



Finding the Strategic Power in Projects

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Microsoft[®]

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If I were to ask, “What do all of the following things have in common?”, what would you say?

- An Egyptian pyramid
- Deployment of a new employee benefits program
- A touring production of a Broadway play
- Development of new features for business enterprise software
- A marketing campaign
- Pharmaceutical research for a cold prevention drug
- An audit or assurance report
- A large church wedding
- A custom jet

The answer is, they all involve managing projects. All of the distinctive items mentioned result from organized, temporary undertakings, where a set of limited resources is turned into something that did not previously exist. They all are the unique end products resulting from project completion. Projects are not day-to-day routine manufacturing or labor processes, but unique opportunities for profit and improving internal operations. Projects challenge professionals to work out the details to successfully get to the established finish line.

In today’s marketplace, unique opportunities to provide customized solutions are commonplace. Rarely are products and services cut out of the same mold. One-size-fits-all products and services do not often “wow” or even address the minimal requirements of today’s fast-paced business prospects. Technology and innovation spawn product and service variety, which permits a unique solution to meet customer expectations. Competitive advantage is often achieved by tapping out the beat the customer desires, versus the rhythm competitors are drumming. In today’s customer-oriented world, many more sales activities are becoming individualized projects.

“Sale equals project” exists in contracting, manufacturing and professional service sectors. In today’s marketplace, these businesses need to look deeper than revenue, cost and expense accounts; they need to know what activities comprise net profits. They need tools to allow looking deeper, tools to precisely hone in on specific or aggregate projects.

Proven processes, capable labor and proficient decision-makers within a proactive environment are the components of skillful project management. Projects require management from the planning phase to the closing phase. So, what's being managed?

- Scope
- Time
- Cost
- Quality
- Human Resources
- Communication
- Risk
- Procurement (if materials are required for the project)
- Revenue Billing and Recognition (for customer projects)

Project software tools help streamline the process by providing management an efficient way to estimate costs, establish timelines, schedule resources, monitor project progress and analyze actual results for each endeavor. "The difference between winning a customer's project and winning a customer's business is your project management process. The difference between winning profitable projects and avoiding unprofitable ones is project accounting software," says Kent Bettisworth, president of BETTISWORTH AND ASSOCIATES, INC., a project accounting and management-consulting firm. Project accounting systems are the most comprehensive of those project-oriented systems when it comes to the formidable task of managing project dollars.

Purpose of this Document

This paper is written for project-driven organizations who are seeking to create maximum value from their project-based operations. Organizations will see they can find the strategic power in projects when they embrace an enterprise-wide view of projects with relevant aggregated information providing timely information, proactive management tools, exception reporting, realistic budgeting and results evaluation.

Project Management Practices and Tools –For Whom?

Project management practices and tools have widespread application across industries and across organizational endeavors. Project management systems can be used to promote the success of external for-profit or not-for-profit projects, to efficiently accomplish and track projects within an organization and as a global strategic management style.

External Applications

Construction, contracting and engineering firms, where projects and associated costs are managed down to unitary levels, were early adopters of project management philosophies and project software tools by necessity. Other industries should not be daunted by this precedence, which has led to codified concepts and highly developed tools. Any industry can benefit from the project management philosophies and software tools forged by the construction, contracting and engineering disciplines.

Professional service firms, by their nature—sellers of knowledge to address the needs of particular circumstances—generate revenues through projects. However, many have not always employed formal project management techniques and professional service automation tools. As the service economy continues to grow, so do the technological complexity, level of specialization and potential combination of available services. The challenge is, first, to select projects that maximize returns on limited resources and available skill sets and, second, to select projects that pave the way for future opportunities. The industries facing this challenge include:

- Public Accounting
- Systems Integration
- Event Planning
- Marketing and Advertising
- Research and Development
- Public Relations
- Consulting
- Software Development
- Temporary Staffing Firms
- Production Houses
- Training Organizations
- Architecture and Engineering
- Specialty and General Contractors

Though professional service organizations have not always employed project management techniques and skills, times are quickly changing and project management professionals can be found in most industries. The Project Management Institute is the largest association of project management professionals. According to Brantlee J. Jacobs, Specific Interest Group (SIG)/college administrator with the Project Management Institute (PMI), their professional service organization membership has experienced very significant growth. As a matter of fact, one of the professional service SIGs, Information Systems, now has the largest membership of their 22 special interest groups, even exceeding the

membership of more traditional, non-professional service organization SIGs such as manufacturing, construction, and aerospace and defense.

Internal Applications

Asset construction, research and development, plant maintenance and new system implementation require systems that address the need to contain costs, measure return on investment, and evaluate labor deployment and productivity for internal endeavors. When performing within budgetary standards, it is necessary to stabilize cash flows and project financials. Status reports are essential. When salary and bonuses are linked to project results, project financials and status reports are indispensable.

The Gartner Group reports that project accounting software may be of particular interest to firms that internally develop software applications and to companies that engage in major software acquisitions because of Statement of Position 98-1 (SOP 98-1) issued by the AICPA in 1998. SOP 98-1 establishes tracking, accrual and capitalization standards of accounting for the costs of developing and maintaining software in-house as well as purchasing software from third-party suppliers. (Light, 1998)

Essentially, SOP 98-1 requires capitalization of materials and services associated with the development or purchase of software (including installation and enhancement costs) and expensing other costs such as training and software maintenance. Anyone who has experienced a new system implementation or conversion can appreciate the multitude of resources, activities and timelines involved with launching major software initiatives, and would probably agree that software beyond a basic financial system would facilitate the new cost allocation requirements. (Puciarelli, 1998)

