

Economic Accountability for Training: Demands and Responses

Accounting for the positive economic influence of training and development is the most critical issue in the training profession today. Business leaders realize how large the investment in training and development has become. So inevitably, questions about economic value arise: which training and development activities work? And at what cost?

Pressed to address those questions, many training and development professionals find themselves struggling to meet the expectations of managers and employees who want more training—and proof that particular training programs are worthwhile.

Despite the growing demand for accountability, financial accounting for training shows only a slight increase. As a rule, although training and development are undergoing more financial analysis, they are accounted for less than any other major corporate investment. For instance, a 1988 ASTD poll of organizations that led in training evaluation found that only 20 percent evaluated in terms of training's economic effect on the organization. In other words, when it comes to investments in training and development, subjective decisions prevail.

Many training professionals contend that accounting for training (through measurement and evaluation) takes too much time or is too costly. But, ASTD research has revealed organizations that account for training in flexible, practical ways, using relatively simple and inexpensive means. The training professionals in those organizations understand that, in the current business climate, accounting for training is essential to success and, sometimes, to survival.

At times economic conditions demand measurement and evaluation of all business functions, or top management may require financial justification for a training department's budget. But more often, and most important, are the routine judgments that top managers make about training's worth, using whatever information is available. Whether they say so or not, top managers constantly evaluate training efforts and assign a value to them.

If realistic information isn't at hand, these decision makers may draw arbitrary, inaccurate conclusions. Their view of training's worth may be based on its word-of-mouth reputation for past efforts or on their perceptions about training personnel. In the past, many training departments thrived on the basis of excellent reputa-

Examples of Corporate Training Expenditures

| Corporation | Total Training Expenditure* | Percentage of Payroll Costs |
|-------------------|-----------------------------|-----------------------------|
| IBM | \$750,000,000 | 5.0% |
| General Electric | \$260,000,000 | 2.0% |
| Xerox | \$257,000,000 | 4.0% |
| Texas Instruments | \$45,000,000 | 3.5% |
| Motorola | \$42,000,000 | 2.6% |
| Honeywell | \$30,000,000 | 3.0% |

* Not including training participants' salaries. If salaries were included, the figures would roughly double.

Source: American Society for Training and Development, 1987.

tions. But during the economic downturns and downsizing of the 1980s, a reputation unsubstantiated by data often proved inadequate evidence of a department's contribution and worth.

Human resource development (HRD) professionals reluctant to account for training need to reorient their thinking to face the business realities of the nineties. Instead of deciding *whether* to measure and evaluate training's results, they must decide *how* to determine its costs and benefits.

Advances in accounting for training

Many HRD professionals have discovered that accounting for training doesn't have to be cumbersome and doesn't necessarily lead to criticism. Trainers and training participants are usually more accepting of evaluation when its purpose is clear: evaluation information signals whether a training program is improving participant or organizational performance to an extent that's worth the investment.

Analysis of performance data may indicate that, to help improve participants' on-the-job performance and promote achievement of business goals, training program components need to be changed. Other aspects of performance management—personnel selection and compensation, tools and job aids, and so on—may also require adjustment.

These days, HRD professionals have more performance measurement information available than ever before. Fortunately, computer software has made information collection, analysis, and retrieval easier and more accurate.

Sound human resource management is embedded in

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an organization's strategic change process. When an organizational issue or need comes to light—such as changes in products, technologies, or competition—decision makers will consider whether and how human resources might help. And they will determine what support, possibly including training and development, people will require.

Basic considerations include the following: in what ways and to what extent can training and development help resolve this organizational concern? If training accomplishes as much as possible toward resolving this concern, can the "top dollar" worth of its contribution be estimated? What else, if anything, might substitute for all or part of proposed training? What is liable to happen if training isn't provided?

One justification for training and development is compelling need. Today, because line managers control resources and are well-positioned to perceive training needs, they initiate most employee training in most organizations. Trainers cooperate closely with line managers to identify training problems and propose solutions—because, although training has its costs, the costs of *not* training may be considerably higher.

At its best, evaluation is inherent in all the phases of an organization's instructional systems development (ISD) process. If training is subject to "continuous improvement" and refinement from front-end problem analysis onward, it has a powerful bias toward success. Ongoing evaluation and corresponding de-emphasis of after-the-fact evaluation suit the fast pace of today's business environment, where training needs can emerge—and opportunities pass—quickly.

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In fact, use of state-of-the-art instructional design technologies, rather than post-training evaluation, is the best way to assure training's effectiveness. When appropriate techniques are employed, effectiveness can be built in as training proceeds. Good training begins with a needs analysis that measures performance gaps and tailors learning objectives to performance objectives. The more precise and clear the needs analysis, the more likely the training will be appropriate and achieve valuable outcomes.

Understandably, different organizations don't place equal emphasis on measurement and evaluation. Small and medium-size organizations with informal training programs tend to devote less time and fewer resources

to those activities than large organizations do. But whatever its size, an organization is more likely to account for training programs that affect the organization broadly and require significant investment.

The most precise means for evaluating human resource events descend from the Planning-Programming-Budgeting Evaluation System (PPBS) introduced in the Department of Defense and other federal agencies in the 1960s. But few training departments ever require such sophisticated and expensive accounting and evaluation. Technically precise, entirely objective evaluation simply isn't feasible for many training programs. And elaborate evaluation isn't cost-effective when it's obvious that positive changes resulted from training, when a program's backers have little interest in an evaluation, or when the cost of evaluation would clearly outstrip possible benefits.

Yet more and more organizational leaders want and demand measures that clearly show training's contributions to accomplishment of business objectives. So the watchword of modern accounting for training is *appropriate*—rather than technically best—measurement and evaluation. Up-to-date organizations use only as much and as complex measurement and evaluation as is necessary. And their training and development efforts are planned and assessed in the broader context of human resource and general business strategies.

