

## Sample Contents: "SW Development Plan" template

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### Appendix A: Work package [and main activity] descriptions

## 0. Template-specific conventions & notes – REMOVE for actual projects

1. Angle brackets < ... > contain material that must be replaced by project-specific data. For emphasis, this material is sometimes in ***bold italics***.
2. Bolded square brackets [ ... ] delimit text that may or may not be applicable, depending on project. A pair of separators || is used to identify alternative wordings, depending on project needs.
3. Guidelines are *italicised* and, in part, may be paraphrased for specific projects.
4. Title page (and headers & footers) must be replaced by the appropriate project specifics.

## 1. Introduction

### 1.1 Project overview

*Self explanatory; keep fairly brief.*

### 1.2 Project deliverables and milestones

*List the deliverables in a table ordered by work package, each deliverable being associated with a work package.*

*List the major project milestones – each milestone should usually coincide with starting or ending a work package.*

### 1.3 Evolution of SDP

*State at which points it is planned to issue the SDP during the course of the project and outline what will be new to each issue. **For example**, for a standard waterfall sequence, one could have*

<i>Issue</i>	<i>When issued</i>	<i>Outline</i>
1	<i>Pre SR phase</i>	<i>Outline plan for whole project – identified tasks are probably based mainly on requirements at this stage. Provide (at least rough) estimates of cost and schedule. Specify in detail the SR phase activities.</i>
2	<i>In SR phase</i>	<i>Refine plan for whole project - tasks may be based on SW components (e.g. classes) at this stage. Provide more precise estimates of cost and schedule. Specify in detail the DD phase activities.</i>
3	<i>In AD phase</i>	<i>Should include a work breakdown structure (WBS) directly related to SW components. Estimate cost and schedule accurately. Include a planning network showing interrelationships between coding, testing and integration.</i>
4	<i>In DD phase</i>	<i>Refine &amp; update the WBS as work progresses. Detail project activities until final acceptance. Refine the job schedule.</i>

*where SR = SW requirements, AD = Architectural or high level design, and DD = detailed design and production.*

### 1.4 Reference materials

*<Specify any applicable and reference documents>*

### 1.5 Definitions & acronyms

*Self-explanatory.*

## 2. Project organisation

### 2.1 Process model

*QMS: Conduct of projects manual<sup>1</sup> provides overview and detailed guidelines of the processes involved in any software project, and should be consulted in defining the process model of the current project.*

*In addition, the high-level, general process model presented in Figure 2.1-1 (from “Project management for information systems”, Yeates & Cadle, 1996), although containing much more than software development, may be useful as a further guideline, especially as a check that no essential activity has been overlooked.*

*Specifically, this section should*

- Identify the SW processes to be used in the project*
- Define the SW life-cycle model*
- Define transition criteria between SW development processes*
- Identify planned builds*
  - State objective of each build*
  - State activities for each build*

*where, typically, transition criteria between SW development processes could be*

- The SW verification process reviews have been performed*
- The input is an identified configuration item*
- A traceability analysis has been completed for the input*

*Note: Ensure all contractual clauses relating to planning are addressed adequately.*

### 2.2 Organisational structure

*Specify, preferably with a diagram, the organisational structure of the project. For example,*

- Is there a key responsible with sufficient resources and authority?*
- Any elements independent of project management, particularly quality assurance?*

### 2.3 Organisational boundaries & Interfaces

*Specify how the project fits into the overall company structure.*

*State how project interfaces with customer (acquirer) and any other external agency.*

