

Costing systems and activity based costing.

Learning objectives

1. Describe the building block concept of costing systems
2. distinguish between job costing and process costing
3. outline a six-step approach to job costing
4. describe three guidelines for refining a costing system
5. describe the distinctive feature of activity-based costing

Cost assignment	Direct costs: can be traced to the object in an economically feasible way.	Cost tracing:	Cost Object: anything for which a separate measurement of costs is desired.
	Indirect costs: cannot be traced economically	Cost allocation:	

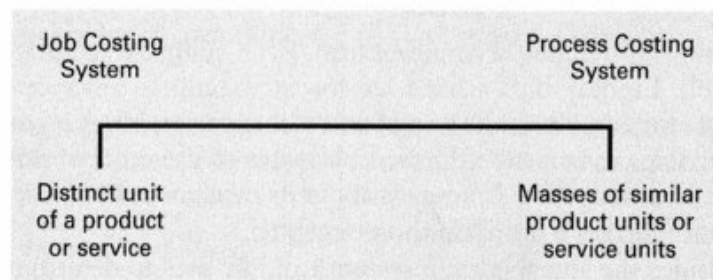
Cost pool: a grouping of individual cost items. (i.e. Cost of operating a car)

cost allocation base: a factor that is the common denominator for linking an indirect cost or group of indirect costs to a cost object. (i.e. Direct labour costs)

Job costing and process costing systems.

- ◆ **Job costing system.** In this system, costs are assigned to a distinct unit, batch, or lot of a product or service. A job is a task for which resources are expended in bringing a distinct product or service to market. The product or service is often custom-made, such as an audit by an accounting firm.
- ◆ **Process costing system.** In this system, the cost of a product or service is obtained by using broad averages to assign costs to masses of similar units. Frequently, identical items (such as Barbie dolls or roofing nails) are mass-produced for general sale and not for any specific customer.

These two types of costing systems are best viewed as ends of a continuum:



Most companies have costing systems that are neither pure job costing nor pure process costing. Rather, they combine elements of both job costing and process costing. For now, we introduce these two systems by focussing on their pure versions. Exhibit 4-1 presents examples of job and process costing in the service, merchandising, and manufacturing sectors.

The products or services accounted for with job costing can differ greatly. Accounting firms typically define individual audits as jobs, which can differ markedly in

EXHIBIT 4-1

Examples of Job Costing and Process Costing in the Service, Merchandising, and Manufacturing Sectors

	Service Sector	Merchandising Sector	Manufacturing Sector
Job Costing Used	<ul style="list-style-type: none"> ◆ Accounting firm audits ◆ Advertising agency campaigns 	<ul style="list-style-type: none"> ◆ Sending a catalogue to a mailing list ◆ Special promotion of a new store product 	<ul style="list-style-type: none"> ◆ Aircraft assembly ◆ House construction
Process Costing Used	<ul style="list-style-type: none"> ◆ Deposit processing ◆ Postal delivery (standard items) 	<ul style="list-style-type: none"> ◆ Grain dealing ◆ Processing new magazine subscriptions 	<ul style="list-style-type: none"> ◆ Oil refining ◆ Beverage production

Job costing in service organizations using actual costing of an audit engagement as an example.

General approach to job costing

Here we assume that the accounting firm for a fee of \$86 000

1. Identify the job that is the chosen cost object. (annual audit of financial statement)
2. Identify the direct costs for the job.(each auditor keeps a direct time record. Here we assume 800 hours of work at \$51.00 an hour)
3. Identify the indirect cost pools associated with the job. (This pool consists of a variety of individual costs that can often only be computed on an actual basis at the end of the year. Suppose those indirect costs amount of \$4 990 000 for other labour related costs plus \$ 7 700 000 for non-labour related costs= \$12 690 000.)
4. Select the cost allocation base to use in allocating each indirect cost pool to the job. (the base is professional labours-hours. Total labour-hours worked that year were 270 000.)
5. Develop the rate per unit of the cost allocation base used to allocate indirect costs to the job.
Actual indirect cost rate = $\frac{\text{actual total costs in indirect cost pool}}{\text{actual total quantity of cost allocation base}}$
= $\frac{\$12\,690\,000}{270\,000}$
= \$47 per professional labour-hour
6. Assign the costs to the cost object by adding all direct costs and all indirect costs.

