PHASE 1 – PROJECT INITIATION

### PROJECT INFORMATION SECTION

The following generic information must be provided to OITS/EPMO for all DENR sponsored projects.

*NOTE: It is imperative that Randy Moody's and David Johnson names are added in the PPM Tool (under the Project Info tab) as a Contributor at the outset. To not do this will send any inconsistencies identified in the description during the OITS' review, to Mary Penny Thompson. The system will ignore "Randy and David" or any other name as a Contributor, if their names are included subsequent to the initial project submission. Please review the description of "Contributor" as a Required Field in the list below.*

#### Notes on formatting for Project Info tab definitions:

*Italicized* – Used to identify a field (or “attribute”) found on the Project Info tab

**BOLD** – Used to identify a field or attachment required to be completed to move from one Gate to another.

“\*\*\*” – Denotes a required field to INITIALLY add a project

- ***Project Name***\*\* – Name of the IT Project.
- ***Start Date***\*\* - Actual beginning date of the IT project (initiation).
- ***End Date***\*\* – Actual ending date of the IT project (initiation through closeout).
- ***Creation Date*** – **Generated by tool.** Date project created in the tool -
- ***Workflow Status*** – The current State of North Carolina PPM workflow phase of the project.
- ***Fixed End Date*** – **Not required at this time.** Fixed End Date is a constraint, “the project must end no earlier than” used in the portfolio planner for scheduling of projects.
- ***Fixed Start Date*** – **Not required at this time.** Fixed Start Date is a constraint, “the project must start no earlier than” used in the portfolio planner for scheduling of projects.
- ***Benefits Start Date*** – This date refers to when the project will start realizing the financial benefits included in the “Benefit Estimates” tab.
- ***Capitalization Period*** – The amount of time for which Operations and Maintenance costs need to be added to the total cost of the project. This is usually 60 months (5 years).
- ***Project ID*** – **Generated by tool.** Unique ID# for the IT project.
- ***Agency Project ID*** – An identification number used internally at an agency.

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- **Project (Investment) Range\*\*** – Estimated Investment cost = Project Cost (Initiation thru Closeout Phase) + 5 years Operations and Maintenance. **Drop down box:** <\$100k, \$100K - \$500K, \$500K - \$3M, > \$3M.
- **Project (Investment) Range Level of Confidence** – percentage level of confidence with the estimated Investment Range. **Drop down box – choose a percentage range.**
- **Type of Project\*\*** – **Drop down box** – choose the description that “best” describes the type of IT project you are creating. You may select multiple items.
- **Budget Code** – Enter the appropriate accounting code(s).
- **Initiation Phase Cost** – the \$ amount spent on the IT project completing the requirements for Phase 1: Project Initiation.
- **Planning Phase Cost** – the estimated \$ amount that will be spent on the project completing the requirements for Phase 2: Planning and Design.
- **Department or Agency** – **Drop down box** – Select your agency.
- **Division** – Name of the Division within the Agency.
- **Project Manager Name** – Name of the Project Manager assigned to the IT project.
- **Project Manager Telephone** – Telephone number of the Project Manager assigned to the IT project.
- **Project Manager E-mail** – E-mail address of the Project Manager assigned to the IT project.
- **Project Security Contact** – Name of the Agency Project Security Contact assigned to the IT project.
- **Project Sponsor\*\*** – Name of the person who will be sponsoring the IT project.
- **Project Sponsor Organization** – Name of the Division within the Agency that the Sponsor works.
- **Expansion Budget Request\*\*** – **Drop Down Box – Yes or No.**
- **New Money Required in Year 1** – **Drop Down Box – Yes or No.** – This is in reference to Expansion Budget Request.
- **New Money Required in Year 2** – **Drop Down Box – Yes or No.** – This is in reference to Expansion Budget Request.
- **Contributor** - This field lists all users who will have “write” access to this project (for adding information to the project).
- **Project Reviewer** – Person who has Read-Only access to the project but can not see other projects within the agency.
- **PMA** - This field lists the PMA who is assigned to this project.