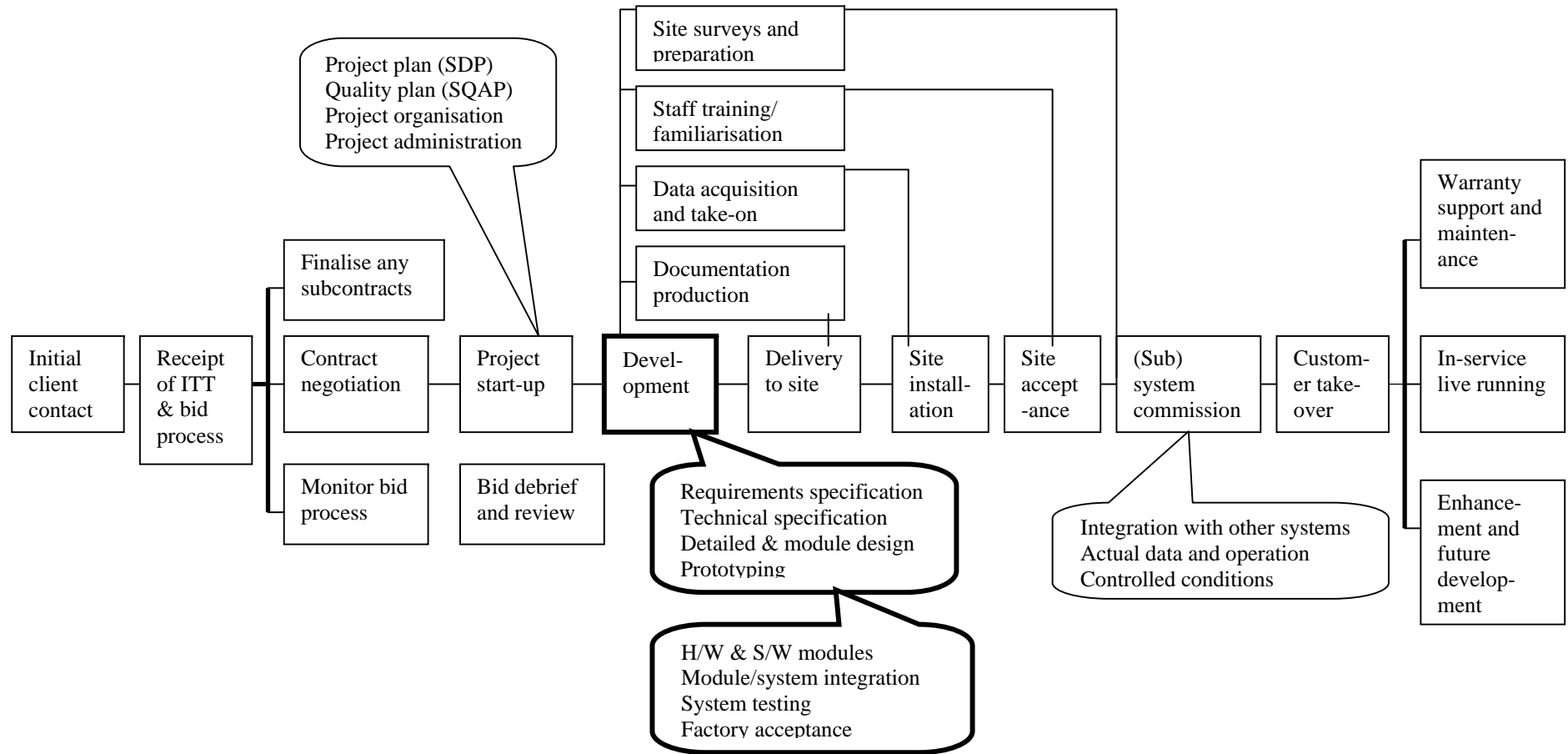
### 2.4 Project responsibilities

*Present (diagram?) all key team members.*

*What are lines of communication between members?*

*Which work packages/ tasks is each team member responsible for?*

<sup>1</sup> Assuming this SDP template is the context of QMS defined by F2OutlineExampleQualityManual.