Executive Management Teams

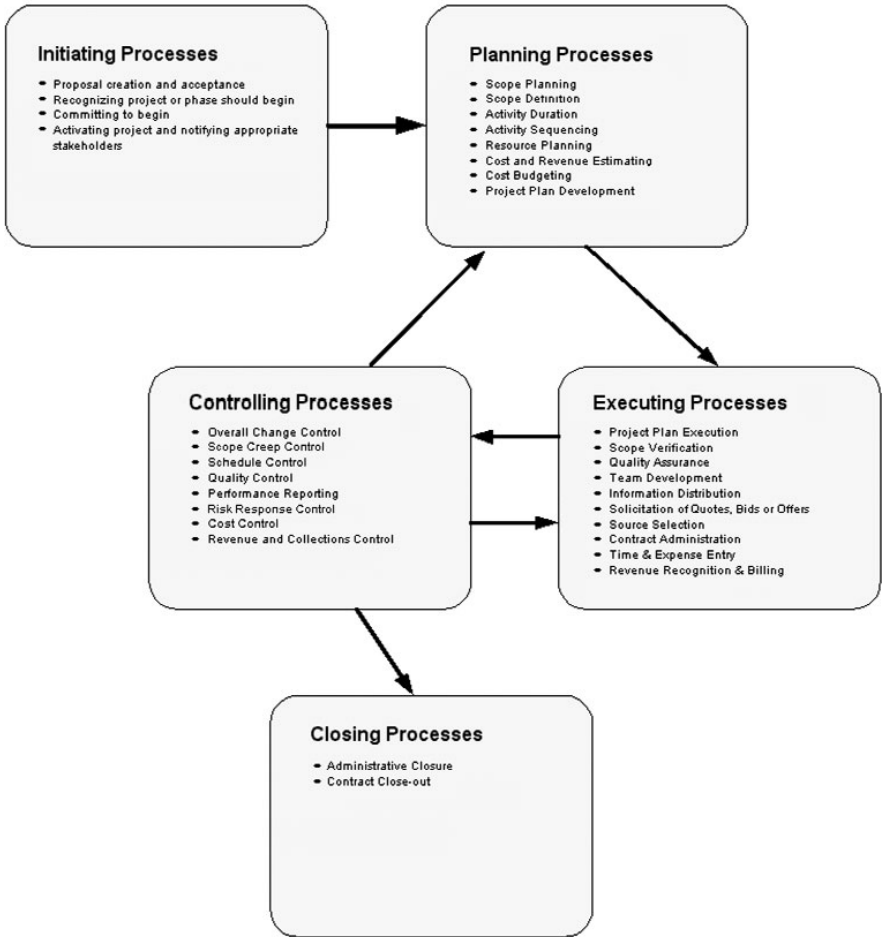
From a top-management perspective, a well-organized project management process focuses on results. While in the past, many organizations were revenue-oriented and profitability was only measured at the corporate level, the past 10 years have brought a dramatic shift toward project and resource-based accounting—determining and analyzing the cost and profitability of each individual activity and resource. In a global economy, the ability to accurately and efficiently match revenues with project-based costs may mean the difference between business success and failure.

Project Software–Flavors and Swirls

The pressure is on for better, faster and cost-efficient projects and, hence, the need for project administration tools that can help control quality, time and cost. In a globally competitive market, information and information technology are increasingly important in providing a foundation for competitive advantage.

Figure 1
Links Among Process Groups

(Arrows represent flow of documents and documentable items.)



Adapted from "Chapter 3: Project Management Processes" of *Guide to the Project Management Book of Knowledge*, 1996, by Project Management Institute.

There are various software applications on the market to facilitate success with each of the project processes—initiating, planning, controlling, executing and closing. The processes are linked by the results they produce (see Figure 1). Results are efficiently communicated using project software reports and alerts.

For example, in the planning process, project managers utilize project software to establish the project structure, create timelines, assign resources, budget costs and perform what-if analyses. In the controlling process, project software accumulates actual costs and revenues, monitors actual-to-budget progress, generates charts and reports, provides prospective estimates of completion and adjusts plans based on up-to-date information.

Without project-oriented systems, project management is supported by disjointed schedules, spreadsheets, documents, calendars, etc., that are difficult and time-consuming to control at the individual project level, and even more complex and time-absorbing for multi-project analyses. With project-oriented systems, more comprehensive and structured information is available faster, requiring less of an administrative burden. Timely, relevant information enables project managers to leverage resources, devote more time to products and services, and ultimately meet customer expectations.

Project software is not a homogeneous term. There are various types of applications available with distinctive purposes, though features and functionality between types of applications may have some overlap. Figure 2 on page 13 provides a detail of typical distinctions, by functionality, among the various types of project-orientated applications—namely:

- Project Scheduling
- Project Accounting
- Time and Billing
- Job Cost Software

Vendor applications may vary in the specific features and benefits they offer. A full solution may require implementing more than one type of application in some situations. Before making your decision, consider organizational needs and anticipated growth, rather than the application's classification.

Project Scheduling Software

Manage Project Staffing and Time

The software industry often uses the term “project management software” as well as the term “project scheduling software” to refer to those applications designed to plan and manage labor and activity timelines. This can create some confusion, since any project-oriented package could conceptually and purposely be described as a project management system. Focusing on software functionality is the best way to avoid any confusion.

Project scheduling software primarily answers “scheduling” questions of who (labor), when (timelines), what (resources) and where (locations). These questions are answered in the form of charts and tables, such as PERT charts or Gantt charts. Web-enabled systems communicate status information to stakeholders when face-to-face meetings are not possible or cost-effective.

Many project scheduling packages also have budgeting capabilities, though they typically do not accumulate actual costs to allow actual-to-budget comparisons. Users itemize project phases and detailed tasks according to agreed-upon requirements and expectations, which may help manage scope creep.

Time and Billing

Track Workflow, Apply Time and Expense Entries to Projects, and Perform Billing

Time and billing software is designed to keep an accurate record of employee time as well as to assess customers or internal cost centers for services and expenses incurred. Time and billing software is geared toward the costs, expenses and revenues of one particular project component—labor.

The time entry component of most time and billing systems is either completely Web-based or allows Web interface with a localized system. This means that users can promptly and conveniently record time into their organization’s centralized system, using time sheet defaults (like charge codes) for quick entry capabilities, from any location using any computer platform. Managers can then review, approve or reject a subordinate’s time entry through the system.

Default rate schedules are maintained in the billing component of the time and expense system to expedite the billing process and minimize billing errors. Some systems also allow you to maintain standard rate schedules that afford comparison of the profitability of different projects. All time and billing systems accommodate time and expense progress billing. Certain time and expense systems even support percentage of completion, schedule billing and consolidated billing.

Job Cost

Track Detailed Job Costs, Prepare Detailed Budgets
and Integrate Costs with the General Ledger

Job cost systems focus on measuring, recording and communicating both direct and indirect costs involved in each product or service rendered by a company. Related costs include employee time, subcontract labor, equipment charges, material charges and overhead (operating expenses). Cost management systems generally focus on cost control through budgeting and analyzing variances between budgeted and actual costs.

Many packages provide job cost functionality aimed at small-scale projects, where the complexities are minimal, and revenue analysis and flexible billing functionality are not required. When applied to project management, job cost systems are the expense side of a project control system, assigning costs that can be directly charged to projects (e.g., labor and reimbursable expenses). Overhead, like payroll and rent, may also be allocated to a project through an overhead or burden rate assignment.