Advances in accounting for training were long stymied by the belief that it was imperative to use only quantitative data. Today most organizational leaders also consider qualitative data useful. Choices about data collection now are seen as depending on the organization's information needs, purpose for evaluation, and available resources.

Current practices

- Polaroid's management has decided to undertake training only if it will affect the bottom line and to evaluate training programs using the same standards and units that local managers use as performance standards.
- Upjohn is pioneering a concept of measuring return on investment in human resources based on a total performance-management system that considers business strategies, organization structure, and job design as well as training.
- Vulcan Materials draws up detailed cost proposals for top management on all training projects.
- Arthur Andersen bases many of its training investment decisions on a quantitative analysis and needs-determination process that precedes all course development.
- AT&T's individual business units often initiate training and usually contract corporate trainers to work with them to identify needs.
- Chase Manhattan Bank's training staff works directly with line and staff managers; virtually all training investment decisions are shared.
- Aetna's line management allocates about 90 percent of training money to the continuation of successful training programs and planned company training strategies.

Moving forward

Wider dissemination of knowledge is needed. Most

Benchmarks and Rules of Thumb

Associations and publications that focus on human resource issues are good sources of statistics and guidelines to use as benchmarks and rules of thumb for evaluating training efficiency and worth. Information about typical salaries and wages for particular job classifications is available from various government agencies and professional associations. For example:

Ratios of curriculum development hours to delivery hours: classroom instruction, 50/1; self-paced instructional materials, 100/1; computer-assisted instruction (without programming simulation), 150/1.

(Source: G. Head, *Training Cost Analysis: A Practical Guide*, Washington, D.C., Manin Press, 1985.)

In 1987-88, the mean (median) cost to replace a salaried worker was \$7,226; an hourly worker \$135. The average cost to replace a salaried worker was \$6,173; an hourly worker \$676.

(Source: Employee Assistance Professionals Association, Arlington, Virginia.)

HRD practitioners agree that the basic know-how for accounting for training exists, although its application falls considerably short of potential. Many well-publicized measurement and evaluation methods often are prohibitively expensive and time consuming. Meanwhile, the growing number of more convenient, exemplary evaluation practices have, for the most part, remained unknown outside the organizations that use them.

This *Journal* supplement brings attention to some of these practices. It also presents a new accounting model that will allow organizations to begin setting financial benchmarks for training within their institutions.

Accounting for training would benefit from more comparative data about training costs. Rules of thumb exist, but more guidelines and benchmarks are needed; research and analysis hold the promise of discovering or creating them. HRD professionals need to share and keep up with future advances in accounting for training.

Strategic Accounting

Human resources are an increasingly important factor in the economy. Investments in human capital are already key to improvements in productivity, wages, and national income. And the role of human capital will continue to expand as the economy becomes dominated by service-oriented jobs requiring extensive knowledge and training. At the same time, jobs in manufacturing will be highly skilled and vital for maintaining the operating efficiency of manufacturing technology.

HRD's heightened importance must be viewed in light of the labor pool preparing to enter the workforce: millions of potential employees are unequipped with basic workplace skills. For these people to be constructively assimilated in the economy, employers will have to intervene and provide training. What's more, the current workforce will require continual skills upgrading to keep pace with technological advances. But, partly because of traditional tax incentives and managerial accounting systems, organizational expenditures for human capital lag behind investments in physical and equipment capital.

A strategic element that today's managerial accounting statements lack, but that decision makers need, is financial information about human resources. Conventional accounting systems don't provide adequate data for decision making and planning about human resource use. And they don't provide feedback to permit evaluation of organizational effectiveness in using human resources. Yet accounting information is what's reported to upper management about an organization's overall performance.

An organization's management accounting system acts as a two-way communications device for upper and middle management because it lists important organizational and departmental goals. Economic indicators measured by the accounting system also serve as the basis for promotion of middle managers. So information that appears on management accounting reports has a strong influence on management behavior.

When accounting systems don't feature performance reports on effectiveness in managing people, it's only to be expected that managers will concentrate on the aspects of their jobs for which they *are* held accountable. This encourages managers to reduce or eliminate training expenditures and sacrifice long-term profit gains in favor of short-term cost cutting. Under current management accounting standards, the economic impact of such mismanagement is not assessed.

An economy based largely on the knowledge and skills of human capital has important implications for the role of HRD professionals in organizations. They have come under pressure to become full business partners who make money for their organizations. This new role requires HRD professionals to think, speak, and operate more in economic and financial terms.

At present, training activities typically are evaluated in other terms—such as participants' reactions to training or supervisors' observation of participants' post-training, on-the-job behavior. But it has become necessary to account for and evaluate training activities in terms that assess the *value* of investment in employees.

Most American organizations have published state-

ments that extol the importance of human resources. But where managerial accounting systems fail to look at the tradeoffs of training costs and benefits, HRD is likely to be treated as a secondary activity.

Antiquation of management accounting systems

Corporate management accounting systems are antiquated for the modern work environment. Despite the evolution of product and process technologies, management accounting systems have remained essentially unchanged for more than 50 years.

In part, this stagnation results from the integration of organizational balance sheets and income statements. A balance sheet represents the organization's total assets, debts, and net worth. Nobel prize-winning economist Paul Samuelson has likened a balance sheet to a snapshot of water at the end of a tub; it shows how much is there at the moment, but not whether or how much is flowing in or out. An income statement represents the result of operations (profit/loss) for a specific accounting period.

Integrating these two reports requires their foundation on the same financial transactions. If they were not integrated with income statements, balance sheets wouldn't emphasize short-term profit goals as much. As matters stand, investments in product development or human capital are discouraged because, as a rule, their benefits flow into the organization over longer periods than monthly, quarterly, or annual accounting reports consider.

Wall Street's emphasis on short-term earning targets and other corporate pressures have lead management cost accounting systems to focus narrowly on monthly earning reports. These reports—based largely on the distribution of manufacturing costs between goods sold and inventory in stock—don't represent the actual increase or decrease in an organization's economic value during the accounting period.