**Figure 2.1-1: A general process model (major deliverables/results shown in “call-outs”)**

### 3. Managerial process

#### 3.1 Management objectives & priorities - self explanatory

#### 3.2 Assumptions, dependencies & constraints - self explanatory

#### 3.3 Risk management

To help identify risks, use following (not necessarily complete) checklist:

No.	Potential area of risk
1	Proven business case? Funding approved? Right type of contract
2	Areas of contract ill-defined or not agreed?
3	Customer: sufficient access? effective decision making procedures?
4	User committed? Quality & stability of user requirements
5	Acceptance criteria specified in contract?
6	Level of definition & stability of external interfaces
7	Adequacy & availability of resources including team members.
8	Availability & quality of tools.
9	Team member training & experience //// Definition of responsibilities
10	Short time scales. Rapid build-up of staff required. Over-optimistic planning.
11	Technical novelty of the project. Technical complexity of the system.
12	Demanding performance, reliability, availability, maintainability requirements
13	New development environment. Mis-match between development and target
14	Bought-in items

**Table 3.3-1: Checklist for potential risk identification**

Provide an assessment of risk– for example, use as a basis for comparison, a risk map such as Figure 3.3-1. Each identified risk is assigned to a cell of the map:

Likelihood of occurrence->		High	Medium	Low
Potential scale of impact	Large			
	Moderate			
	Small			

**Figure 3.3-1: Risk map template**

Provide a plan for reducing any identified risks.

#### 3.4 Monitoring and controlling mechanisms

- State how progress towards reaching project objectives will be measured ...
- State how difference, for both resource and schedule, between planned and actual "expenditure" will be analysed (for example by "earned value analysis").
- State frequency & content of project status reports (to give visibility on progress).
- State how project reviews will be prepared for and organised...

#### 3.5 Staffing plan - more detail than section 2.4

## 4. Software engineering process

### 4.1 Standards, methods, tools and techniques

*As relevant to specific project needs:*

- *Identify standards, including*
  - SW requirement standards*
  - SW design standards (e.g. UML as tailored to company's needs)*
  - SW code standards*
  - Standards for test cases, procedures and results (probably in SVTP)*
  
- *Define the selected methods and tools*
  - SW requirements methods & tools (e.g. tool for UML)*
  - SW design methods & tools (e.g. tool for UML)*
  - Programming language(s), coding tools, compilers, linkers, loaders ...*
  - HW platforms for tools*

*Summarise how use of project standards, methods and tools will be monitored and enforced (maybe refer to SVTP, for example, for planned reviews and inspections).*

### 4.2 Project support functions

*Refer to separate SCMP for software configuration management.*

*Refer to separate SVTP for organisation and planning of software verification, including but not limited to testing.*

*Refer to separate SQAP for software quality assurance activities.*

### **[4.3 Management of reusable software products]**

*Two aspects are distinguishable.*

- *Incorporate reusable SW products*
  - Identify (Scope of search? List already known?)*
  - Evaluate (Criteria?)*
  - Incorporate (How?)*
- *Develop reusable SW products (cf **Components** in earlier lectures)*
  - Identify opportunities*
  - Evaluate opportunities*
  - Report opportunities*

### **[4.4 Handling of critical requirements]**

*If relevant, state any special measures for requirements designated as critical, such as requirements for assurance of safety, security or privacy.*

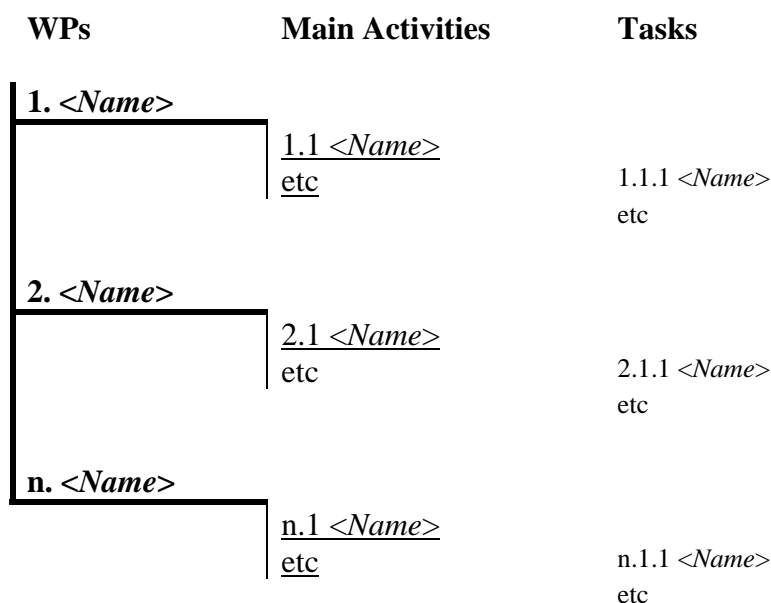
## 5. Work packages (WPs), schedule and budget