Click the Word document below for an explanation of these terms:

[http://portal.ncdenr.org/c/document\\_library/get\\_file?p\\_1\\_id=17988&folderId=260801&name=DLFE-6821.pdf](http://portal.ncdenr.org/c/document_library/get_file?p_1_id=17988&folderId=260801&name=DLFE-6821.pdf)

Although specific information in specific deliverables is required by the Enterprise Project Management Office (EPMO) for Gate Approval, DENR project managers are at

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liberty to include any other information in their documents and deliverables that will assist them in better managing their projects. The Project Charter is a case in point.

The EP MO may only be interested in reviewing the following topics in the Project Charter but DENR project managers and other stake holders may want to include other topics:

### **Project Charter**

- Business Goals

These are goals that would benefit DENR as an organization or its Divisions and ultimately justify the project.

What will this project achieve at a business level? The Business Goals specifically define those outcomes through which the Project Mission will be accomplished. A single project may have multiple Business Goals.

- Strive for quality, not quantity in identifying Business Goals.
- Project Objectives and Business Goals are not the same. It may not be possible to determine if a Business Goal has been met until long after the project is completed. For example, a project may implement a new web-based service on time and within budget (project success), but it may take months more before the customer-base adopts the new service (business success).

Examples:

- The agency intends to improve customer service and thereby reduce the number of customer complaints, improve the agency's public image, reduce support work and reassign some support staff to more productive work.
- Improve public safety by reducing the number of annual roadway deaths and injuries caused by median crossovers.
- Compliance with new federal guidelines will improve pollution control standards and secondarily allow the state to continue receiving an important source of federal funding.

- Business Issues/Project Scope

Describe what business factors led to the proposal of this project. These may be issues (any matters that require resolution), opportunities (e.g. potential for improved service or reduced cost) or mandates (state or federal).

- Only list the primary issue(s) / opportunity (ies), usually not more than a few for a single project
- Briefly state why each issue / opportunity is of concern to your agency

Examples:

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- Excessive number of customer complaints has resulted in poor public image and excessive support work.
- There is a specific problem with accidents caused by median crossover. The agency has established the effectiveness of a technology that can improve this situation.
- Satisfying this federal mandate will bring the state in compliance with federal pollution control standards. Failure to meet it will result in consequences for the State.

This paragraph will also describe the business issues that would be resolved by the proposed solution, including:

- Business processes that will be affected
- Business areas/units that will be affected
- Business locations that will be affected
- Business data that will be changed
- Business applications that will be changed
- Technologies that will be changed

Project Scope in this context would mean the development of a common understanding as to what is to be included in, or excluded from, a project. However, the project scope must not include timelines, duration or costs, since these aspects are dependent on the scope and will be derived after the scope is defined.

- Items Out Of Scope (*scope exclusions*)

These items should be identified and listed as being outside the project boundaries and therefore not scheduled for delivery. By default, these items will further define the project scope and qualify the project boundary.

Sometimes, the Client and/or the IT Project Manager need to clarify selected specific items that will be excluded from the scope of work. Logic dictates that if a particular deliverable is not included in the Project Deliverables list, it is not part of the project scope. However, it's sometimes helpful to eliminate any ambiguity or uncertainty by specifically stating any defined exclusions.

(e.g., the project is already being hosted by XXXX and does not have any additional hosting requirements)

- Project Goals

The Project Goal is delivery of a system that will allow the achievement of Business Goals. Consider the following guidelines for preparing the Project Goals:

- What is the overall goal of the project?
- Why is it being done?

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- How will this goal be met?
- Who will this project benefit?
- Keep it short and simple – one sentence is best, three or four may be too many.
- Do not include statements about the project deliverables or business requirements in the project goals – this information will be defined later in other sections.

