

Top 10 Tasks Required for Equipment Programme Cost Estimation

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Task 1: Initiate Estimate

Group equipment types into categories and prepare estimates for requests to include specialised “what if” scenarios. Execute cost drills and obtain design requirements by visiting Job Sites. As with all estimates, expectations must be established with the field-level operators as well as programme leadership. Also, some equipment categories may not require full estimate, focusing on only R&D, build requirements or O&S costs. Be aware that O&S costs can vary greatly. For example, radars are operating at some level all the time, while a single torpedo may only be fired during an occasional exercise.

Task 2: Define Programme Description

Definition of equipment programme acquisition strategy, technical definition, characteristics, design features, and technologies to be included in its design is key to preparing good estimates. You must work with design experts, logisticians, test/evaluation experts, to create programmatic and technical baselines required to produce the cost estimate. O&S records must be reviewed, along with “opened and inspected” processes to determine equipment condition & requirements for overhaul. Programme baseline information such as plan of action & milestones also procurement profiles must be presented. Supplier teaming arrangements for different equipment section integration prior to deployment can make programmes cost more depending on the scenario. For example, additional costs may be incurred for transportation, testing, inefficient sequencing and Job Site labour. You must always document any key pieces programme technical basis of estimate.

Task 3: Obtain Work Breakdown Structure

Budget Exhibit is usually standard rollup structure for end cost, the Basic Build Cost is primary category, with others to include Plans & Change Orders, as well as Escalation for base-dated estimates. Consult equipment template for more details, noting that Job Sites usually structure their cost by contract line item numbers to be mapped onto work breakdown structure. You must examine this cost allocation since mapping can be major source of cost differences between Jobsites. Like programme description, work breakdown structure is often not available when estimate is requested. Note that Structures may not address O&S cost elements.

Task 4: Establish Estimate Assumptions

Estimates are derived from Job Site reports, rates & workload forecasts. You must answer

questions from oversight groups, and recognise possibility that estimate may need to be constructed at future date, perhaps years in the future when a new estimating team is in place. You may discover some unique challenges in terms of technical aspects of equipment types creating different labour rates at Job Sites. Many systems utilise plug & play components have potential to be subject to spiral over course of design. Spacing between builds does not allow for rapid or consistent learning, making determinations more difficult. Many assumptions for equipment Systems are common to include basing of estimate, decisions as to what/where costs are accounted for as well as budgeting policies. Acquisition strategy may differ since equipment is often procured under separate contracts for each type at different times and Technology Refresh may be required to update systems prior to initial capability determinations to replace dated parts. You must consider cost of testing for integration of mobile job site costs. Continuous system upgrades require sizable recurring engineering effort for subsequent equipment type builds. You must factor in assumed procurement profile potential include different Job Site participation to result in lead & follow-up service costs for time frame/quantities of equipment builds.

Task 5: Select Cost Estimating Tools

You must derive labour/materiel estimates forward priced to phasing of work, then broken down into the base-dated and escalation components. Make or buy differences, accounting differences, and workload scenarios are taken into account. Job site labour rates must be considered for specific equipment types differences. Throughput costs are input for equipment items determined off-line from models, e.g., known costs for components, etc. You must obtain labour/overhead rates from Job sites to require inputs you are familiar with and time to incorporate rates before results are obtained to complete the estimate. In some cases, special relationships are required for estimating contribution from equipment types.

Task 6: Collect Information based on Type

Information from several equipment types may be used to determine estimates. In particular, when estimating the cost of specific components, several platforms may be similar and appropriate to draw cost conclusions from. You must collect information relating to the differences between current/baseline equipment from Job site source of such information. When establishing estimating ranges, you must utilise information specific to Job site or to normalise information from other Job sites to make comparisons accurate. If possibility exists for equipment builds at multiple job sites, you must be careful when applying Job site-specific information as basis of estimate.

Task 7: Run Model to Generate Point Estimate

Up-front engineering and design estimates are crosschecked against Job site estimates and parametric model based on complexity of equipment type. Model execution and estimate determination to address acquisition according to type standards and also address O&S. One unique aspect of estimating equipment Systems may come into play if equipment is subsystem to another platform. In this case, estimate may be part of a larger estimate, which may affect how a model is selected and the point estimate is generated. Specific models have been created to

address acquisition, O&S, and service life cost of equipment. Other specialised models are useful when conducting assessments of alternative plans and tradeoffs between different equipment types.

Task 8: Determine Risk Factors to Incorporate into Estimate

Risk determination for equipment builds is subject to sensitivity factors conducted for range of possible outcomes to include: schedule, design maturity/testing, historical costs, technology insertion off-ramps, Job site scenario, etc. Other risk areas include labour and overhead rate fluctuations caused by Job site workload projections to produce large effects on costs. You must enhance preparedness to answer questions from oversight groups, provide for description of useful estimation techniques, including lessons learned. In many cases, specific risk assessments are required prior to equipment contract award. Some options to include in risk minimise include creation of technology off-ramps & Engineering Models. You must research technical risks in programme and conduct efforts arising from reliance on off-the-shelf products. Unique risk areas for equipment arise because acquisitions change, typically new capabilities are fielded in different equipment types.

Task 9: Conduct Preliminary Estimate Review

Reviews help to ensure successful completion of the estimates. Estimate presentations may vary in structure and depth depending on the target audience. Depending on the purpose of the estimate and its audience, utilised techniques may be reviewed for routine drills. Documentation must be thorough, accurate & complete. Proper documentation enables ensuring requirements are met, providing cost estimate history trail for future reference as well as presenting convincing picture to skeptical parties. Preparedness must be enhanced to answer tough questions & provide useful information to be applied in execution of other programmes.

Task 10: Produce Final Estimate

Production of final estimate is done in the same manner as other equipment systems estimates, with exception being your Boss must review the product before it is delivered and meeting with additional decision makers is often times required. Final format of equipment system estimate will vary depending on who furnishes system, whether it is for inclusion in equipment cost estimate or not, and whether it is for forward fit or back fit. As equipment platforms become candidates for use by other services, there will probably be changes to programme structure/presentation response so additional requirements are met.