Project Accounting

Monitor All Project Costs, Revenues, and Billings,
Prepare Detailed Budgets and Isolate Variances

Project accounting software is designed to estimate, track and control project costs, revenues and billings. Project accounting applications determine how much revenue, cost and profit is associated with a given project, and compare actuals to budgets (in terms of dollars and timing).

“A marketing-centric company will ultimately fail if it does not deliver profitable projects. The use of project accounting software is an opportunity for project-centric companies to succeed where others fail,” says Kent Bettisworth. Project accounting systems maintain project data in

a relevant way, allowing project stakeholders to take action. The software accumulates and organizes financial data that helps users plan for profit and rapidly respond to project issues, instead of the overall general ledger purpose—compliance with accounting standards.

As a rule, project accounting systems have more comprehensive and flexible financial and reporting features than any other type of project-oriented application. For example:

- Project accounting systems accommodate contracts requiring percentage-of-completion and scheduled billing as well as time and materials as incurred.
- Project accounting systems usually have more extensive budgeting capabilities than desktop-level project scheduling systems. Furthermore, actuals are automatically updated with activity in a project accounting system, for a more expedient budget monitoring process.
- Invoices may be prepared using various formats, and invoice detail may be modified or appended for billing rates, notes and no-charge items.
- Billing and cost rates may be assigned at the employee or job title level depending upon the project; table rates can be overridden as necessary to comply with exception rates associated with a particular project.

Project accounting software is typically integrated with the user's financial accounting system. This integration not only avoids double entry of actual costs incurred but also allows audit trails and drill-down capabilities from the accounts payable, accounts receivable and general ledger systems to associated individual projects. Some project accounting systems permit the user to establish the level of project accounting transaction detail that is reported in the general ledger. Since drill-down capabilities from the general ledger are often possible, summary transactions from the project accounting application streamline transaction entry. In essence, project accounting links the organization's activities to the general ledger—bridging the front and back office.

Activity-Based Costing Systems

Another term for project accounting? No, but...

Activity-Based Costing (ABC) systems is not another term for project accounting systems. Though ABC is not really an approach to project management, some integrated project accounting systems do provide a way to embody an ABC system, while maintaining the existing chart of account general ledger structure. Though this is not the intended primary purpose of project accounting systems, project-costing features that accumulate costs by business activities may address some ABC recording requirements. This potential employment of project accounting software may cause some confusion between the distinct concepts of project accounting and ABC and their respective software tools.

The converse software employment would not generally be possible. Given the differences between the two, it is doubtful that an ABC system could be used to fulfill project accounting needs. Some of these differences include:

- Direct allocation of overhead is a pinnacle of ABC. The goal of ABC is to find the true cost of goods and services offered to customers by assigning virtually all costs and expenses to products or services based upon each product's or services' use of expenditures. ABC avoids burden rates and overhead allocations based upon attributes of a single unit (like square footage). In project accounting, overhead may be directly charged to individual projects applying ABC principles, charged using allocation methods such as burden rates, or may be allocated as a separate period end process or may not be distributed to individual projects at all.
- ABC is ordinarily applied to ongoing and routine operations and processes (like manufacturing, medical services or financial institution services) rather than temporary projects. So, most ABC systems would not be able to provide estimates to complete or close down features incorporated in most project accounting systems.
- ABC targets cost management; project accounting targets cost, contract, revenue and billing management. Hence, project accounting systems provide additional functionality to address more diversified information and practices.

Consequently, someone in the market for a project accounting system should not be lured into activity-based costing systems due to some similar sounding terms. ABC systems rarely provide all the features needed to employ project accounting.

Figure 2: PROJECT SOFTWARE FEATURES AND BENEFITS

NOTE: Schedule indicates features most frequently associated with the respective type of software. Particular vendor solutions may only contain some of the features listed and may contain features not listed. Additionally, individual solutions may contain some features commonly associated with other types of packages.

Features/Benefits	Project Accounting Software	Project Scheduling (Mgmt.) Software	Time & Billing Software	Job Cost Software
Timeline/Scheduling/Process Management				
Create, maintain and evaluate project timeline		✓		
Track project deliverables		✓		
Show interrelationship between project activities and sequence of project activities		✓		
Project key date alert indicator system		✓		
Project documentation management		✓		
Gantt and PERT chart and other timeline project reporting		✓		
Document management		✓		
Issues management		✓		
Communications management		✓		
Resource Scheduling and Tracking				
Create, maintain and evaluate project resource scheduling		✓		
Track employee skill sets and team relationships	✓	✓	✓	
Resource leveling		✓		
Human resource availability, resource leveling and utilization tracking		✓		
Track employee utilization	✓	✓	✓	
Project resource alert indicator system		✓		
Budgeting and Estimating				
Create project budget in terms of fixed costs and variable resource costs	✓	✓		✓
Allow budgeting at the project cost category level rather than a general ledger level	✓			✓
Develop a detailed expense and materials budget	✓			✓
Include expected revenues in budget	✓			
Prepare a project billing estimate	✓			
Prepare financial estimates to complete	✓			✓
Time and Expense Tracking				
Integrate with payroll system	✓		✓	✓
Time and Expense entry, approval and reporting	✓		✓	✓
Track employee time not associated with a project (administrative, vacation, sick) and non-billable time associated with a project	✓		✓	✓
Facilitate remote time entry	✓		✓	✓
Online time and expense approval and approval reminder alerts	✓		✓	

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Figure 2: PROJECT SOFTWARE FEATURES AND BENEFITS (continued)

Features/Benefits	Project Accounting Software	Project Scheduling (Mgmt.) Software	Time & Billing Software	Job Cost Software
Project Billing and Revenue Recognition				
Bill based upon time and materials	✓		✓	
Flexible invoice formatting	✓			
Accommodate billing based upon estimates to complete, cost plus mark-up, scheduled billing cycle, project stages, project milestones or other non-time and billing method	✓			
Allow various revenue recognition methods that may differ from billing cycle	✓			
Actual revenue per hour reporting available for each project	✓			✓
Allow multiple billing rates (such as job title, specific employee rate or fixed contract rate) to be associated with employee depending upon project terms	✓		✓	✓
Potential integration with accounts receivable and related general ledger activity	✓		✓	
Allow cycle billing	✓		✓	
Revenue and profitability reporting by company, department, region or other organization division	✓			✓
Costing and Materials				
Typically requires manual input of summarized costs		✓		
Track and summarize actual costs from subsidiary ledgers	✓			✓
Actual cost per hour available for each project	✓			✓
Potential integration with accounts payable, inventory and purchasing activity	✓			✓
Allow multiple cost rates to be associated with employee depending upon project terms	✓		✓	✓
Ability to transfer cost between projects	✓			✓
Accumulate costs by project cost category	✓			
Integration with inventory module to assign inventory to particular project (may allow serial / lot specification)	✓			✓
Potential integration with accounts payable and general ledger activity	✓			
Integration with fixed asset module	✓			✓
Overhead calculations by rate, percentage of labor or fixed amount	✓			✓
Contract Management				
Track contracts and contract modifications related to projects	✓	✓		
Track subcontractor details such as workers' compensation, insurance expiration and 1099 data	✓			✓
Ability to specify service and support terms associated with a project	✓			