Examples:

- Provide driver license renewal over the Internet. Therefore, providing ease of use for citizens.
- Install digital cameras at dangerous intersections in order to record those who violate traffic laws. Thereby, providing ability to prosecute.
- Install a new safety inspection scheduling system. Thereby meeting the federal guidelines for safety inspections.

Project goals should be documented in User terms as a list of targeted project achievements to include:

- The End Tasks in the MS Project Plan that define the finish line for the project
- Positive impacts of a more efficient delivery of services by DENR North Carolinians.
- User needs that End Users want the project to "fix".

NOTE: A user doesn't care, for example, that you are trying to produce a new accounting system. The user cares about obtaining certain information about inventory and sales at the end of the day. Providing a system that meets the user's needs is the project goal; designing a new accounting system is the process for achieving this goal. Therefore it is imperative that project goals be couched in User terms.

- Project Deliverables

Project Deliverables are those products or services that will result from work on this project. Examples: implementation of software and/or hardware; training; documentation; new or improved business process; changes to the organization; a new or improved service.

- Describe how the project will be delivered.
- Will the software be developed for a pilot Division or a Section within it?
- What will be the nomenclature of the team?
- Who will be the stakeholders in the project?
- Will the federal government be a stakeholder in the project?
- Will third-party software be commissioned to address certain functions?
- Will the system overall be developed in-house, or will a COTS/GOTS

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- package be procured?
- How will the product be rolled out to Users; will it be implemented as a “Big Bang” event or will groups of Users be initiated into its use?
- Include a summarized Release Schedule of the system, software or application.
- Explain the mechanism by which each User group or DENR functional area will be able to gain access to the system.
- Explain how the project will be managed to business-critical dates.
- Explain how the project will respond to changes in business direction.
- Explain how the project will respond to technical changes in the environment external to it, which may adversely impact the development effort.  
NOTE: This should be identified as a Risk and included in the Risk Management Plan, along with its mitigation.
- If the project is under a Program umbrella, explain how technical conflicts between projects will be resolved, especially in the area of resource sharing and/or acquisition.

Consider the following guidelines:

- Keep the list short – perhaps no more than five to eight major deliverables. Remember that you’re only documenting high-level deliverables during this phase – detailed deliverables will be defined later in the Planning phase.
- Review information provided by the Client (Business) in their Project Request – this will provide a good start for defining project deliverables.
- Deliverables must be aligned with the project’s Goals. If deliverables are not clearly connected to the Goals, you will confuse reviewers on what the project aims to accomplish.
- Sometimes the project is a feasibility study. The client may require this type of project as an intermediate step to help justify a larger, more complex systems implementation or development initiative. In this case, the “deliverables” may be a single report that assesses parameters and implementation consideration for the subsequent project phase.

- Proposed Strategy

The proposed strategy may be viewed as a preliminary, high level work plan, i.e. a summary of the major tasks to be performed and a brief explanation of how each task will be executed. For example, the Proposed Strategy might include mention of Project Plan, Discovery (acquire requirements), RFP, contract, design, specification, build or configure, test, training, rollout, etc. and a brief statement about each. The actual deliverables will be the list of milestones and delivery dates derived in the MS-Project Plan.

- High Level Assumptions/Constraints

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Every project is based on some Assumptions and most projects have one or more Constraints. List any Assumptions (hosting at OITS) and Constraints (e.g., Funds) that may be of significance to those individuals who will review this information.

- State whether a Memorandum of Agreement will be required before a Division or Section can be enrolled as a user group.
- State which party will pay for Training Users and Technical staff
- State in broad terms all the expenses that the State will have to meet.
- State all other expenses to be met by DENR and its Divisions.
- State if non-availability of required software would be a constraint to delivery of the project on time and within budget.

- Key Dependencies External To The Project

Is the success of this project dependent upon delivery of some product or service that is outside the control of the project team? Is any other project depending upon the timely delivery of a product or service from this project? If yes, list them here.