	Cost per hour	# of hours	total
Direct job costs traced			
professional labour	51	800	40 800,00 \$
Indirect job costs allocated			
audit support	47	800	37 600,00 \$
Total			78 400,00 \$

Product cost cross-subsidization (undercosting or overcosting)

Product cost cross-subsidization means that at least one miscosted product is resulting in the miscosting of other products in the organization. A classic example arises when a cost is uniformly spread (broad-averaged or “peanut-buttered”) across multiple users without recognition of their different resource demands. Consider the costing of a restaurant bill for four colleagues who meet once a month to discuss business developments. Each diner orders separate entrees, desserts, and drinks. The restaurant bill for the most recent meeting is as follows:

	Entree	Dessert	Drinks	Total
Emma	\$11	\$ 0	\$ 4	\$ 15
James	20	8	14	42
Jessica	15	4	8	27
Matthew	14	4	6	24
Total	<u>\$60</u>	<u>\$16</u>	<u>\$32</u>	<u>\$108</u>
Average	<u>\$15</u>	<u>\$ 4</u>	<u>\$ 8</u>	<u>\$ 27</u>

The \$108 total restaurant bill produces a \$27 average cost per dinner. This broad-average costing approach treats each diner the same. Emma would probably object to paying \$27, because her actual cost is only \$15. Indeed, she ordered the lowest-cost entree, had no dessert, and had the lowest drink bill. When costs are averaged across all four diners, both Emma and Matthew are overcosted, James is undercosted, and Jessica is accurately costed.

The restaurant example is both simple and intuitive. The amount of cost cross-subsidization of each diner can be readily computed given that all cost items can be traced as direct costs to each diner. More complex costing issues arise, however, when there are indirect costs. Then resources are used by two or more individual diners. By definition, indirect costs require allocation—for example, the cost of a bottle of wine shared by two or more diners.

We now examine how costing systems can be refined to reduce the miscosting of jobs, products, or customers.