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Figure 2: PROJECT SOFTWARE FEATURES AND BENEFITS (continued)

Features/Benefits	Project Accounting Software	Project Scheduling (Mgmt.) Software	Time & Billing Software	Job Cost Software
Strategic Planning, Organization and Analysis				
Provide a hierarchical structure between projects, subprojects and activities	✓	✓	✓	✓
Produce single project and multi-project financial statements to facilitate analyzing project profitability indicators	✓			
Project key financial alert indicator system	✓			
Enforce data input validation rules and standardize project components such as consistent WBS, project categories and cost codes	✓	Professional Level		✓
Ability to accumulate and analyze projects by project type, within components of the project's WBS, and at the employee level	✓	Professional Level		
Drill-down capabilities from highest level of project to detail lowest level of project costs	✓			✓
Drill-down capabilities from highest level of project to detail lowest level billings and revenue recognition	✓			✓
Work-in-progress reporting	✓	✓	✓	✓
Ability to summarize and analyze project by project manager	✓	✓		✓
Ability to summarize and analyze project by customer manager	✓			
Group projects by categories	✓	Professional Level		
Ability to review summaries of all open projects	✓	Professional Level		
Templates that allow for quick creation of new projects	✓	✓	✓	✓
Facilitate analysis of realization of billings	✓		✓	
Ability to zoom from general ledger to project information	✓			✓
General ledger postings can be various levels to provide the level of posting summary or detail desired	✓		✓	✓

Project Accounting Systems in Action

As stated, project accounting systems are more than project costing systems. Project accounting systems seek to centralize all aspects of executing financial transactions associated with customer or internal project specifications for the purposes of control, communication, accuracy and efficiency.

The capabilities of project accounting packages go far beyond the classification of transactions by project and providing accurate and prompt project information. For instance, project accounting packages may:

- Handle multiple revenue recognition options on a per-project basis including percent completion and completed contract
- Create project estimates and proposals for customers
- Manage inter-company and inter-office projects, transactions and resources
- Establish and track project budgets. Budgeting features may include comparing “what-if scenarios,” creating a baseline (“steward”) budget and an evolving latest outlook budget
- Track, bill and report project-related activities in multiple currencies
- Allocate and monitor project resources
- Generate timely, detailed and accurate customer invoices to minimize the gap between work performed and work invoiced. Moving accrued to billed revenue is vital for a firm to maintain a healthy cash flow. Unbilled accruals and long-standing accounts receivable can be expensive propositions that lead to financial demise.
- Provide employee skill set data directly or through integration with a human resource or resource scheduling application
- Facilitate contract management, including renewals, recurring items and revision tracking
- Allow alternate invoice formats and content such as per-project invoices, per-customer invoices or per-contract invoices to meet the needs of individual customers
- Calculate alternate bill rates per project including fixed rate, mark-up rates, rates per geographic area and rates per employee, contract, or employee classification
- Establish alternate costing rates and methods

- Analyze projects individually and in desired combinations through reporting and querying options. Project reporting respects that project lives are distinct from financial reporting periods. So, financial period ends do not affect the ability to review cumulative progress or total estimates to complete.
- Distribute and capture both remote and local project information such as time and expense entry and automated alert systems using the Internet, wide area networks and local networks
- Accommodate alternate billing rates per project, geographic area, employee, etc.
- Analyze project current net revenues and revenues based upon estimates-to-complete at various stages in the project
- Provide project documentation management
- Provide contract management. Profits begin with contracts that provide for adequate margins, expedient billing and manageable fulfillment. Project accounting systems may allow the aggregation of multiple projects dictated by one contract for inquiry, reporting or billing purposes. Additionally, contracts may have renewable support and maintenance agreements that some project accounting systems may track.
- Project key indicator alert system to promptly apprise decision-makers through e-mail or other means of alert when project characteristics fall outside of prescribed parameters
- Allow multiple cost and bill rate schedules or exception rates that can be assigned on a per-project basis
- Automatically assess overhead burdens or other means of overhead allocation to selected projects
- Automatically assess mark-ups to selected projects

Setup

Inputting and maintaining setup and default information such as standard costs, billing rates and revenue recognition methods is part of most project accounting packages. The initial setup may seem to be time-consuming; however, processing efficiencies, flexibility and accuracy compensate for this investment.

The ability to use templates to create a new project in the system is one of the powerful processing efficiencies provided by many project accounting systems. For example, a template may be created for a specific type of project (project category) or for a contract containing many projects. Templates may be used to assign a new project's work breakdown structures, billing rates, associated general ledger accounts, cost rates and project budgets.

Throughout the setup and processing of menu choices, software creators recognize that, though there are some common template elements, each project is unique and they strive to provide a high degree of flexibility to account for the nuances of each individual project.

Work Flow or Tell Me How

Once the project is created, develop a budget to assign revenue cost estimates from proposals or quotes to project activities. Identifying resources necessary to complete the work, and determining the quantities and rates of work units required (i.e., hours/day) are at the heart of the project budgeting process.

Next, activate projects in the system according to dates specified by contract terms or other green light signals. Designate resources permitted to charge time and expenses to the project. Charge costs from time and expense entry and other system components to appropriate projects. Independent contractors may be engaged to provide services. Depending on operation policies, external contractors may use the company's time and expense entry system, have an interface from their own system or may direct costs to project accounting via vouchers entered in accounts payable.

Project accounting allows flexible billing format and timing, on a per-project basis, to comply with differing billing arrangements. Thus, billing possibilities are not restricted by system inflexibility or costly workarounds. Created invoices can be reviewed and modified prior to release. Changes to invoice

amounts such as write-offs are reflected in the project and general journal entries as necessary.