- List all Applications, databases, or technologies that may reside outside the project and/or the sponsor's immediate organization that could be impacted by the new system.
- If the project is one of many under a Program umbrella, describe how the project would be aligned with Program goals, assuming that the Program is in alignment with DENR's overall Business Strategy.

- Project Organization Chart and Project Team Roles and Responsibilities

This section features a project organization chart, i.e. a graphic identifying the resources assigned to the IT project team and showing reporting relationships for these individuals. The organization chart also includes other individuals and groups that may be involved in the project (i.e., steering committee, quality assurance staff, and /or miscellaneous stakeholder groups) and details their respective link or relationship to the project team.

- Identify the main players in the project, i.e. Project Sponsor, Chief User, major stakeholders.
- Create an Organization chart for the project consisting of names of individuals on the project and their roles and reporting lines.
- Determine the level at which the project has been included in the Program and accordingly update the overall Program Organization chart.
- Create a document of Roles and Responsibilities for each member of the project team. Identify Key and Secondary areas for each role, determine percentage of time to be allocated by each individual to those areas and identify their direct reports.
- Describe the role of the Program/Project Management Office with regard to the project.

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A sample of the information required in the PPM Tool can be found in the document attached below:

[http://portal.ncdenr.org/c/document\\_library/get\\_file?p\\_l\\_id=17988&folderId=260801&name=DLFE-6823.pdf](http://portal.ncdenr.org/c/document_library/get_file?p_l_id=17988&folderId=260801&name=DLFE-6823.pdf)

These same information requirements for a Project Charter have been collected in the Word template below for ease of use. This template could also be used as a “worksheet” for information gathering before finally entering it into the PPM Tool.

[http://portal.ncdenr.org/c/document\\_library/get\\_file?p\\_l\\_id=17988&folderId=260801&name=DLFE-6825.doc](http://portal.ncdenr.org/c/document_library/get_file?p_l_id=17988&folderId=260801&name=DLFE-6825.doc)

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## APPENDIX

### References, Hints and Tips

#### Business Process characteristics

Consider the following items when developing, validating, and refining your business process description:

- A process name that fairly represents what the process does.
- A list of inputs, outputs, and a description or diagram that lays out how inputs are transformed into outputs.
- External “triggers” that initiate the process (e.g. a land developer initiated a permit application.)
- Important data flows which represent data or physical materials (e.g. permit application) in motion, often represented as an arrow line diagram.
- Data stores that describe data at rest (e.g. files, databases)
- Terminations, the people or systems with which the process communicates or interacts.

#### Identification of alternative solutions

To identify alternative solutions, consider requesting input from external experts and benchmarking with other organizations who have already developed similar solutions, or conduct facilitated “brainstorming” exercises with key clients and IT experts who are well-versed in state-of-the-art technology. The IT experts may be internal staff or external consultants.

#### Possible Risk Factors

The following is a list of risk factors to consider when performing a risk assessment. Consider the probability of the risk occurring and the consequences of its occurrence. If the probability is medium - high with high negative consequences, determine actions that can be taken to mitigate the negative impact associated with the risk’s occurrence.

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<b>New Technology</b>	<b>Project Team</b>
Database Software	Level of Morale
Communications Software	Staff Availability
Programming Language	Commitment to Team
Tools or Aids	Technical Skills
Communications Network	Applications Knowledge
Mainframe	Staff Turnover
Testing Resource	Familiarity with each other
PC's or Desktops	Staff Conflicts
Information Center	Size of Team
Geographic Dispersion	
Reliability of Personnel	