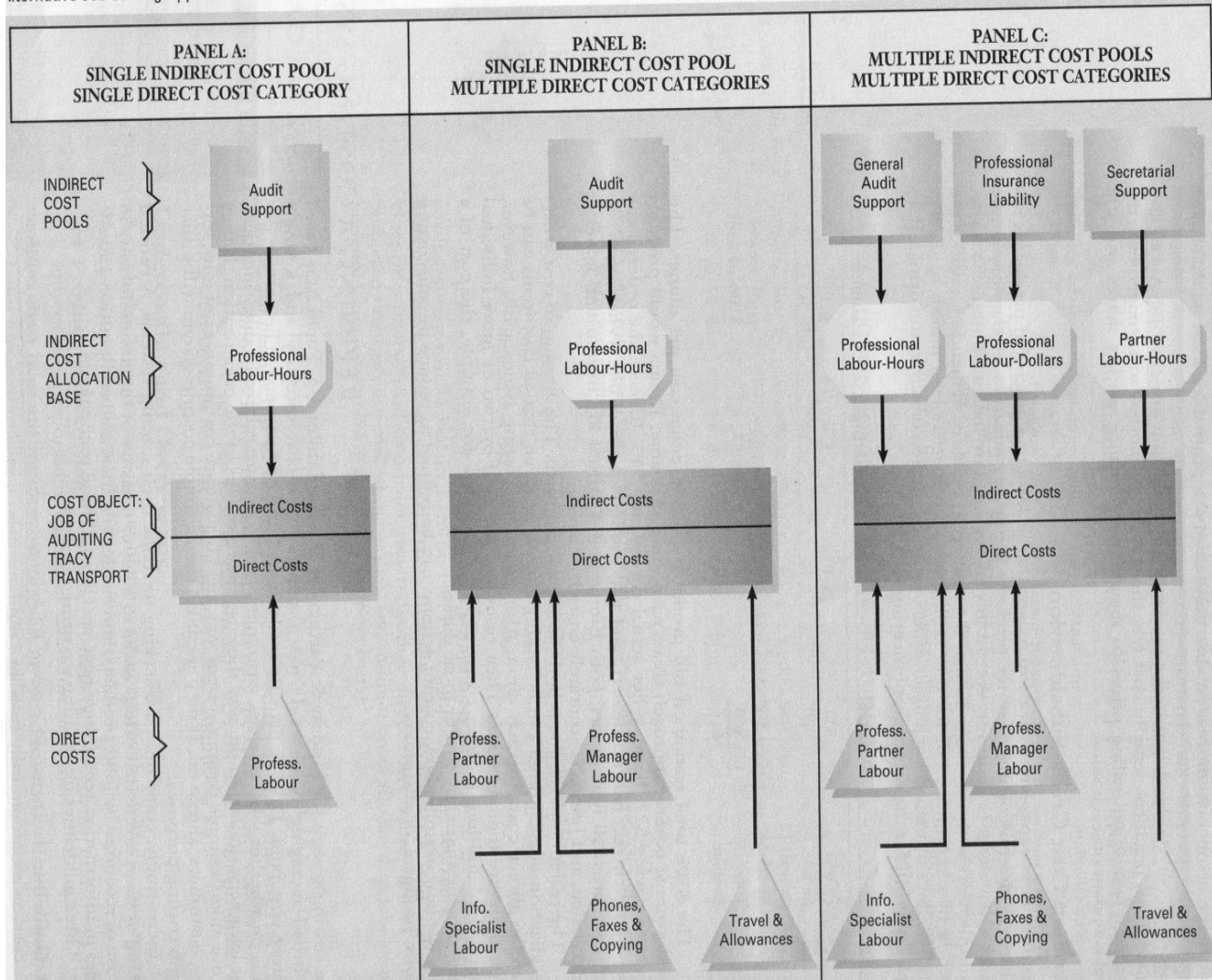
Refining costing system

Guideline:

1. direct cost tracing. Classify as many of the total costs as direct costs as is economically feasible.
2. Indirect cost pools. Expand the number of indirect cost pools until each of those pools is homogeneous.
3. Cost allocation bases. Identify an appropriate cost allocation base for each indirect cost pool.

Refinement via increase number of direct cost pools

Alternative Job Costing Approaches for Lindsay & Partners



Five categories of direct costs

1. Professional partner labour: \$100 per hour
2. professional manager labour: \$40 per hour
3. Information specialist labour: \$35 per hour
4. Phone/fax/copying
5. travel

refinement via increased number of indirect cost pools and cost drivers.

Indirect cost pool	Allocation base
1) general audit support	\$25 per professional labour-hour
2) liability insurance	15% of professional labour compensation
3) secretarial support	\$18 per professional partner labour-hour

Job Costing of Tracy Transport Audit Using Multiple Direct Cost Categories and Multiple Indirect cost Pools

Direct costs:

Professional partner labour, $\$100 \times 80$	\$ 8,000
Professional manager labour, $\$40 \times 720$	28,800
Information specialist labour, $\$35 \times 40$	1,400
Phone/fax/copying (as identified with this job)	800
Travel and per diem (as identified with this job)	<u>1,100</u>
	<u>40,100</u>

Indirect costs:

General audit support, $\$25 \times 800$	20,000
Professional liability insurance, $\$36,800 \times 0.15$	5,520
Secretarial support, $\$18 \times 80$	<u>1,440</u>
	<u>26,960</u>
Total costs	<u><u>\$67,060</u></u>

4-17 Job costing; actual, normal, and extended normal. Scandinavian Auto Services (SAS) services and repairs Volvo cars. It employs eight car technicians. SAS prides itself on quick turnaround of cars being serviced. It announced in December 19₆ that in 19₇ it will charge each customer a rate of \$100 per hour for technician time spent on a job plus a charge at 20% over cost for parts and materials. The \$100 per hour incorporates (a) technician compensation, (b) the costs of all the support facilities that are allocated to jobs on the basis of actual technician time spent on each job, and (c) a profit component on the job.