Likewise, revenue is recognized as desired for the project, rather than as dictated by a system. For example, the system can accommodate a project requiring revenue recognition as a percentage of completion, without the need for manual journal entries to adjust between revenue billed and revenue earned. Additionally, some project accounting systems reflect down payments and deposits and prorate these receipts to revenue as work progresses.

Empowerment to control project finances comes from analyzing estimates-to-complete, variances, project profitability and supporting reports, and most importantly, from taking requisite action. Project accounting provides the necessary information for empowerment. Most traditional corporate systems do not support communicating project information in a manner relevant to management.

In traditional systems, costs are typically analyzed based upon general ledger classifications, with drill-downs taking us to the department, product line or general activity level and then to accounts receivable or accounts payable. In no part of this process can management see the collected detailed results (both revenues and costs) of specific activities. The collective impact of excessive project costs could be lost in individual general ledger pieces. Moreover, in no part of this process do managers get an indication of what remains, as managers do with project accounting.

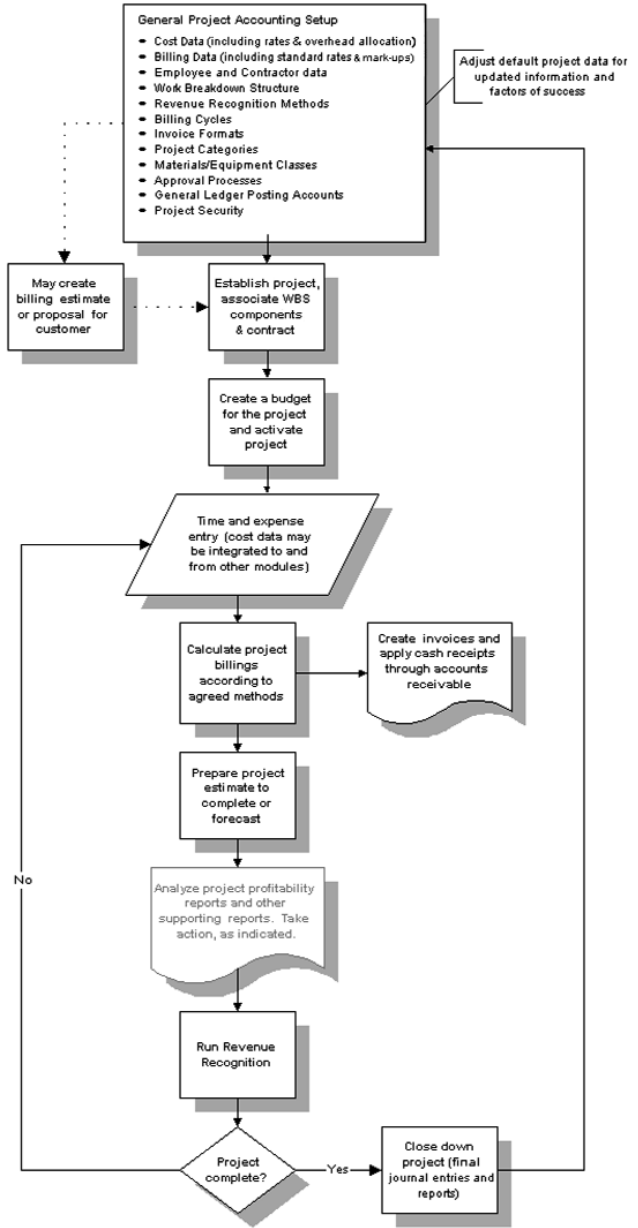
In contrast, project reports assemble detailed progress (profitability and variance reports) and projected results of activities (estimates-to-complete and forecasts). Drill-down from the general ledger is still possible, with the full project picture always available for view. Managers should examine reports for revenue-generating projects both from an external perspective (i.e., project classification, product, customer or location) and from an internal perspective (i.e., project, profit center or project manager).

Completing a project is more than final journal entries and deactivating charge codes in a project accounting system. Historic project data can be retrieved to facilitate success with future projects, update standard costs and billing rates and assess resource utilization.

A sample project accounting system flow from setup to close down is presented in Figure 3.

Figure 3

Project Accounting Workflow Example



Adapted from "Managing by Projects", Strategic Finance, November 1999 by Cynthia LeRouge

Power and Productivity – Integrated Systems

Client server technology has made integrated systems more of an actual proposition. Integrated systems eliminate data entry redundancy, enhance data integrity and improve data sharing. In attempting to be a full-solutions provider for project-focused enterprises, many project accounting suites include integration links to financial and distribution modules as part of their standard functionality.

According to Smith, “Tracking revenue by project helps us understand what service lines are profitable so that we understand where we’re successful and where we’re not.”

As a high-tech service organization, Onex needed to track over 200 professionals’ time and expenses invested in client systems, organizations and professional staffing. Realizing that customer satisfaction is tied to timely and accurate invoicing, Onex also needed a solution that would allow them to easily create the personalized invoices their clients needed. Additionally, as Onex grew, so did their general ledger; multiple projects needed to be tracked for business profitability, and the general ledger was reacting to the heightened demand for intricate cost and revenue tracking. Onex implemented an integrated system to meet the demands it was facing, tying the operational and financial parts of its business together. Project tracking and reporting became easier, outlining areas of profitability and business opportunity. No longer was it a major activity to get invoices out to customers. In fact, Smith stated that, “The Project Series billing has allowed us to provide better customer service to our customers, because it offers some flexibility in billing formats. It also offers the ability to provide more data on our invoices, so that we’re proactive in providing information without them [customers] having to call us.”

Project reports disclose detailed progress and projected results of activities. Following are some highlights of integration links that are readily available or can be customized:

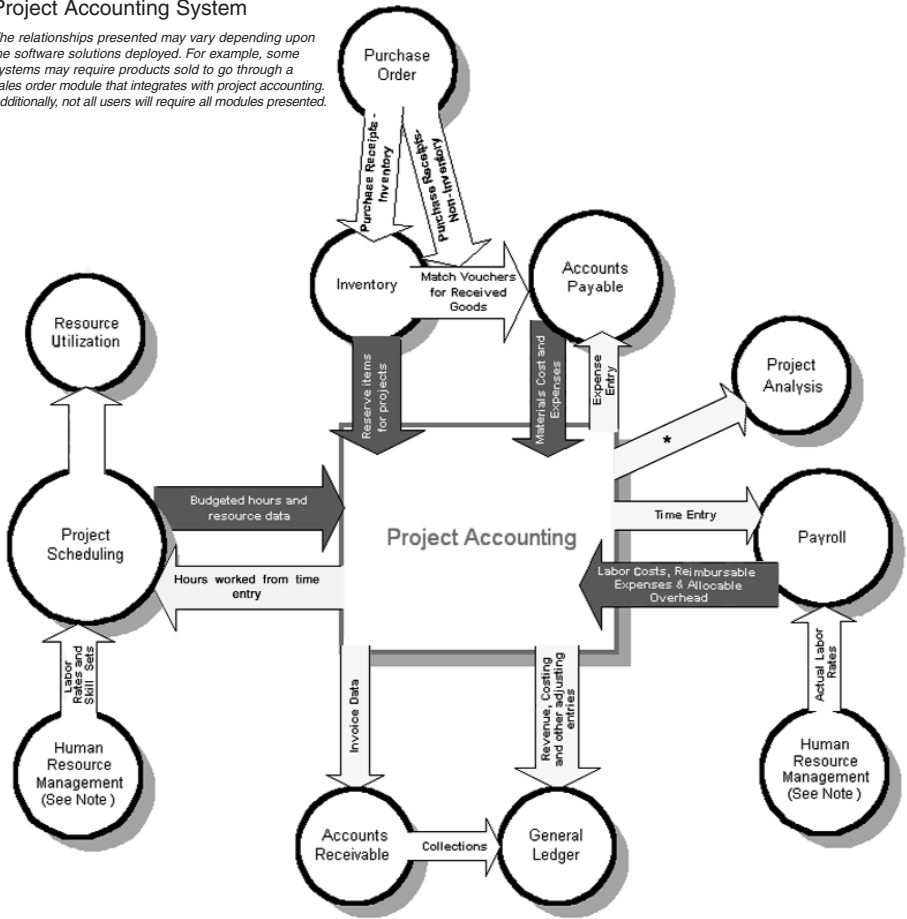
- **General Ledger**—General ledger account numbers associated with project activities are tracked within the project accounting system. Account numbers associated with cost, accrued cost, revenue and accrued revenue entries originating in the project accounting module may be assigned.
- **Payroll**—Systems allowing remote time entry and automated approvals diminish reporting lag time. Payroll systems readily receive this data alleviating the need to estimate missing reports or spend time keying in time card data.

- **Inventory**—Inventory can be transferred to and from projects to assure items are available when needed and accounted for.
- **Accounts Payable**—Purchases can be directly charged to projects when vouchers are entered. Expense reporting is part of the time entry system, reducing the need for separate reporting, routing and approvals.
- **Accounts Receivable**—Invoices generated in project accounting move into accounts receivable for collections management.
- **Project Scheduling (Management)**—Integration with project scheduling systems is optional and most often used when complex resource scheduling needs to be tied to budgeting. The particular data transferred is often dependent on the systems involved and potential customization. Most typically, budgets created in project scheduling packages are transferred to project accounting systems for comparisons to actuals. Another possibility is that reported hours worked in project accounting systems may be received by project scheduling systems to update schedules and progress, and to review resource assignments. Though project scheduling software may be used to create a budget, it is not common for actual costs to be transferred from project accounting systems, since scheduling software's main concerns are dates, work assignments, hours, and capacity supply and demand.
- **Fixed Assets**—Internal asset development project information can move to fixed asset modules.
- **Customer Relationship Management (CRM)**—With front office integration, the sales force is always aware of project performance for the customers it services.
- **Human Resource Management**—Labor skill sets, rates, team assignment, department information and utilization are always readily available for project accounting systems that include labor scheduling capabilities. Time and expense entry can directly update human resource management utilization information.

Figure 4 illustrates a representative integrated project accounting system.

Figure 4: Fully Integrated Project Accounting System

The relationships presented may vary depending upon the software solutions deployed. For example, some systems may require products sold to go through a sales order module that integrates with project accounting. Additionally, not all users will require all modules presented.



NOTE 2: Some project accounting systems include labor scheduling capabilities; in such systems, the human resource management module may integrate directly with the project accounting module.

*Revenue, Expenses, Estimate at Completion, Budget, Billed and Unbilled Receivables

Making a Selection

Words of wisdom when selecting a project software solution: Analyze software according to your needs rather than how the software is classified. The lines of distinction between classifications of project-oriented systems are not always rigid boundaries. For example, some project accounting and related systems may have some limited features of a project scheduling application such as human resource management. A business may find that a comprehensive project accounting application meets its limited resource scheduling requirements.

Conversely, some project scheduling systems provide cost as well as time budgeting functionality that may even be imported into project accounting systems. However, the detailed accumulation of actual costs and revenues is typically done within project accounting and related systems. Though every business has projects, not every business needs the power and flexibility integrated high-end project accounting/project scheduling solutions provide. Such systems are most useful to project-centric businesses with project-savvy users.

Determining Needs

It's critical to develop a needs assessment and shop according to your requirements.

Needs Assessment Questions

- Does your organization want to develop detailed project budgets?
- How do you want to access project data (e.g., report formats, inquiry formats, drill-downs)?
- How should the project data be organized to maximize usefulness?
- What level of system detail do you need to manage time?
- What level of system detail do you need to manage labor?
- Do you need project estimating features?
- Do you want to track revenues and costs at a project and task level?
- Do you need the ability to develop “what-if” scenarios?
- Do you want to bill from your project system?
- Do contract terms drive individual billing rates, invoice formats, etc.?
- What individual project data is needed and who needs to access this data?
- What consolidated project data is needed and who needs to access this data?
- How will employees report time?

- Do you want to track estimates to complete?
- Are the billing methods for your projects homogeneous?
- Are the costing methods for your contracts complex?
- How important are accurate standard costs to developing proposals and projections?
- Do you want to record revenue based upon project activity?
- Do you want to record costs based upon project activity?
- Do you want accounts payable to flow back to project accounting tracking?
- Do you want expenses entered in project accounting to flow to accounts payable?

List and categorize the foreseen needs and users of the project software. Consider integration with accounting applications and operating system compatibility in assessing needs. Review project software that addresses the items in the category with the most critical and complex needs first, then consider other features.

Implementation Tips

Implementation of software is in itself a project that faces project management challenges and hurdles. The basic phases of project software implementation include: business process analysis, setup, testing, training, report customization and going live. In establishing project expectations, start at the end by determining what your organization wants to accomplish with project data, then determine the vital report content and format you would like the system to provide, in order for you to take action.

