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Organization Level Work Breakdown Structure for Software Enterprise Projects

This is a Work Breakdown Structure (WBS) of typical activities common to the Software Enterprise. The sequence of WBS elements does not imply the order they will be done during the project life cycle.

This WBS is intended to serve two purposes. The first use is as a list of possible services or activities that can be offered to support a Program Office. The second use is as a template for the user to tailor to meet project needs. When tailoring the WBS, renumber the sub-elements under the major elements to be sequential.

The Software Enterprise has both Acquisition and Development type projects. This WBS is for both types of projects. The WBS elements that are mainly for each types of project are marked in columns labeled as follows:

A: Acquisition Projects
B: Both Acquisition and Development Projects
D: Development Projects

The A, B, and D markings are only recommendations. Users are free to use all of the WBS elements that pertain to the work that needs to be done on their project.

WBS Element	Deliverable	A	B	D
1. Preparing and Evaluating Contracts				
1.1. Acquisition Planning Support				
1.1.1. Provide Inputs to the RFP	Draft RFP	•		
1.1.2. Review RFP	Draft RFP	•		
1.1.3. Provide inputs to the Acquisition Strategy	Draft Acquisition Strategy	•		
1.1.4. Review Acquisition Strategy	Comments	•		
1.1.5. Provide Inputs to the Acquisition Plan	Draft Acquisition Plan Sections	•		
1.1.6. Review Acquisition Plan	Comments	•		
1.1.7. Develop Lifecycle Model (only top-level info provided)	Draft Lifecycle model	•		
1.1.8. Provide Input to Statement of Work (from standard package)	Draft SOW	•		
1.1.9. Evaluate Source Selection Criteria for Software	Comments	•		
1.2. Source Selection Support				
1.2.1. Evaluate Contractor Proposal	Proposal Evaluations	•		
1.2.2. Participate on Source Selection Evaluation Board	SS report	•		
1.2.3. Conduct Software Capability Evaluation of bidders	Capability Reports	•		
1.2.4. Review Contractor's Schedule and Effort Estimates (costs done separately)	Feasibility Assessment	•		
2. Project Planning				
2.1. Develop Project Plan or Software Development Plan	Project Plan and/or SW Development Plan		•	
2.2. Review Project Plan or Software Development Plan	Comments		•	
2.3. Develop Cost and Schedule Estimates	Cost and Schedule Estimates		•	
2.4. Develop Project Schedule	Project Schedule		•	
2.5. Develop Project Budget	Project Budget		•	
2.6. Develop Work Breakdown Structure, Tasks, and Dictionary	WBS, Tasks, and Dictionary		•	
2.7. Develop Configuration and Data Management Approach	CM Plan and DM Plan		•	
2.8. Develop Quality Assurance Plan	QA Plan		•	
2.9. Develop Stakeholder Involvement Plan	Stakeholder plan		•	
2.10. Develop Training Plan	Training Plan		•	
2.11. Develop Source Coding Standards and Style Guidelines	Source coding standards and style		•	

WBS Element	Deliverable	A	B	D
2.12. Analysis Engineering Tool Requirements	Engineering Tools Requirements		•	
2.13. Risk Management – Develop strategy and identify initial risks	Risk Management Plan		•	
2.14. Measurement & Analysis – Identify issues and specify measures	Measurement Plan		•	
3. Project Monitoring and Control (Management)				
3.1. Provide Status to Management	SMRs and IPRs - Briefings and Minutes Progress reports		•	
3.2. Develop Corrective Action Status and Results (Action Items)	Corrective Action Status Report		•	
3.3. Analyze Staffing and Resource Expenditures	Staffing Report and Resource Expenditure Reports		•	
3.4. Analyze Earned Value Management Information	EVM Reports		•	
3.5. Collect & Analyze Measurement Data and Provide Results	Monthly measurement report		•	
3.6. Update Risk Analysis and Provide Results	Risk Reports		•	
3.7. Provide Process Assurance Audit Results	PA Audit Results		•	
3.8. Provide Baseline Audit Results	Audit Reports		•	
3.9. Provide Training Status Report	Training Status Report		•	
3.10. Subcontract Management	Status Report		•	
4. System Engineering				
4.1. Develop System Segment Specification	SSS			•
4.2. Prepare Estimates of Critical Computer Resources	Resource Estimates			•
4.3. Evaluate Engineering Change Proposal Evaluation	ECP Evaluation			•
4.4. Develop System Interface Design Description	IDD			•
4.5. Prepare Software / Hardware Trade Studies and Analysis	Reports			•
4.6. Software COTS or NDI Product Acquisition				•
4.6.1. Conduct Market Survey	Market Survey Report			•
4.6.2. Conduct Assessment / Evaluation Results	Assessment Report			•
4.6.3. Purchase Product	Purchase Order			•
4.6.4. Receive Product	Delivery Receipt			•
4.6.5. Conduct Product Acceptance Testing	Test Report			•
4.6.6. Produce Product Maintenance / Technical Refresh Strategy	Life Cycle Management Plan			•
4.6.7. Produce Vendor Liaison Strategy	Life Cycle Management Plan			•