Budgeted and actual data for 19₇ are as follows:

Budget for 19₇

Auto technician compensation	\$480,000
Service area support costs	\$560,000
Technician hours billed to jobs	16,000 hours

Actual Results for 19₇

Service area support costs	\$512,000
Technician hours billed to jobs	12,800 hours

In April 19₇, the government introduced a 100% increase in duties on imported cars. This change led to a reduction in Volvos being serviced by SAS in the remainder of 19₇. During May 19₇, the actual hourly auto technician compensation was \$36.

REQUIRED

An auto repair job done in May 19₇ took 2.5 hours and required parts and materials for which the customer was charged \$150.00 (includes 20% charge over cost).

1. Identify the direct cost rate per auto technician hour and the indirect cost rate per auto technician that SAS would use to cost jobs done in May 19₇ under (a) actual costing, (b) normal costing, and (c) extended normal costing.
2. Compute the 19₇ job cost using (a) actual costing, (b) normal costing, and (c) extended normal costing. Explain any differences. Why might a customer of SAS object to the job being charged at an agreed-upon markup (say 25%) tied to actual cost rates?

- 4-19 **Job costing; actual, normal, and extended normal costing.** Vista Group provides architectural services for residential and business clients. It employs 25 professionals. Its job costing system has a single direct cost category (professional labour) and a single indirect cost pool (client support, which contains all the costs in the Client Support Department). Client support costs are allocated to individual jobs using actual professional labour-hours.

Budgeted and actual amounts for 19_8 are as follows:

Budget for 19_8

Professional labour compensation	\$4,000,000
Client Support Department costs	\$2,600,000
Professional labour-hours billed to clients	40,000 hours

Actual Results for 19_8

Client Support Department costs	\$2,436,000
Professional labour-hours billed to clients	42,000 hours

Actual professional labour cost rate is \$110 per hour.

REQUIRED

1. Identify the direct cost rate per professional labour-hour and the indirect cost rate per professional labour-hour for 19_8 under (a) actual costing, (b) normal costing, and (c) extended normal costing.
2. In 19_8, the Vista Group designed a new retirement village in Victoria, British Columbia for Carefree Years, Inc. Vista budgeted to spend 1,500 professional labour-hours on the project. Actual professional labour-hours spent were 1,720. Compute the job cost of the Carefree Years project using (a) actual costing, (b) normal costing, and (c) extended normal costing. Explain any differences.

4-21 Job costing, consulting firm. Taylor & Partners, a consulting firm, has the following condensed budget for 19_8:

Revenues		\$20,000,000
Total costs:		
Direct costs: Professional labour	\$ 5,000,000	
Indirect costs: Audit support	<u>13,000,000</u>	<u>18,000,000</u>
Operating income		<u>\$ 2,000,000</u>

Taylor has a single direct cost category (professional labour) and a single indirect cost pool (client support). Indirect costs are allocated to jobs on the basis of professional labour costs.

REQUIRED

1. Present an overview diagram of the job costing system. Compute the 19_8 budgeted indirect cost rate for Taylor & Partners.
2. The markup rate for pricing jobs is intended to produce a 10% operating income-to-revenue margin. Compute the markup rate as a percentage of professional labour costs.
3. Taylor is bidding on a consulting job for Red Rooster, a fast food chain specializing in poultry meats. The budgeted breakdown of professional labour on the job is as follows:

Professional Labour Category	Budgeted Rate per Hour	Budgeted Hours
Director	\$200	3
Partner	100	16
Manager	50	40
Assistant	30	160

Compute the budgeted cost of the Red Rooster job. How much will Taylor bid for the job if it is to earn its target operating income-to-revenue margin of 10%?