For example, modern just-in-time inventory systems significantly reduce inventory. Organizations that implement just-in-time manufacturing without upgrading their accounting systems leave managers without timely information for measuring product costs and promoting operating efficiency. Besides, even if the time lag in reporting operating costs were overcome, most reports now have too many important cost components hidden in summary figures to be of much benefit to production supervisors.

Because cash outlays for training are long-term investments, they distort an organization's profit measurements over short-term periods. So short-term reports obscure a manager's view of true value-creating activities, such as investment in human capital. Managers may be reassured by an incomplete picture and not realize that accounting systems aren't providing appropriate measures of operational growth or decline.

As B. Charles Ames, chairman and CEO of Uniroyal Goodrich Tire Company, and James D. Hlavacek, training consultant and professor of management at Wake Forest University, have noted, managers may "tighten the belt in the wrong way in the wrong places" if they simply

inform their decisions with data "from accounting systems designed primarily to meet outside financial reporting requirements." In depicting a "cycle of competitive decay," Ames and Hlavacek show training as a competitive factor that may suffer inadequate investment because of inadequate accounting systems.

In many organizations, recent strategies—such as automation, quality improvements, reduced inventory, more efficient production processes—for replacing people with machines and minimizing waste have done almost all they can to reduce costs. The conventional savings strategy of reducing direct labor costs (wages, salaries, mandated employer contributions to Social Security, and so forth) by cutting back on employees no longer works as well.

Consider a manufacturing unit that once consisted of four employees who were replaced by a programmable controller and a robotic "eye" and arm.

The unit now has no direct labor costs, but people are still needed—to decide when to change what the unit makes, design its products, program and reprogram the controller, maintain the controller and robots, market the products, review legal documents such as service agreements for the unit's machinery, keep records of product sales, and train and retrain maintenance technicians and others—in support of the unit's operation. But now the costs associated with human resources are categorized as *indirect* costs (also known as overhead; see page S-10 for definitions).

The actual processing of services and products is increasingly a function of such overhead human resource activities, as the Manufacturing Studies Board of the National Research Council noted in a 1986 study.

Office automation has the same effect. One administrative assistant using a personal computer may do work that used to be done by four people: an office manager, secretary, clerk typist, and bookkeeper. But the administrative assistant needs the support of training on how to use software, repair computers, and so on.

Traditional managerial accounting systems' emphasis on direct labor costs is outdated. At the height of the manufacturing economy, direct labor costs far exceeded indirect costs. Overhead costs were distributed (allocated) throughout organizations by requiring managers to multiply their department or division's direct labor costs by a percentage. Accounting systems' use of direct labor costs as the means of distributing overhead costs to products, services, and departments reflected direct labor costs' predominance then.

But workplace automation has escalated overhead costs while greatly diminishing direct labor as a percentage of total costs. A June 1988 *Business Week* article stated that, in automated factories, direct labor typically represents 8 to 12 percent of production costs. In the electronics industry, the percentages are halved. Accounting systems haven't adapted to this major change.

Considerable management time is still devoted to recording and reducing direct labor costs, although these are a small fraction of overhead costs. According to H.T. Johnson of Pacific Lutheran University and R.S. Kaplan of Harvard Business School and Carnegie-Mellon University, overhead burden rates on direct labor ranged from 400 to 1,000 percent in the late 1980s. Obviously, any

activity involving large amounts of direct labor costs appears expensive—and saving on direct labor costs has significant impact on cost records, if not actual costs.

Allocation of overhead costs to departments and products by direct labor also distorts product costs. Products made with low labor content have their overhead costs placed on products with high direct labor hours. Customized, infrequently produced products incur few direct labor hours, but create significant overhead costs for specialized design, engineering, and marketing. So these products appear less costly in comparison with high-volume mature, stable products. In short, in a direct labor cost-allocation system, mature products subsidize customized products.

A direct labor cost-allocation system also promotes decisions to “buy” rather than “make” labor. Managers can reduce direct labor costs by finding suppliers of cheaper labor. So corporate accounting systems favor subcontracting work to people outside the organization (“buy decisions”) over assigning work to people in-house (“make decisions”). Buy decisions may defeat the purpose of reducing organizational costs, though, because overhead costs tend to rise as subcontracting does. For example, subcontracting places demands on the departments (such as purchasing, scheduling, and training) that specify product or service requirements for the subcontractor. Yet these overhead costs aren’t traced to the practice of subcontracting because it has zero direct labor content.

Ability to assess, with reasonable accuracy, the overhead human resource costs of a product or service would bring a new order of management of human resource investments.

A focus on direct labor costs prevents organizations from getting a good financial management grasp on human resource costs. Overhead costs are the most rapidly increasing human resource costs in organizations. Because the impact of overhead costs is often underrated, few managements understand the economic impact of human resource elements on the profitability of their products or organization.

Management accounting systems must be altered to reflect the growing importance of overhead and equipment costs, and the diminished importance of direct labor costs.

Potentially most productive now are structural organizational changes such as more efficient communication systems and better worker management. Intangible benefits that stem from structural change, advanced technology, and training—such as design and process

flexibility and more knowledgeable and skilled employees to speed turnaround time—have become crucial to organizational competitiveness. But current cost accounting systems don’t deal with intangible benefits, so they are rarely measured or estimated and factored into cost management. Managerial accounting systems must begin to consider such factors.

The National Association of Accountants, Harvard and Stanford business school representatives, several of the nation’s largest accounting firms, and dozens of corporate sponsors have joined in a cost-management task force to recommend changes to help accounting “catch up” with computer-aided manufacturing.

The task force’s first report concluded that, for sound investment decisions, qualitative factors (such as quality, flexibility, and timeliness) are more important than quantitative factors, although those should be measured. Having hammered out a new philosophy of accounting, the task force moves into the 1990s with plans to release new accounting software in keeping with the thinking behind the first report.