Kent Bettisworth has been using and installing project accounting systems for 20 years and advises: “Assess and revitalize your project management process including the interdependencies with accounting, ensure your users have a committed involvement through all phases, never underestimate training and support in the early days of go-live, take managed risk and capture the benefits quickly. Even if you have employed project management in the past, what was accepted project management policy yesterday most likely has been overcome by events today. Your users absolutely must be sold on the new installation or they will ignore and work around it. The most difficult change and most important to success is your user’s first live encounters. It is not cost-effective to stress test every nook and cranny of the software; instead, relentlessly focus on the portions which would cause substantial financial pain in event of failure. Time is money and the ROI of your project is best when accomplished sooner rather than later.”

Kenneth Clements, industry marketing manager for professional services organizations, offers this additional advice to new users or companies adopting Management by Projects throughout their organizations:

“Companies that have not automated project management need to spend time before implementation conducting business process analysis to ensure successful use of the software. Many companies have never thought of themselves as working in a project environment and, therefore, have also never focused on the profitability of their projects. These companies need to work out the electronic process on paper before installing and using project management software. After project management software has been implemented, then the company can begin to understand and evaluate project profitability.”

Management by Projects

As mentioned by Kenneth Clements, many organizations that did not previously view themselves as project-centric now realize that they would benefit by treating many aspects of ongoing operations as projects to meet customer and internal demands. They are adopting Management by Projects as a corporate-wide philosophy to strategize and specify tactics to align project activities and resources with corporate goals. Management by Projects provides strong indicators of promising areas for organizational focus and emphasis; project accounting systems provide the needed, mission-critical managerial information.

Management by Projects is a global perspective. In the multi-project environment, Management by Projects accumulates and summarizes individual project information. With relevant aggregated information, management can review, analyze and forecast projects from various angles to determine the factors which most contribute to project success, discover areas requiring improvement and evaluate business risk.

Project Management	Management by Projects
The direction and management of one project.	The integration, prioritization, communication and continuous control of multiple projects.
A discipline.	An operating environment.
Project-wide.	Enterprise-wide.
A tactical issue.	A strategic issue.

(Artemis Views Inc., 1999)

This is most easily accomplished with project software tools that allow information systems and financial managers to roll up individual project information by parameters such as the project manager assigned, the time frame or the customer. Frequently, drill-down capabilities are also available from inquiries or online reports, which assist with project analysis. Such systems can easily track resource utilization and returns on specified activities as the organization moves from a functional to “projectized” structure.

Project-oriented systems may provide automated key alerts received in the form of e-mails to information systems and financial management or to other appropriate managers for critical projects. Proactive managers in project-centric organizations acknowledge key project indicators to ensure that real-time strategy adjustments occur when indicators suggest a shift is necessary.

Project Management Institute’s *Project Management Book of Knowledge* states, “The ability of stakeholders to influence the final characteristics of the project product and the final cost of the project is the highest at the start of the project and gets progressively lower as the project continues.” Project accounting can play a key role in pricing new proposals by providing

negotiators with cost, revenue and resource details from similar past projects. Similarly, project accounting systems provide financial managers with a means to dynamically update standard costs with the most current actual data.

Project accounting systems can aid top management in determining the operating efficiency of the organization. Analysis across projects can help determine which projects were best managed or which project managers proved most capable. Conversely, project accounting and project scheduling systems can help companies learn from unsuccessful experiences by providing indicators of why expectations were not met, after the system identifies projects that fell short of requirements and expectations. Best practices and project templates can be developed and deployed throughout the organization based upon information derived from success stories and learning experiences.

Project accounting systems can also be used to impact marketing strategies. Aggregating and comparing net revenues for various classifications of projects can provide insight into what types of projects have been most successful to decide what market segments the organization should target in competing for work.

Project accounting systems provide current and historic data that allows financial managers to budget and forecast corporate-wide operations using a bottom-up approach based upon the nature of anticipated activities, rather than top-down strategy based upon the “guesstimated” changes in general ledger accounts. Project budgets and forecasts are formulated to plan for success rather than as a way to police departmental spending activities and reprimand violators.

This strategy uses individual project budgets as building blocks. Costs, revenues, overhead and other expenses for continuing work on existing projects and anticipated work for anticipated projects are aggregated with projections for ongoing operations and remaining overhead. Since these budgets and forecasts are based upon expected activity, they customarily provide a more relevant and insightful basis of comparison than budgeting at the general ledger account level, because the collective activities and causes of variance may more readily be identified.

Project-based budgeting can facilitate, in particular, labor resource planning. The amount, timing and level of labor effort required to meet the human resource needs for remaining work on active projects, estimated outstanding proposals secured and estimated unidentified future work is aggregated. Projected backlogs indicate a need for hiring or outsourcing.

Projected under-utilization of labor indicates a need to enhance marketing efforts or reduce outsourcing. Lead times required for hiring and the marketing process should be considered to avoid resource shortages or layoffs, respectively.

In summary, Management by Projects employs project-oriented systems to provide timely information, empowering those responsible to impact success using proactive management, exception reporting, result evaluation and realistic budgeting.

Tools, Not Solutions

Management by Projects philosophies and project software are powerful tools, but not stand-alone solutions. People create the returns possible on technology investments. The project leader still needs to understand the project and its components and exercise good communication and people skills. Project leaders must make the decisions and ensure that the project is on track via the use of such tools. Executive management must still analyze aggregated information from all projects to make strategic decisions that fulfill company objectives and establish future vision. Users, at all levels, still need to dedicate the necessary time and skill to making the tools effective. Project software is no exception to the “garbage-in-garbage-out” rule.

Maximum and quick return on investment is achieved through developing skill with the technology and project management methods. What returns can project software deliver? Project software can:

- Provide indicators of symptoms of problems or opportunities, enabling well-timed, effective action to occur
- Uncover previously unrecognized issues
- Replace previously misleading data
- Create timesaving opportunities that convert to revenue dollars

When stakeholders heed the indicators, maximize opportunities and develop solutions, they create the value the system was intended to accomplish.

Hal Weinberger Consulting (HWC), a software reseller and implementation firm, quickly developed its skill to robustly maximize organizational benefit. HWC experienced incredible timesavings since it began using project accounting technology. According to Carol Hammer, HWC realized a return on its investment within three months of implementing the solution. In addition, HWC experienced additional benefits that included:

- Streamlined information entry—A one-time entry of time and expenses allows for quicker and more accurate dissemination of information to the general ledger, billing and purchasing components.
- Quicker access to customized information—Getting information out of the system is as simple as selecting a customized report that provides information needed to efficiently run the business. For a quick summary of projects in progress, project managers can select the project inquiry screen and view actual line item expenses against the project.
- Time and expense reporting made easy and accurate—Consultants now have a more efficient, easier method for submitting their time and expenses against projects. Rather than submitting a slip of paper that must be re-keyed, they conveniently complete time and expense reports from any location, making the process simple, accurate and professional.