WBS Element	Deliverable	A	B	D
5. Hardware Engineering				•
6. Software Engineering				
6.1. Requirements				
6.1.1. Develop Software Requirements	SW Requirements Spec			•
6.1.2. Develop Software Interfaces	SW Interface Spec			•
6.1.3. Develop Software Technical Performance Requirements and Measures	Requirements and Measures			•
6.1.4. Develop Requirements Tracking System and Acquire Database	Requirements Database			•
6.1.5. Develop Requirements Status Report	Requirements Status report			•
6.1.6. Develop Requirements Allocation or Traceability Matrix	Traceability Matrix			•
6.2. Review Requirements				
6.2.1. Review System Requirements Specification	Comments or Change Request	•		
6.2.2. Review Software Requirements Specification	Comments or Change Request	•		
6.2.3. Review Software Interface Specification	Comments or Change Request	•		
6.2.4. Review Software Technical Performance Requirements and Measures	Comments or Change Request	•		
6.2.5. Verify Requirements for Consistency, Clarity, Traceability, and Testability	Comments or Change Request	•		
6.2.6. Analyze New Requirements (TBDs, Chnages)	Requirements Status Report	•		
6.2.7. Review Requirements Allocation or Traceability Matrix	Comments or Change Request	•		
6.3. Develop Preliminary Design				
6.3.1. Develop Architecture Description	Architecture Description			•
6.3.2. Identify Software Components (CSCIs)	CSCIs list			•
6.3.3. Develop Interface Design Document (Interface Control Document)	IDD/ICD			•
6.3.4. Update Requirements Allocation or Traceability Matrix	Updated			•
6.3.5. Allocate Design Constraints to Software Components	Interface Control Working Group Meeting Minutes			•
6.3.6. Develop Software Algorithm Descriptions	SW Algorithm Desc Documents			•
6.3.7. Develop Design Method	Design Method Description			•
6.4. Develop Detailed Design				
6.4.1. Develop Software Unit Designs	SW Unit Designs			•

WBS Element	Deliverable	A	B	D
6.4.2. Allocate Requirements - Update Traceability Matrix	Trace Matrix			•
6.5.Review Preliminary and Detailed Design				
6.5.1. Review Software Design Documentation	Comments or Change Requests	•		
6.5.2. Verify Requirements Implementation and Flow down (traceability)	Comments or Change Requests	•		
6.5.3. Analyze Design for Testability and Safety	Comments or Change Requests	•		
6.5.4. Provide an Analysis of Interfaces	Comments or Change Requests	•		
6.5.5. Design Peer Review	Comments or Change Requests		•	
6.6. Code and Unit Test				
6.6.1. Code Software Units	SW code			•
6.6.2. Develop Unit Test Plans	Test plans			•
6.6.3. Perform Unit Test	Comments or Change Requests			•
6.7.Code Analysis				
6.7.1. Analyze Software Source/Object Code	Comments or Change Requests	•		
6.7.2. Perform Code Inspections	Comments or Change Requests	•		
6.7.3. Analyze Complexity	Comments or Change Requests	•		
6.7.4. Analyze Compliance with Coding Standards	Comments or Change Requests	•		
6.7.5. Perform Causal Analysis	Comments or Change Requests	•		
6.7.6. Verify Requirements Implementation and Flow down (traceability)	Comments or Change Requests	•		
6.7.7. Code and Unit Test Peer Review	Comments or Change Requests	•		
6.8. Software Integration and Testing				
6.8.1. Develop integration approach	Comments or Change Requests			•
6.8.2. Evaluate software	Comments or Change Requests			•
6.9. Rework (if possible, add to each major element such as rqmts rework, design rework, etc.)	Updated deliverable		•	
7. System Testing (Software, Hardware, Test Environment)				
7.1. Perform Software Formal Qualification Testing				