These days, as *Business Week* has noted, time is the “most precious commodity.” This has many implications and effects. For instance, one Cleveland manufacturer no longer measures an employee’s “pieces per hour.” Now “throughput” (time to turn material into product) is the emphasis, so the company calculates how long each sub-process (including those in the overhead category) takes and how much each adds to product cost.

Ability to assess, with reasonable accuracy, the overhead human resource costs of a product or service would bring a new order of management of human resource investments. Return on investments in human capital could be improved through training and other personnel interventions. The human resource component of operational finances is poorly managed now because it isn’t counted or measured well enough to allow for its true control.

Global competition and accounting systems

The obsolescence of management accounting systems is particularly damaging to American organizations competing in the global arena. In some cases, a foreign manufacturer may produce products—at significantly lower prices—for direct competition with an American organization’s high-volume mature products.

Meanwhile, the American organization’s cost accounting system leads its decision makers to conclude that their organization can’t make money if it matches the foreign competitor’s lower prices. This conclusion has driven many American companies to abandon product lines or move production of mature, stable products to low wage countries.

The December 25/January 1, 1990, issue of *U.S. News & World Report* reported that the United States, after a decade of restructuring, “now has an average cost advantage of about 20 percent.” But Martin Starr of Columbia University, in a study that compared American-owned companies with foreign-owned U.S. operations, found that “Japanese and European managers spend three to five times as much on worker training.”

Computer-integrated manufacturing has led the rev-
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olution of improvements in quality, inventory reduction, reduced set-up time, and product customization. The new technologies of computer-integrated manufacturing allow factories to change rapidly from one product to another, driving down economies of scale for production processes. That is, it may cost the same (or almost the same) to produce a few widgets as it does to make thousands.

Product life cycles are also shrinking rapidly, especially in high-tech markets, where a generation of technology may become outmoded in three years. Traditional management accounting systems also lose relevance as more costs—for research and development, physical investment, and training—must be incurred before production begins.

In response to the fast-paced competitive environment, many organizations have hastened to increase the number of products and services they offer, making it harder to attach inputs of resources (costs) to outputs (products and services).

Changes required in management accounting systems

New manufacturing and office technologies call for new cost accounting procedures to deal with such matters as measurement and justification of investments in employees. Data about such managerial considerations shouldn't necessarily be used for external financial reports, but it's critical that they be accounted for in internal management reports.

Organizations must understand the full costs of acquiring and developing resources: technologies, equipment, materials, and people. Organizations must also be aware of the long-term costs of translating those resources into final products or services. Management accounting systems that fail to provide measures of and warning signals about the efficiency and profitability of products and services undermine managers' ability to guide their organizations.

For operational control in the contemporary work environment, managers need accounting systems that provide information on important resources *during* an accounting period. And, to assess progress toward long-term profitability goals, greater use of nonfinancial indicators (such as more complimentary or fewer complaint letters from customers) is required.

Traditional accounting methods treat people only as expenses, so funds used to train people are computed as expenses when an organization's net income is figured. Accordingly, managers tend to regard human resources as expenses to be minimized instead of assets to be optimized.

Human resource management accounting is the next step for organizations progressively adopting a human resource management perspective. Human resource accounting would enable organizations to quantify the worth of people as organizational assets. Human resource accounting systems would strengthen the human resource professional's role as advisor to senior management on the human resource implications of business strategies. By measuring the expected worth of proposed investments in human capital, human resource Supplement to the *Training & Development Journal*, July 1990

accounting also would facilitate management decisions about training.

Costing human resources

HRD has expense and asset components. For a human resource expenditure to be treated as an asset, it must return benefits to the organization in future accounting periods. If the benefits of training or development all take place during the current accounting period, the expenditure is treated as an expense.

There are no generally accepted accounting procedures for valuation of human assets—employees. Valuation of employees differs from valuation of things because people are not owned. But, like other assets, people have future usefulness that adds value to an organization.

The first attempt at implementing employee valuation came from the R.G. Barry Corporation. The aim was to improve planning, management, and investments in human resources. Training and development costs were accumulated in individual subsidiary accounts. Costs were amortized (written off gradually) over a person's expected term of employment or over the time a training program's effects were expected to have worth. If an employee left the organization before the end of the expected working-life estimate, unamortized costs were written off during the quarterly earnings period of the employee's departure. Quarterly accounting reports monitored managers' investments in employees and motivated managers to view human resources as valuable assets.

The Barry system employed historical costs (that is, original expenses incurred) for employee valuation. This method follows an asset model of accounting that measures the costs organizations sacrifice to develop people. The historical cost accounting approach has the advantage of helping managers understand that investments in human resources are parallel to investments in other organizational resources such as equipment.

One difficulty with using this approach for human resource accounting is that writing off unamortized costs based on turnover involves a great deal of subjectivity. It's also difficult to pinpoint to what extent organizational investments in an employee should be attributed to and written off for recruitment costs versus orientation costs or training and development costs. And, this approach only accounts for costs, not for an employee's worth to the organization.

An alternative to the historical costs method is to measure the cost of replacing employees. Replacement costs refer to the expenditure of organizational resources that would go to replacing current employees. Replacement costs include recruitment and training costs for new employees, and income not gained because newcomers are in training rather than producing on the job.

The major drawback of both the historical and replacement cost models of human resource accounting is their limited focus. They highlight investments in human resources, but ignore human resource effectiveness. They fail to gather and assess information about the economic effects of employees' behavior.

A better approach is to tie dollar estimates to positive

Strategic Accounting

changes in employee behavior that were produced by training interventions. This expense model measures the economic consequence of training programs in dollar-expense terms. The idea behind this way of "costing" human resource behavior is to measure the contribution of employees to overall organizational efficiency—while recognizing that an employee's contribution isn't dependent on the size of organizational investments in him or her, but relates to how effective and efficient the employee's on-the-job performance is.

This cost accounting strategy is different because it quantifies the benefits that training and development programs bring to employee performance. As in all frameworks for financial analysis, anticipated cost-benefit ratios are determined and applied. Calculating training programs' costs and benefits requires an understanding of how accountants categorize them.