- Reduced approval time—The multi-level approval system provides a quick, accurate method of approving employee time and expenses. According to Hammer, “We’ve cut our approval time in half! What used to take us a week per month, now takes us two days, allowing . . . more time for strategic actions.”
- Quicker Payment Turnaround—By providing a professional, customized invoice, customers better understand billable and no-charge services provided, speeding payment.

HWC exemplifies that, when used adeptly, project software can support the attainment of individual project goals: on time, within budget and within quality standards—and corporate-wide goals: proficient use of resources, effective project selection and profit maximization. With efficient systems and proactive, complete information, stakeholders can devote more time to the people and communication skills that address the ultimate project challenge—“projects that end with high morale, great relationships with customers and vendors that can’t wait to work with you on the next project.” (Verzuh, 1999)

The Mission

Identifying which activities and resources add value is MISSION CRITICAL. MISSION POSSIBLE means deploying systems and practices that empower those responsible to impact projects by proactively managing progress. MISSION SUCCESS rests on solid planning, catching problems early to mitigate costs and isolating the causes of concern. Project accounting systems collect, aggregate and expedite financial project data to support MISSION ACCOMPLISHED!

Appendix A—Key Terms

Activity Definition—Identifying the specific activities that must be performed to produce the various project deliverables. (Committee, 1996)

Activity Duration Estimating—Estimating the number of work periods which will be needed to complete individual activities. (Committee, 1996)

Activity Sequencing—Identifying and documenting interactivity dependencies. (Committee, 1996)

Closing Processes—Formalizing acceptance of the project or phase and bringing it to an orderly end. (Committee, 1996)

Completed-Contract Method—Billings and costs are accumulated on the balance sheet. Revenue, cost and profit are recognized (transferred to the income statement) when the job has been completed. Used by companies with long-term contracts in place.

Contract Administration—Managing the project to comply with related contract terms. (Committee, 1996)

Controlling Processes—Ensuring that project objectives are met by monitoring and measuring progress and taking corrective action when necessary. (Committee, 1996)

Cost Budgeting—Allocating the overall cost estimate to individual work items. (Committee, 1996)

Cost Estimating—Developing an approximation (estimate) of the costs of the resources needed to complete project activities. (Committee, 1996)

Cost Control—Controlling changes to the project budget. (Committee, 1996)

Cost Plus—A contract type where a company agrees to perform work in which it is reimbursed for costs plus a fee for its services. These types of contracts may be referred to at times as cost-plus-a-percentage-of-cost, cost-plus-fixed-fee, and force amount.

Cost Plus Fee—Contracts that combine elements of cost plus with time and materials type projects. These types of contracts generally contain a target estimate or a guaranteed maximum with time and materials elements. The target estimates will normally move up or down depending on change orders, shifts in prices and wage rates, and other factors beyond the firm's control. The time and materials elements will generally have an added fixed percentage to billing for overhead and profit.

Deliverable—Tangible, verifiable work product such as a detail design, section of software code or working prototype.

Executing Processes—Coordinating people and other resources to carry out the project plan. (Committee, 1996)

Information Distribution—Making needed information available to project stakeholders in a timely manner. (Committee, 1996)

Initiating Processes—Recognizing that a project or phase should begin and committing to do so. (Committee, 1996)

Lump Sum or Fixed Fee—A contract type where a company agrees to perform work for an agreed-upon fixed price. (Great Plains Software, 1999)

Management by Projects—Organization-wide management philosophy employed by organizations that derive their revenue primarily from performing projects for others or that treats many aspects of ongoing operations as projects. (Committee, 1996) To accomplish this strategy, management integrates, prioritizes, communicates data and provides continuous control of multiple projects.

Percentage-of-Completion Method—Progress of the job is measured in terms of percentage of completion. This derived percentage is applied to the total estimated gross profit, which is then added to the cost to date to determine earned revenue. Costs are the costs incurred (whether paid for or not) during the period accounted for.

Phase Exit—Review performed at the end of each project phase to determine if the project should continue and to detect and correct errors cost-effectively. (Committee, 1996)

Planning Processes—Devising and maintaining a workable scheme to accomplish the business need that the project was undertaken to address. (Committee, 1996)

Progress Billing—Billing a client based upon the progress of work being done whether completed or not. Progress billings are “billed” revenue, not “earned” revenue. Recognizing income based on progress billings ignores the reality that under many contracts, these amounts are merely an advance against the amount, which will be earned when and if the contract is completed. (Great Plains Software, 1999 #4)

Project—A temporary endeavor undertaken to create a unique product or service. (Committee, 1996)

Project Expectations—Unidentified requirements. (Committee, 1996)

Project Management—The application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project. (Committee, 1996)

Project Needs—Identified requirements. (Committee, 1996)

Project Phase—Part of a generally sequential logic designed to ensure proper definition of the product of the project. A key deliverable generally marks the conclusion of a project phase.

Quality Assurance—Evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards. (Committee, 1996)

Resource Planning—Determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities. (Committee, 1996)

Risk Response Control—Responding to changes in risk over the course of the project. (Committee, 1996)

Schedule Development—Analyzing activity sequences, activity durations and resource requirements to create the project schedule. (Committee, 1996)

Scope—The project work to be done; the sum of the products and services to be provided as a project. (Committee, 1996)

Scope Creep—A change to the project scope, particularly when adjustments to project costs, billings or schedules reflect the change.

Scope Definition—Subdividing the major project deliverables into smaller, more manageable components.

Scope Planning—Developing a written scope statement as the basis for future project decisions.

Scope Verification—Formalizing acceptance of the project scope. (Committee, 1996)

Solicitation—Obtaining quotations, bids, offers or proposals for resources, as appropriate. (Committee, 1996)

Source Selection—Choosing from among potential sellers. (Committee, 1996)

Stakeholders—Individuals and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion. Stakeholders may include project managers, customers, project sponsors. (Committee, 1996) Stakeholders may be classified as those that have authority to make decisions and those who must be consulted.

Team Development—Developing individual and group skills to enhance project performance. (Committee, 1996)

Work Breakdown Structure—A deliverable-oriented grouping of project elements which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of a project component. Project components may be products or services. (Committee, 1996) The work breakdown structure may be used to assign a project number in project-oriented software. Components of the work breakdown structure (project number) depend upon the software being used.

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