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<b>Applications</b>	<b>Organizational</b>
Project Size	Stability of IS Organization
Functional Complexity	Stability of User Organization
New (vs. Replacement)	Number of User Departments Involved
Quality of available information	Availability of Support Organization
Vulnerability to change	Extended Team Commitment
Stability of business need	Conflict Resolution Mechanism
Intensity of business need	Signoff/Approval Process
Organizational impact	Senior Management Commitment
Interface with other applications	Availability of Champion
Dependency on other projects	Continued Budget Availability
Conversion difficulty	Chargeback System
Tight time-frame	Project Standards used
End date dictate	Accountability for change
Organizational impact	
Interface with other applications	

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User/Client	Project Manager
Level of Commitment	Problem Solving Skills
Attitude toward IS	Managerial Identity
Applications Knowledge	Influence Skills
IS Systems Knowledge	Achievement Drive
Change Propensity	Experience with User
Turnover of Key People	Experience with Application
User to Customer Relations	Experience with Organization
Readiness for Takeover	Experience with Technology
Design Participation	Experience with Project Team
Change Process	Planning Skills
Need for Organization Chart	Estimating Skills
	Possibility of Turnover

**Complexity** is a key variable when evaluating risk and should be considered from several perspectives:

**Application size:** number of modules, function points and entities accessed, number of transactions per period of time

**Logic complexity:** complexity of calculations, nesting of decisions, complexity of decision trees, string/text handling

**Data complexity:** simple read-only, complex query, simple update or complex update.

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**Database support:** single physical dedicated database vs many heterogeneous, physically disparate databases

**Interface complexity:** single character-based interface vs portable, GUI interface.

### **Feasibility Team Membership**

At a minimum, a core team should consist of the project sponsor and a project manager. It is also recommended that the team include staff who are expert in the relevant business process and technology experts who could assist in identifying alternative technology solutions and their respective advantages and disadvantages. These members may be temporary, participating when their expertise is required.

### **Developing Initial Description of Business Process**

Consider the following possible approaches as you develop a detailed description of the relevant process:

If process descriptions exist, present them to the Feasibility Study Team for review. Conduct a detailed review of these materials keeping items in Reference II.C.1 in mind.

If a process expert exists who has a detailed knowledge of the entire process and has good analytical skills, have this person develop a preliminary workflow (assuming a workflow description is appropriate in characterizing the process) description including the items listed in Reference II.C.1 and present this description to the Feasibility Study Team for discussion.

If no such person exists, carefully select representatives who are well-versed in different general aspects of the process as well as a couple of staff who have a good general overview of the process. Then hold a series of facilitated discussions. The facilitator should be experienced specifically with process review and design.

This description is an initial description to assist in the development of a feasibility assessment. When detail user requirements are developed in the next section, this initial process description should be detailed further and validated. The steps for doing so will be discussed in the next section.

## PHASE I: PROJECT INITIATION

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### **Developing Statement of Problems and Opportunities**

The same team, developing the initial process description, should identify the problem and opportunities. Many of the problems and opportunities may emerge during the initial discussion of the process. These should be recorded, possibly on a separate flip chart and held for the subsequent discussion that is dedicated to identification of problems and opportunities.

Once the process description has been completed, the Feasibility Study Team and process experts should review the process description to identify problems and opportunities associated with the process. In particular, the team should look for steps in the process where such things as backlogs, bottlenecks, incidents, and complaints are known to occur. Also consider the process from the perspective of key customers. What kinds of services/outcomes would you want were you a customer? What steps in the current process either facilitate or hinder the realization of these services and outcomes? How?

### **Developing List of Alternatives**

When considering possible application solutions, first consider how the existing process can be changed to address problems and take advantage of opportunities inherent in the current process. Then engage in a facilitated brainstorming session(s) to identify alternative application solutions to enable the identified changes in the current process. This discussion would probably benefit from the inclusion of technology experts. As you identify alternative solutions, record any advantages and disadvantages that might emerge during the conversation. Once the alternatives list has been completed, review the advantages/disadvantages for each alternative supplementing the respective lists where appropriate.