Direct costs are expenses associated with costs that can be traced directly to specific projects or activities. Out-of-pocket direct costs are expenses for which money is paid on a specific project. In terms of training, these include travel fees and daily expense allowances (per diems), costs for purchased learning materials, contracted consultants, training room rental, and food service.

Out-of-pocket direct costs are the most obvious and easily tracked costs associated with training. But, according to Lyle M. Spencer, Jr., of McBer and Company, these expenses rarely equal more than 10 percent of a training program's total costs. The major costs of training activities relate to people's time—to salary costs for people conducting or participating in a specific training program.

Indirect costs are expenses that can't be directly associated with a specific project or activity but which are necessary for the organization to function. Sometimes the term *overhead* is used to describe all the indirect costs of doing business.

Examples include costs for interest on organizational debt, general building maintenance and repair, lights, heat, office equipment, and administrative salaries and expenses (for example, for a main receptionist or a legal staff). Some organizations subdivide such costs into overhead and general and administrative expenses (G&A) categories, and some calculate overhead on bases other than direct labor.

Fringe benefits are overhead costs related to time for which employees are paid but don't work (vacations, sick leave, and holidays) plus employer payments for health insurance, pensions, and other indirect compensation. Spencer states that, in American industry in the late 1980s, fringe benefits averaged 35 percent of direct salary costs. And in professional service firms, overhead averaged around 115 percent of direct salary plus fringe expenses.

Full costs are the total of direct costs plus indirect costs. Full costs are the best measure of how much it actually costs an organization to deliver a training service. In particular, recognition of the full cost of people's time is the

basis for understanding the total costs of training programs.

It's useful to track training's full costs according to eight phases: administration, research and development, analysis, design, development, delivery, evaluation, and marketing.

Costs for each training phase can be subdivided into:

- Personnel costs—for people involved in a training project including in-house subject-matter experts and outside personnel's fees and expenses
- Outside purchase of goods and services—for materials and supplies bought from an outside provider for a specific training program
- Facilities costs—for the use of rental facilities such as classrooms, research and development laboratories, or production shops
- Incidental expenses—for travel and daily expense allowances during a training program
- General and administrative costs—for costs that, although associated with maintaining the training department, can't be directly traced to a particular training program. Such costs include general supplies and materials, equipment, facilities, and administrative and staff support salaries, wages, and fringe benefits.

Benefits of training programs:

- Increased revenue. By affecting quantity of output or sales per unit of time, training-based improvements can increase revenue. Increased output or sales can be documented and training's share in the increase claimed.
- Decreased or avoided expenses. A frequent benefit of training programs is the reduction (saving) or avoidance of costs. By ensuring employees' skills, training can help improve the quality of a product or service. Measurement of the related organizational benefit relate to reduction of scrap, absenteeism, inaccuracy, grievances, accidents, and wasted time or materials.
- Intangible benefits. Intangible benefits are activities, qualities, or conditions that have value but are extremely difficult or impossible to quantify. For instance, employee flexibility benefits an organization, but its worth is difficult to quantify. To keep investment in these benefits in perspective, decision makers should consider the potential risk of not investing in them and should estimate how substantial intangible benefits might possibly be. And, a brief narrative about anticipated intangible benefits (and indicators of them) may add meaning to the "hard numbers" of internal financial reports.

The Consensus Accounting Model

Accounting measures the economic track record of organizational activities and functions. Managers have long recognized that a standardized accounting model for training would facilitate decision making and enhance training department effectiveness. But until now, no standardized model for accounting for training has been widely accepted.

Now there's a new standardized accounting model for training. The model represents the consensus of training and accounting experts (see page S-30) who contributed ideas to a research project underwritten by a grant from the U.S. Department of Labor and conducted under the auspices of ASTD.

This consensus accounting model ties the procedures of existing accounting practices to the desired outcomes sought by management in a specific organization. The model's four steps support strategic accounting. For example, using the model could help a manager determine the percentage of a department's resources spent for training, which departments or individuals require training, and important training considerations that should influence future budgets.

Step 1: Establish an organization-specific definition of training

Accounting for training begins when decision makers in an organization reach agreement about what training is. For purposes of this discussion, training will be defined as "a structured program with identified objectives and learning plans to improve the knowledge, skills, and attitudes of trainees for use in their current and future job assignments." According to that definition, a consultant-provided program in which new employees learn how to use an organization's computer software is training. But an executive meeting convened to introduce a new corporate product or a performance appraisal to set employee work objectives is not.

This definition of training encompasses the following activities:

- formal training courses offered by the organization or by outside training providers;
- structured on-the-job training conducted by an employee's immediate supervisor or a qualified substitute and supplemented by written learning objectives and schedules;
- satellite broadcasts, job rotation assignments, and assessment center activities—if their primary purpose is employee development.

But this definition of training does not include activities such as these:

- conferences, seminars, meetings, and performance appraisals—unless employee development is their primary purpose;
- self-development that an employee carries out on non-work time or using personal resources.

Step 2: Determine all training cost categories

It isn't easy to establish a uniform accounting system Supplement to the *Training & Development Journal*, July 1990

Consensus Accounting Model

Step 1: Establish an organization-specific definition of training

Step 2: Determine all training cost categories

Direct Costs

- personnel
- outside goods and services
- facilities
- travel, per diems, accommodations, and incidental expenses

Indirect Costs

- overhead
- facilities
- general and administrative expenses
- miscellaneous costs

Step 3: Calculate training costs

Direct Costs

- personnel
- travel, per diems, accommodations, and incidental expenses
- outside goods and services
- facilities

Indirect Costs

- overhead (and general and administrative)
- facilities
- equipment

Targeted Costs

- training populations
- subject matter
- training providers
- training phases

Step 4: Code costs

within an organization or across organizations. But identifying and defining training costs leads to a clear understanding of where training monies go. In reviewing expenses for a training program, an organization must explore direct, indirect, and miscellaneous costs.