WBS Element	Deliverable	A	B	D
7.1.1. Develop Test Plan that includes entrance/exit criteria, test environment	Test Plan, TEMP	•		
7.1.2. Peer Review Test Plan	Comments	•		
7.1.3. Develop Test Procedures, Cases, Scripts	Test Procedures, Cases, Scripts	•		
7.1.4. Peer Review Test Procedures, Cases, Scripts	Comments	•		
7.1.5. Establish Test Environment	Test Environment	•		
7.1.6. Conduct Test Readiness Reviews	TRR Minutes	•		
7.1.7. Test Execution - Dry Runs	Change Requests	•		
7.1.8. Test Execution - Record FQT	Change Requests	•		
7.1.9. Test Execution - Regression	Change Requests SW Test Report	•		
7.2. Review Software Formal Qualification Testing				
7.2.1. Review Test Planning Documentation - Test Plan, TEMP	Comments	•		
7.2.2. Participate in testing	Comments	•		
7.2.3. Participate in Test Integration Working Group	IWG Minutes	•		
7.2.4. Participate in Test Readiness Review	TRR Minutes	•		
7.2.5. Provide Operational Test Support	Bodies	•		
8. Independent Verification and Validation				
8.1. Develop Verification Procedures	Verification Procedures	•		
8.2. Develop Verification Criteria	Verification Criteria	•		
8.3. Conduct Verification	Verification Report	•		
8.4. Establish Support Environment	Support Environment	•		
8.5. Readiness Growth Model / Assessment	RGM Results	•		
9. Software Safety Analysis				
9.1. Develop PCR Tiger Reports ???	PCR Summaries			
9.2. Develop System/Software Safety Working Group Reports				
9.3. Identify Software related hazards	SW Safety Analysis			
9.4. Tag and Report Software Safety related Requirements				
9.5. Assess and Report Software Safety related Mitigation Actions				
9.6. Validate and Report Safety related Code				
10. Functional/Physical Configuration Audit				
10.1. Plan FCA/PCA	FCA/PCA Plan	•		
10.2. Review Contractor Baseline Audit Review Report	Comments	•		
10.3. Conduct Functional Configuration Audit	FCA Report	•		
10.4. Conduct Physical Configuration Audit	PCA report	•		

WBS Element	Deliverable	A	B	D
11. Materiel Release Package Preparation				
11.1. Develop Material Release Software Subgroup Briefing	Briefing	•		
11.2. Prepare Software Suitability Statement	Suitability Statement	•		
11.3. Prepare Software Supportability Statement	Supportability Statement			•
12. Integrated Logistics Support				
12.1. Transition Planning	Transition plan			•
12.2. End User Training				
12.2.1. Design Course	Outline			•
12.2.2. Develop Course	Course material			•
12.2.3. Procure Training System Equipment	Equipment			•
12.2.4. Deliver Training	Training records			•
12.2.5. Maintain Training Materials	Materials			•
12.3. User Documentation				
12.3.1. Prepare / Update Operator Manuals	Operation manuals			•
12.3.2. Prepare / Update Engineering Data	Engineering Data			•
12.3.3. Review User Document	Comments			•
13. Process Improvement and Assessments			•	
13.1. Formal and Informal Assessments	Assessment Reports		•	
13.2. Internal Quality Assurance Audits	QA Audit Checklist QA Audit Report		•	
13.3. Submission of Lessons Learned	Lessons Learned Document		•	
13.4. Training – Training Needs and Status	Training Plan		•	
14. Other Support			•	
14.1. Participate in IPT Meetings	IPT Minutes		•	
14.2. Participate in Program Reviews	Review Minutes		•	
14.3. Responding to PM Taskers (labor should allocate to the correct WBS element)	Reports		•	
14.4. Evaluate Support Environment	Report		•	
14.5. Travel / TDY Expenses (no labor: labor should be allocated to the correct WBS element)				