Consider the following as you develop your list of alternative solutions: 1) the general architecture of the solution (e.g. two-tiered client/server); 2) the kind of development tools (e.g. DBMS, CASE, object oriented programming language), 3) networking requirements, 4) communications requirements, 5) processor requirements, 5) storage requirements.

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### **Cost/Benefit**

Should the need for a cost/benefit be waived, be sure to get signed documentation to that effect. Waiver of the cost/benefit analysis must be signed off on by the ITS Director and the client Division Director and the client Assistant Secretary.

Several steps should be taken to estimate overall cost/benefits of a proposed application:

- Document the present system operating costs (including such costs as user departmental personnel, OITS operation personnel, system maintenance personnel, hardware costs, software costs, network costs, special equipment like air conditioning, rents and leases, miscellaneous like stationary.)
- Develop high-level functional and technical specifications and get end-user signoff.
- Based on 2), establish equipment specifications.
- Based on 2) and 3), develop high-level installation schedule.
- Based on 3) and 4), develop costs associated with the proposed application. See "Exhibit: Format for Project Proposal Costs" on page 3 of the Documentation Appendix. Be sure to include hardware and software used for the installation itself as well as the items noted in item 1).

Compare the costs of the existing and proposed system. Ask the question, "Could the existing system, with minor improvements, provide the same functionality as the proposed system"? Ask organizational management if benefits could be realized through process/organizational redesign without material system changes. Evaluate the savings in terms of the payback period. How many years would be required before the new system is paid for through savings?

Test and document the logic behind estimates for reasonableness given past experience.

List intangible benefits of the new system and get concurrence from the sponsor and other appropriate management about these benefits. Below is an example intangible benefit:

An application may lead to fewer, more simplified source documents to process for adding, changing, and deleting personnel information. This should improve the morale of the payroll and personnel people as they were swamped with the detail preparations and filing of poorly designed forms that requested non-pertinent data.

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### **Scope Determination**

Develop a formal scope document that identifies the objectives of the project/application, lays out the responsibilities of the project team, specifies the deliverables, identifies the business functions that will be affected, indicates the expected/necessary amount of user involvement, notes the user locations that will be involved, and lays out the business benefits to be achieved.

As the project progresses, it is likely that the scope will also vary. It is important to review any changes in the initial scope of the project with the project sponsor and with other appropriate management. A formal change of scope memo should be developed and signed by the project sponsor whenever the scope is changed.

The initial definition of project scope is subject to revision. As the work plan is developed in more detail, assumptions about project goals and required resources may change. Therefore, outline the scope in as much detail as possible, including all technical and architectural assumptions. Once the final scope and approach are approved at the conclusion of the Workplan segment, plan to control subsequent changes to scope through change request management (change control) procedures. Outline these scope management procedures explicitly in the initial scope memo. It should be noted that scope creep is inevitable and can be constructive as long as it is carefully managed. The core project management team including the database specialist, developers, project managers, key users, and testers should be part of this team and give their input during the analysis.

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## GLOSSARY

- CASE** - Computer Aided Software Engineering
- COTS** - Commercial off-the-shelf software designed to be easily installed and to interoperate with existing system components.
- DBMS** - Database Management System
- DENR** – Department of Environment and Natural Resources
- DENR EPMO** – Department of Environment and Natural Resources Enterprise Project Management Office
- EPMO** - Office of Information Technology Services (OITS) Enterprise Project Management Office
- EPMO QA** – Team within the OITS EPMO that reviews all projects and status reports.
- GOTS** - Government off-the-shelf, generally preferred for government purposes.
- ITS** - Information Technology Services
- OITS** - State Office of Information Technology Services
- PMA** - Project Management Advisor
- PPM** - Project Portfolio Management
- RAD** - Rapid Application Development as used in software development/management
- RFP** - Request for Proposal
- SCIO** - State Chief Information Officers who directs the Office of Information Technology Services
- UMT** - UMT Consulting Group the developers of the project portfolio tool