Direct costs

Personnel. Personnel costs include total costs for people involved in training:

- Salaries and employee benefits of supervisory and non-supervisory training department directly engaged in developing, delivering, evaluating, and supporting training programs; for example, instructors, program designers, needs analysts, in-house evaluators of training, and clerical staff;
- Salaries and employee benefits of other company personnel who assist training staff by serving as resources for developing or delivering training; for example, subject-matter experts and line managers;

Why Collect Training Cost Information?

To know costs. An organization's leaders should know approximately how much money is spent on training. Total expenditures often go beyond the training department budget to such costs as participants' salaries, their travel expenses, and fees for temporary help to replace them. Yet few organizations calculate their total HRD expenditures, and even fewer compare their expenditures to those of other organizations.

To compare costs and make choices. Admittedly, exact comparisons are difficult. To begin with, organizations use different bases for cost calculations. For example, although some programs at IBM account for student salaries, programs at AT&T never account for them. Also, organizations don't publish much training cost data. Still, general comparisons are possible. It's helpful to compare specific training program charge-back measurements (such as cost per hour or day) with those of other programs or organizations. Wide differences may indicate a problem.

Cost data are essential for making choices about alternatives to or among proposed and existing training, whether to invest in physical or human capital, whether to invest in training or other personnel interventions (such as job aids or new staff), what training programs to fund. For instance, cost data are needed to determine whether it's more cost-beneficial for the organization to design and develop a program in-house or to contract out.

To monitor costs. Besides allowing comparison of resource allocations to particular programs and projects, monitoring costs allows managers to evaluate the proportion of investment in specific training populations, subject areas, and training providers. Costs may also be monitored according to their association with training administration, research and development, analysis, design, development, delivery, evaluation, or marketing.

To control costs. This is a major management responsibility from which training managers are not exempt. Accurate, current, well-organized cost information helps managers plan, arrange, control, price, and evaluate training programs.

- Salaries and employee benefits of training participants;
- Fees and expenses of people from outside the organization who render training department services; for example, temporary clerical staff, training consultants, and outside evaluators of training.

Outside goods and services. Outside goods and services include costs for design, development, reproduction, distribution, or review of training materials purchased from an outside provider. To be a direct cost,

these goods and services must be for, and used up during, a specific training program. So equipment purchased or rented for one program are in this category. But equipment or materials used during a training program are to become part of the organizational stockpile, they are considered indirect costs. Outside goods and services costs may be subdivided into:

- Program materials and supplies. Materials and supplies purchased from an outside provider and for a specific training program; for example, off-the-shelf program materials, standardized tests, artwork, and audiotapes.
- Outside printing and reproduction costs.
- Equipment rental or lease.
- Equipment purchase.

Facilities. Facilities costs include those incurred from a training program in a rented classroom, learning center, laboratory, or workshop.

Travel. Travel includes per diems (daily expense allowances), accommodations, and incidental expenses. This category includes total costs, but training personnel and participants' meals, travel, accommodations, and other expenses are accounted for separately within it.

Indirect costs

Indirect costs can't be traced back and directly tied to a specific training program. Although indirect costs for training are less visible than direct costs, they are substantial. Sometimes all indirect cost are termed overhead, but indirect costs usually are accounted for by sorting them into categories called "overhead" and "general and administrative" (G&A) costs.

When indirect costs are categorized that way, overhead costs relate to *things*—such as a training department's share of organizational materials, equipment, and facilities. G&A costs relate to *people*—such as a general administrator, main receptionist, or payroll clerk. The overhead and G&A costs and categories listed here are common, but they vary by organization. It's a good idea to enlist the organization's comptroller (or representative) to assist with selection of specific methods for capturing indirect costs related to the following categories.

Overhead costs. These include the following:

- Materials. General office supplies and related expenses; for example, each training program will absorb a share of the expenses for general training department stationery, subscriptions, postage, photocopying, and telephones;
- Equipment. A training program's fair share of expenses associated with equipment purchased by the organization and used by numerous training programs. Overhead equipment costs include equipment capitalization allocation (portion of original cost allocated to a particular training program) and equipment operation and maintenance costs;
- Facilities. A training program's share of expenses for use of general office space in an organization's facilities.

General and administrative. One method for determining the G&A costs for a particular training program

is to compare the program's length and expenses to those of other organizational activities. G&A costs are divided into these personnel-related categories:

- Travel and expenses not directly billed to one program or client; for example, each training program must incur a share of executive staff travel;
- Training department management and staff salaries, wages, and fringe benefits that can't be tied to a particular training program;
- Administrative and staff support salaries, wages, and fringe benefits; for example, for legal and accounting department personnel.

Hidden costs. The direct and indirect costs described above constitute the information necessary to begin accounting for a training program. But there may be "hidden" cost information. To look for it, Glenn E. Head suggests that a training manager consider the following:

- number of training program participants
- average annual salaries of training participants
- annual employee fringe benefits percentage for the organization
- average travel and per diem expenses for training programs from the prior year
- number of training instructors
- number of subject-matter experts from other departments who help conduct a training program
- number of times the training program will run each year
- need to run pilot versions of the program
- expected life of the program
- location of the program's training facilities
- equipment necessary to conduct the program
- organizational method for allocating overhead and G&A costs.

Patterns or surprises that emerge may indicate a need to make changes in how training is managed or administered.

Step 3: Calculate training costs

After determining the basic cost categories of a training program, a training manager is ready to begin calculating the costs of training. A checklist (see page S-13)—and, possibly, consultation with an in-house accountant—can help a manager identify the costs to account for and those not to.

This decision is organization-specific: one organization may account for subject-matter experts' salaries and travel expenses, but not account for participants' salaries or travel; another organization may do the reverse. To calculate a training program's costs, a training manager can apply the simple formulas that follow.