### 5.1 Work breakdown structure (WBS), work packages and tasks

#### 5.1.0 Work breakdown structure (WBS)

*The level of detail should be commensurate with the project size.*

The following work breakdown structure (Figure 5.1.0-1) has been established for the <Supply Name> PROJECT.



**Figure 5.1.0-1: Project Work Breakdown Structure**

The following sections provide overviews of each work package. Detailed work package [and main activity] descriptions are provided in Appendix A.

5.1.1 WP1 <Supply WP NAME> overview (*self explanatory*)

5.1.2 WP2 <Supply WP NAME> overview (*self explanatory*)

...

5.1.n WPn <Supply WP NAME> overview (*self explanatory*)

### 5.2 WP and task interdependencies

Each work package description (WPD) or task work sheet (TWS) identifies the activity's inputs and outputs, and any constraints on its execution.

*Show how work elements are interrelated (preferably in diagram(s) e.g. PERT/CPM).*

### 5.3 Estimated resource requirements

*Include a table (similar to Table 5.3-1) which identifies the estimated labour effort, and estimated cost of any other resources, needed to perform tasks to the level*

identified in the WBS of section 5.1.0. The estimates should be accumulated for each main activity, work package and the overall project.

WPs	Main Activities	Tasks	<u>Labour</u> (person days)	<u>Other costs</u> (monetary)
<b>1.</b> <Name>				
	<u>1.1</u> <Name>			
	etc	1.1.1 <Name>		
		etc		
<b>2.</b> <Name>				
	<u>2.1</u> <Name>			
	etc	2.1.1 <Name>		
		etc		
<b>n.</b> <Name>				
	<u>n.1</u> <Name>			
	etc	n.1.1 <Name>		
		etc		
<b>ESTIMATED PROJECT TOTALS</b>				

**Table 5.3-1: Summary of required resources**

**Note on estimation:**

Basic approach:

- Break work into “small” tasks, then estimate time and cost for each task. Finally estimate whole project by accumulating or synthesing the individual task estimates.
- It is wise to base estimates on valid past experience.
- In addition, other approaches may be sometimes useful such as
  - prototyping
  - cost models (e.g. COCOMO, function points).

As indicated in section 1.3 of this template, refined estimates can be documented in later versions of the SDP corresponding to more detailed versions of the WBS.

**5.4 Budget and resource allocation**

Show how resources are allocated over the project lifetime, broken down as necessary into work packages or lower level activities. Can be presented in tabular form and/or using one or more figures (such as histograms).

**5.5 Schedule**

Define the project schedule (preferably using a bar-chart or Gantt chart), identifying the dates of the major milestones, deliverables, external inputs to the project (and any other external dependencies), the duration of each workpackage broken down, to sufficient resolution, to activities and tasks.

**Appendix A: Work package [and main activity] descriptions**

*Complete, as necessary, work package descriptions (WPDs) (or similar) for work packages and major activities. As a minimum include a WPD for each work package. A sample blank WPD form is as follows:*

**WORK PACKAGE DESCRIPTION (WPD) FORM**

<b>PROJECT:</b>			
<b>WORK PACKAGE</b>			
<b>Title:</b>		<b>Reference:</b>	
<b>Manager:</b>		<b>Version &amp; date:</b>	
<b>Planned</b>	<b>Start date:</b>	<b>End date:</b>	<b>Effort:</b>
<b>INPUTS:</b>			
<b>CONSTITUENT TASKS:</b>			
<b>CONSTRAINTS (e.g. task sequencing, environment, etc):</b>			
<b>OUTPUTS:</b>			