Direct costs

Personnel

- Training participant costs. An estimate of the average salary or wage for training participants plus the organizational overhead rate gives the basis for participant costs. To estimate people's yearly earnings according to job classifications, consult payroll/compensation department data, supervisors, and other organizations that employ people in the same job classifications.

If a training program is for people in several job classifications, estimate the typical participant's earnings by looking at the participant roster, noting which jobs are represented and the number of participants that occupy each job, and factoring in each job's salary average. The median (the point that half the salary values are above and half are below) represents the participant salary or wage to use in subsequent calculations.

Next determine the organization's percentage costs to cover fringe benefits: health insurance, pensions, time when employees are paid but don't work (sick leave, vacation, holidays, and personal days), and educational opportunities.

The participant daily cost is based on the annual number of working days per employee. Subtracting the number of paid vacation days, holidays, and leave days from 260 (the number of weekdays in a year) gives this number. For example, if each employee gets 10 vacation days, 10 holidays, and 10 leave days a year, the equation would be: $260 - 30 = 230$ potentially productive days.

Multiplying the participant annual salary or wage by the organization's fringe benefit rate finds the total personnel costs for an employee. Personnel or payroll departments can often provide the current fringe benefit rate. For example, if the median participant salary was \$30,000 and the fringe benefit rate was 30 percent, the total loaded personnel cost (with fringe benefits added) is 1.3 times the salary ($1 + .30 = 1.30$). So, the total loaded annual personnel costs per training participant would be \$39,000 ($\$30,000 \times 1.3 = \$39,000$).

Dividing that total by the number of productive days determines the participant cost per day. Continuing the example, the average annual loaded personnel costs were \$39,000, and the annual number of productive days was 230. So the average daily participant wage or salary was \$169.57 ($\$39,000 \div 230 = \169.565). For an estimate of an hourly rate, the average participant salary is divided by the number of hours in a workday. In this example, employees work 8-hour days, so their average hourly cost is \$21.20 ($\$169.57 \div 8 = \21.196).

Final participant costs may also include the average costs of meals, travel, and accommodations. Those are direct costs if they are used by the end of the training program (see "Travel . . ." below).

- Training personnel costs. These are determined in the same manner as participant costs. The average yearly salary or wage is multiplied by the fringe rate to find the total loaded personnel costs of a training staffer. This figure, when divided by the annual number of productive days, yields the average cost per day for training personnel. The average travel and per diem costs can be derived from personnel/payroll records or by asking people directly (see "Travel . . ." below).

Training personnel costs include more than the time each instructor spends on a training program's preparation and delivery. Cost calculations should include the days or hours spent by task analysts, program designers and developers, and clerical staff in support of instruction.

The category also includes the time of any internal training program evaluators.

- Other in-house personnel costs. Frequently, training departments rely on other employees in the organization

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to design, deliver, or support a training program. For example, in-house subject-matter experts may advise on program design or may do stand-up training. The methods used for capturing the daily or hourly costs of training participants and staff also work for determining the costs of these other employees.

■ **Direct outside personnel costs.** Outside personnel may design or lead training, or temporary personnel may be used to do the work of employees in training. Multiplying those outside people's costs per day by the number (or fraction) of days they worked determines the total outside personnel costs. For example, if an outside evaluator whose fee is \$200 a day takes four and a half days to evaluate a training program, that costs the organization \$900 ($200 \times 4.5 = \900).

Travel, per diems, accommodations, and incidental expenses.

Multiplying the average travel costs per person by the number of travelers gives the total travel cost. Payroll or personnel records may offer information useful for determining average travel expenses. Similarly, analysis of records can reveal the average for per diems (daily expense allowances) for meals, local transportation, and so on.

If payroll or personnel records aren't available, a training manager can estimate travel and per diem costs by surveying participants and training personnel and then averaging the estimates from each group separately.

Outside goods and services.

To find the total cost for these services simply add the subsidiary costs that make up this category. Some subsidiary cost totals are the result of multiplying a per participant cost by the number of participants, while others already are a per program total. For example, if 10 participants each received a \$5 purchased workbook and if the one piece of demonstration equipment was rented for \$75, the cumulative total is \$125 ($\$5 \times 10 = \50 ; $\$50 + \$75 = \$125$).

Facilities.

If the rent for a facility isn't a flat fee, calculate the total by multiplying its daily or weekly fee by the number of days or weeks of rental. For example, if a three-day workshop is to be held at a conference center that charges \$1,000 a day, the total facility cost is \$3,000 ($\$1,000 \times 3 = \$3,000$).

Indirect costs

Although indirect costs often equal or exceed the direct costs of a training program, they are frequently overlooked in accounting for training programs. The various methods for determining indirect costs vary in their precision, in the amount of information they require from an organization, and in whether general and administrative costs are separated from other indirect expenses.

Overhead costs.

The simplest method for estimating overhead costs is to establish a base percentage rate of indirect costs for all training programs. In this approach, a training pro-

gram's estimated indirect cost is estimated by multiplying the base percentage indirect cost rate by training's total direct personnel costs.

For example, if the direct personnel costs of a training program were \$10,000 and the base percentage rate of indirect costs was 45 percent, the indirect program cost equalled \$4,500 ($\$10,000 \times .45 = \$4,500$). This approach to indirect costs requires an estimate by the comptroller of the typical base percentage rate of indirect program costs, but it lacks precision and may seriously underestimate training programs' typical costs.

A more precise method for capturing indirect training costs relies on total training department budget information. Total training budget costs include loaded employee salaries (costs for salaries and fringe benefits), facilities costs, equipment depreciation, and a fair share of administrative and executive costs.

All costs—except for loaded salaries of employees who make a direct contribution to training programs—are added. The total is divided by those loaded salaries. The numerator (training budget costs less those loaded costs) of the calculation is the base rate of indirect costs for all training programs.

For example, an organization's total training budget was \$500,000. Five employees, each of whom received \$40,000 in loaded salaries ($5 \times \$40,000 = \$200,000$), contributed directly to training programs. So the base percentage rate is 110, and the estimated overhead costs for all training programs equals \$220,000 ($\$500,000 - \$200,000 = \$300,000$; then, $\$300,000 - \$200,000 = 1.1$ or 110 percent; finally, $\$200,000 \times 1.1 = \$220,000$).

Facilities costs.

These costs should be accounted for separately from other indirect costs. Indirect facilities costs usually are relatively small costs and hard to determine, so it's not worth spending too much time trying to measure them precisely. But it could be worth spending somewhat more time if major new construction or renovation is underway and causing an increase in these costs.

In some organizations, the accounting department will have the figures (costs for mortgage, electricity, maintenance, and building administration) that, added together, equal total facilities costs. For leased buildings, the total is found by multiplying the cost per square foot by the square footage for the facility in which a training program is held, and then dividing the total by the number of annual productive working days to determine a per day cost. This cost is multiplied by the number of days the facility is used for the training program.

For example, an organization leased its building for \$10 a square foot. So, the average annual cost of its training room's 1,000 square feet was \$10,000 ($\$10 \times 1,000 = \$10,000$). Its per workday cost was \$38.46 ($\$10,000 \div 260 = \38.46). A particular training program occupies the room five days each year, so its facilities cost was \$192.30 ($\$38.46 \times 5 = \192.30).

Equipment costs.

Equipment purchase and maintenance costs are divided by the equipment's useful life to find its annual cost. The annual cost is distributed evenly to all training programs. For example, a training department purchased

a \$500 videocassette recorder with an estimated life of five years. The VCR is used for 10 training programs. So the indirect cost to each program for this piece of equipment was \$10 ($\$500 \div 5 = \100 per year; $\$100 \div 10 = \10 per program).

If a program uses several pieces of equipment, their costs are added together.

Targeted costs.

An organization may require specialized accounting beyond the standard categories used to break down total training costs into direct or indirect costs. Targeting particular cost areas for scrutiny can improve an organization's ability to determine how many dollars should be allocated to training—and where—for improved management of HRD.

For example, managers may have an interest in determining how much the training department is spending on:

Specific training populations.

It may be useful to look at training requirements and costs for groups of job classifications such as: executive, administrative, and managerial occupations; management support occupations (such as accounting); technical occupations (engineers and technicians); marketing and sales occupations; and administrative support populations (clerical and administrative assistants).

Comparisons with the time and dollars that other organizations spend on these populations can provide clues about whether an organization is devoting enough training attention to these populations. Comparative information is sometimes available through professional associations and publications for human resource specialists or for trainees' occupations.

Subject matter.

It also may be useful to track training dollars spent on entry, mid-level, and upper-level career programs, or to track the dollars spent on levels of a particular topic or on generic courses.

Training providers.

It may be useful to collect information on internal and outside providers. Information on external providers should distinguish between regularly presented customized programs and one-time programs.

Training phases.

It may be useful to treat training program phases as a classification system for direct and indirect costs. Typically:

- Analysis costs relate to analysis of needs, resources, or constraints and to selection of training participants.
- Design costs relate to the choice of learning objectives, preparation of a program proposal, and broad curriculum planning.
- Development costs relate to such materials as participant workbooks, instructor guides, slides, tapes, tests, and computer software.
- Delivery costs relate to personnel, outside goods and services, and facilities.
- Evaluation costs relate to training tests, observations, interviews, and discussions.

Checklist of Training Cost-Account Classifications

Direct Costs

Personnel

- 100—Salaries and benefits of training personnel
- 101—Salaries and benefits of other company personnel (when assisting training)
- 102—Salaries and benefits of training participants
- 103—Outside personnel services

Outside Goods and Services

- 201—Purchased program materials and supplies
- 202—Outside printing and reproduction costs
- 203—Equipment rental or lease
- 204—Equipment purchase costs

Facilities

- 300—Facilities rental or lease

Travel, Per Diems, Accommodations, and Incidental Expenses

- 400—Training staff travel
- 401—Training staff per diems
- 402—Training staff accommodations
- 403—Other training staff expenses
- 404—Participant travel
- 405—Participant per diems
- 406—Participant accommodations
- 407—Other participant expenses

Indirect Costs

Overhead

- 500—Office supplies and materials
- 501—Equipment capitalization
- 502—Equipment maintenance
- 503—Equipment repair
- 504—Facilities

General and Administrative

- 600—Travel and expenses charged to overhead
- 601—Department management and staff salaries
- 602—Administration and support staff salaries

Source: Adapted from Phillips, 1983.

- Administration costs relate to course scheduling, activity coordination, and report drafting.
- Research and development costs relate to exploration of new training techniques and strategies.
- Marketing costs relate to advertising training internally and externally (for example, for brochures promoting a program).

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Step 4: Code costs

Whatever accounting categories an organization uses, coding subsidiary cost components facilitates record keeping. Then it's important for the training manager to train the trainers in how to use whatever coding system is adopted.

For an overview of where costs fall, a training manager might create and fill in a cost classification matrix based on a checklist of training cost-account classifications and, for example, the phases of a training program (see pages S-13 and S-14). Then, for instance, if a piece of leased equipment were used in several phases, its cost would be allocated proportionately among those phases.

Cost Classification Matrix

| Cost Category | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase 5 | Phase 6 | Phase 7 | Phase 8 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Direct Costs | | | | | | | | |
| Personnel | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Trainer's salary and benefits | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Trainer's travel and per diem | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Trainer's equipment | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Outside Goods and Services | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Outside training materials | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Outside training facilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Outside training equipment | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Facilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Training center rent | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Travel, Per Diems, Accommodations, and Incidental Expenses | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Trainer's travel and per diem | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Trainer's accommodations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Trainer's incidental expenses | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Indirect Costs | | | | | | | | |
| Overhead | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Office supplies and materials | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Equipment depreciation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Equipment maintenance | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Equipment repair | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Utilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| General and Administrative | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Department management salaries | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Department management benefits | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Communication and postage expenses | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |