



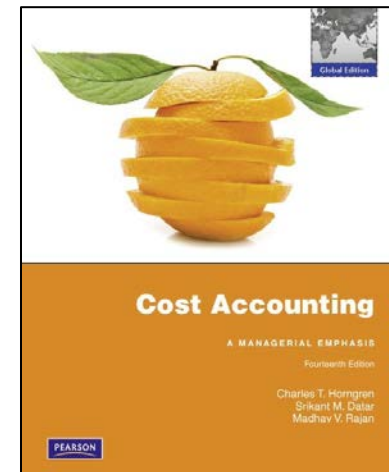
Institute of Accounting, Control
and Auditing

University of St.Gallen

MAccFin – Master of Arts in Accounting and Finance
Pflichtwahlfach
7,116,1.00 Techniken im Management Accounting

Allocation of Support-Department Costs, Common Costs, and Revenues Theorie & Cases

HDR, 14ed, Chapter 15



Support Department (Hilfskostenstelle) versus Operating Department (Hauptkostenstelle)

- ❖ Hilfskostenstelle (support or service department):
Sie erbringt Aktivitäten/Dienstleistungen an andere Hilfskostenstellen und/oder Hauptkostenstellen.
Z.B. EDV, Gebäude, Hausdienst usw.
- ❖ Hauptkostenstelle (operating or production department):
Sie fügt dem Gut oder Dienstleistung (Absatz) eine Wertsteigerung zu. Z.B. maschinelle Fertigung, Montage, Verpackung usw.

Frage: Wie werden die Kosten der Hilfskostenstellen den anderen Kostenstellen verrechnet?

Single-Rate versus Dual-Rate Method

- ❖ Die Single-Rate-Methode unterscheidet **nicht** zwischen den fixen und variablen Kosten der Hilfskostenstelle. Deren Kosten werden anhand eines einzigen Kostensatzes weiter verrechnet.
- ❖ Die Dual-Rate-Methode unterscheidet zwischen den fixen und variablen Kosten der Hilfskostenstelle. Jeder Teil für sich wird anhand eines separaten Kostensatzes weiter verrechnet.
- ❖ Üblicherweise werden die budgetierten Kostensätze verwendet.

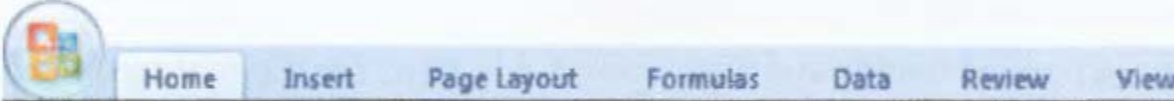
Single-Rate versus Dual-Rate Method - Forts.

- ❖ Zur Weiterverrechnung können sowohl die aktuellen Kosten-Treiber-Einheiten als auch die budgetierten verwendet werden.
- ❖ Bei der Single-Rate-Methode werden meist die aktuellen Kosten-Treiber-Einheiten zur Weiterverrechnung genommen.
- ❖ Bei der Dual-Rate-Methode werden für die fixen Kosten die budgetierten Kosten-Treiber-Einheiten verwendet, für die variablen Kosten die aktuellen.
Die Idee dahinter besteht darin, dass die fixen Kosten die «Bereitschaftskosten» bzw. Kapazitätskosten darstellen und im Budgetierungsprozess «angemeldet» wurden.

HDR, 14ed, Exercise 15-17, Chocolate Inc.

15-17 Single-rate method, budgeted versus actual costs and quantities. Chocolat Inc. is a producer of premium chocolate based in Palo Alto. The company has a separate division for each of its two products: dark chocolate and milk chocolate. Chocolat purchases ingredients from Wisconsin for its dark chocolate division and from Louisiana for its milk chocolate division. Both locations are the same distance from Chocolat's Palo Alto plant.

Chocolat Inc. operates a fleet of trucks as a cost center that charges the divisions for variable costs (drivers and fuel) and fixed costs (vehicle depreciation, insurance, and registration fees) of operating the fleet. Each division is evaluated on the basis of its operating income. For 2012, the trucking fleet had a practical capacity of 50 round-trips between the Palo Alto plant and the two suppliers. It recorded the following information:

			
	A	B	C
1		Budgeted	Actual
2	Costs of truck fleet	\$115,000	\$96,750
3	Number of round-trips for dark chocolate division (Palo Alto plant—Wisconsin)	30	30
4	Number of round-trips for milk chocolate division (Palo Alto plant—Louisiana)	20	15

HDR, 14ed, Exercise 15-17, Chocolate Inc. - Forts.

Required

1. Using the single-rate method, allocate costs to the dark chocolate division and the milk chocolate division in these three ways.
 - a. Calculate the budgeted rate per round-trip and allocate costs based on round-trips budgeted for each division.
 - b. Calculate the budgeted rate per round-trip and allocate costs based on actual round-trips used by each division.
 - c. Calculate the actual rate per round-trip and allocate costs based on actual round-trips used by each division.
2. Describe the advantages and disadvantages of using each of the three methods in requirement 1. Would you encourage Chocolat Inc. to use one of these methods? Explain and indicate any assumptions you made.

HDR, 14ed, Exercise 15-17, Chocolate Inc. - Lösungsvorschlag zu 1.a., 1.b. & 1.c.

1. a. $\text{Budgeted rate} = \frac{\text{Budgeted indirect costs}}{\text{Budgeted trips}} = \$115,000/50 \text{ trips} = \$2,300 \text{ per round-trip}$

Indirect costs allocated to Dark C. Division = $\$2,300 \text{ per round-trip} \times 30 \text{ budgeted round trips}$
= \$69,000

Indirect costs allocated to Milk C. Division = $\$2,300 \text{ per round-trip} \times 20 \text{ budgeted round trips}$
= \$46,000

b. $\text{Budgeted rate} = \$2,300 \text{ per round-trip}$

Indirect costs allocated to Dark C. Division = $\$2,300 \text{ per round-trip} \times 30 \text{ actual round trips}$
= \$69,000

Indirect costs allocated to Milk C. Division = $\$2,300 \text{ per round-trip} \times 15 \text{ actual round trips}$
= \$34,500

c. $\text{Actual rate} = \frac{\text{Actual indirect costs}}{\text{Actual trips}} = \$96,750/45 \text{ trips} = \$2,150 \text{ per round-trip}$

Indirect costs allocated to Dark C. Division = $\$2,150 \text{ per round-trip} \times 30 \text{ actual round trips}$
= \$64,500

Indirect costs allocated to Milk C. Division = $\$2,150 \text{ per round-trip} \times 15 \text{ actual round trips}$
= \$32,250

HDR, 14ed, Exercise 15-17, Chocolate Inc. - Lösungsvorschlag zu 2.

- ❖ When **budgeted rates/budgeted quantities** are used, the Dark Chocolate and Milk Chocolate Divisions know at the start of 2012 that they will be charged a total of \$69,000 and \$46,000 respectively for transportation. In effect, the fleet resource becomes a fixed cost for each division. Then, each may be motivated to over-use the trucking fleet, knowing that their 2012 transportation costs will not change.

HDR, 14ed, Exercise 15-17, Chocolate Inc. - Lösungsvorschlag zu 2. - Forts.

- ❖ When **budgeted rates/actual quantities** are used, the Dark Chocolate and Milk Chocolate Divisions know at the start of 2012 that they will be charged a rate of \$2,300 per round trip, i.e., they know the price per unit of this resource. This enables them to make operating decisions knowing the rate they will have to pay for transportation. Each can still control its total transportation costs by minimizing the number of round trips it uses. Assuming that the budgeted rate was based on honest estimates of their annual usage, this method will also provide an estimate of the excess trucking capacity (the portion of fleet costs not charged to either division). In contrast, when actual costs/actual quantities are used, the two divisions must wait until year-end to know their transportation charges.

HDR, 14ed, Exercise 15-17, Chocolate Inc. - Lösungsvorschlag zu 2. - Forts.

- ❖ The use of **actual costs/actual quantities** makes the costs allocated to one division a function of the actual demand of other users. In 2012, the actual usage was 45 trips, which is 5 trips below the 50 trips budgeted. The Dark Chocolate Division used all the 30 trips it had budgeted. The Milk Chocolate Division used only 15 of the 20 trips budgeted. When costs are allocated based on actual costs and actual quantities, the same fixed costs are spread over fewer trips resulting in a higher rate than if the Milk Chocolate Division had used its budgeted 20 trips. As a result, the Dark Chocolate Division bears a proportionately higher share of the fixed costs.

HDR, 14ed, Exercise 15-17, Chocolate Inc. - Lösungsvorschlag zu 2. - Forts.

- ❖ Using **actual costs/actual rates** also means that any efficiencies or inefficiencies of the trucking fleet get passed along to the user divisions. In general, this will have the effect of making the truck fleet less careful about its costs, although in 2012, it appears to have managed its costs well, leading to a lower actual cost per roundtrip relative to the budgeted cost per round trip.
- ❖ For the reasons stated above, of the three single-rate methods suggested in this problem, the budgeted rate and actual quantity may be the best one to use. (The management of Chocolat would have to ensure that the managers of the Dark Chocolate and Milk Chocolate divisions do not systematically overestimate their budgeted use of the fleet division in an effort to drive down the budgeted rate).

HDR, 14ed, Exercise 15-18, Chocolate Inc.

15-18 Dual-rate method, budgeted versus actual costs and quantities (continuation of 15-17). Chocolat Inc. decides to examine the effect of using the dual-rate method for allocating truck costs to each round-trip. At the start of 2012, the budgeted costs were as follows:

Variable cost per round-trip	\$ 1,350
Fixed costs	\$47,500

The actual results for the 45 round-trips made in 2012 were as follows:

Variable costs	\$58,500
Fixed costs	<u>38,250</u>
	<u>\$96,750</u>

Assume all other information to be the same as in Exercise 15-17.

Required

- Using the dual-rate method, what are the costs allocated to the dark chocolate division and the milk chocolate division when (a) variable costs are allocated using the budgeted rate per round-trip and actual round-trips used by each division and when (b) fixed costs are allocated based on the budgeted rate per round-trip and round-trips budgeted for each division?
- From the viewpoint of the dark chocolate division, what are the effects of using the dual-rate method rather than the single-rate methods?

HDR, 14ed, Exercise 15-18, Chocolate Inc. - Lösungsvorschlag zu 1.

1. Charges with dual rate method.

Variable indirect cost rate	=	\$1,350 per trip
Fixed indirect cost rate	=	\$47,500 budgeted costs/ 50 round trips budgeted
	=	\$950 per trip

Dark Chocolate Division

Variable indirect costs, $\$1,350 \times 30$	\$40,500
Fixed indirect costs, $\$950 \times 30$	<u>28,500</u>
	<u>\$69,000</u>

Milk Chocolate Division

Variable indirect costs, $\$1,350 \times 15$	\$20,250
Fixed indirect costs, $\$950 \times 20$	<u>19,000</u>
	<u>\$39,250</u>

HDR, 14ed, Exercise 15-18, Chocolate Inc. - Lösungsvorschlag zu 2.

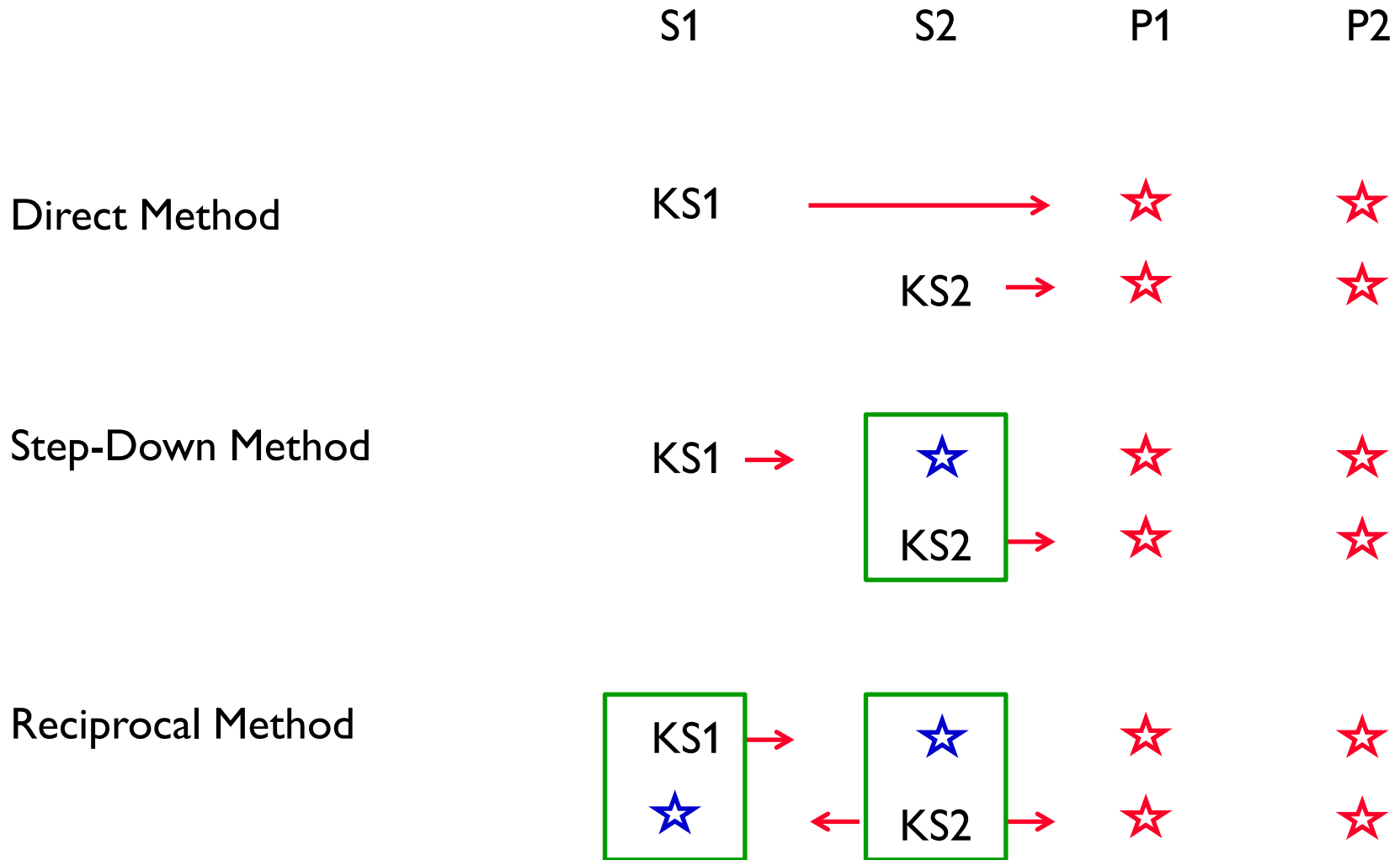
- ❖ The dual rate changes how the fixed indirect cost component is treated. By using budgeted trips made, the Dark Chocolate Division is unaffected by changes from its own budgeted usage or that of other divisions. When budgeted rates and actual trips are used for allocation (see requirement 1.b. of problem 15-17), the Dark Chocolate Division is assigned the same \$28,500 for fixed costs as under the dual-rate method because it made the same number of trips as budgeted. However, note that the Milk Chocolate Division is allocated \$19,000 in fixed trucking costs under the dual-rate system, compared to $\$950 \times 15$ actual trips = \$14,250 when actual trips are used for allocation.
- ❖ As such, the Dark Chocolate Division is not made to appear disproportionately more expensive than the Milk Chocolate Division simply because the latter did not make the number of trips it budgeted at the start of the year.

Interne Leistungsverrechnung

- ❖ Zur Weiterverrechnung der erbrachten Leistungen von Hilfskostenstellen könnten drei Methoden unterschieden werden:
 - Direct Method
 - Step-Down Method
 - Reciprocal Method

- ❖ Die folgende Darstellung soll die Unterschiede der drei Methoden visualisieren. Dabei steht 'S' für Hilfskostenstelle und 'P' für Hauptkostenstelle.

Übersicht der drei Methoden



Williams Company

BLOCHER, Edward J.; STOUT, David E.; COKINS, Gary; CHEN, Kung H..2006, 4th edition. Cost Management - A Strategic Emphasis. Boston: McGraw-Hill/Irwin. page 481f.

Problem 12-28 Departmental Cost Allocation; Outsourcing

Williams Company produces two software products (NetA and NetB) in two separate departments (A and B). These products are highly regarded network-maintenance programs. NetA is used for small networks and NetB is used for large networks. Williams is known for the quality of its products and its ability to meet dates promised for software upgrades. Department A produces NetA and Department B produces NetB. The production departments are supported by two support departments, systems design and programming services. The source and use of the support department time are summarized below:

<u>From</u>	<u>To</u>				Total Labor-Hours
	<u>Design</u>	<u>Programming</u>	<u>Dept. A</u>	<u>Dept. B</u>	
Design	n.a.	4'000 25.00%	3'000 18.75%	9'000 56.25%	16'000 100.00%
Programming	600 30.0%	n.a.	600 30.0%	800 40.0%	2'000 100%

The costs in the two service departments are as follows:

	<u>Design</u>	<u>Programming</u>
Labor and materials (all variable)	\$36'000	\$25'000
Depreciation and other fixed costs	\$38'000	\$45'000
Total	<u>\$74'000</u>	<u>\$70'000</u>

12-28 Requirements

- What are the costs allocated to the two production departments from the two service departments using
 - the direct method
 - the step method (both possible sequences), and
 - the reciprocal method?

Williams Company - Lösungsvorschlag (a)

Williams Company

Direct method

	<u>Support Departments</u>		Department A	Department B	Total Costs
	Design	Programming			
Costs incurred	74'000.00	70'000.00			144'000.00
Service Department Allocation					
Design	-74'000.00		18'500.00	55'500.00	-
Programming		-70'000.00	30'000.00	40'000.00	-
Total Costs	-	-	48'500.00	95'500.00	144'000.00

'Technical' Support Relationship

(↓ supplied by; → used by)

Design	-	25%	18.75%	56.25%
Programming	30%	-	30%	40%

Williams Company - Lösungsvorschlag (b)

Williams Company

Step-down method (Desing first)

	Support Departments		Department A	Department B	Total Costs
	Design	Programming			
Costs incurred	74'000.00	70'000.00			144'000.00
Service Department Allocation					
Design	-74'000.00	18'500.00	13'875.00	41'625.00	-
Programming		-88'500.00	37'928.57	50'571.43	-
Total Costs	-	-	51'803.57	92'196.43	144'000.00

'Technical' Support Relationship

(↓ supplied by; → used by)

Design	-	25%	18.75%	56.25%
Programming	30%	-	30%	40%

Williams Company - Lösungsvorschlag (b)

Williams Company

Step-down method (Programming first)

	Support Departments		Department A	Department B	Total Costs
	Programming	Design			
Costs incurred	70'000.00	74'000.00			144'000.00
Service Department Allocation					
Programming	-70'000.00	21'000.00	21'000.00	28'000.00	-
Design		-95'000.00	23'750.00	71'250.00	-
Total Costs	-	-	44'750.00	99'250.00	144'000.00
<u>'Technical' Support Relationship</u>					
(↓ supplied by; → used by)					
Programming	-	30%	30%	40%	
Design	25%	-	18.75%	56.25%	

Williams Company - Lösungsvorschlag (c)

Williams Company

Reciprocal

	Support Departments		Department A	Department B	Total Costs
	Design	Programming			
Costs incurred	74'000.00	70'000.00			144'000.00
Service Department Allocation					
Design	-102'702.70	25'675.68	19'256.76	57'770.27	-
Programming	28'702.70	-95'675.68	28'702.70	38'270.27	-
Total Costs	-	-	47'959.46	96'040.54	144'000.00
<u>Technical' Support Relationship</u>					
(↓ supplied by; → used by)					
Design	-	25%	18.75%	56.25%	
Programming	30%	-	30%	40%	

Equation:

Design Cost =	74'000.00	+	30%	·	Programming Cost
Programming Cost =	70'000.00	+	25%	·	Design Cost

Design Cost =	solve two linear equations with two variables
Programming Cost =	solve two linear equations with two variables

Use of 'Cramer's' rule	1	-0.30	74'000.00
	-0.25	1	70'000.00
	0.925	95000	88500
	102'702.70		95'675.68
	Design Cost		Programming Cost

A Company

Gleim CMA Test Prep 4.6

Allocation of Service Department Costs

Question: 4.2.34 to 4.2.40

A company has two service departments (S1 and S2) and two production departments (P1 and P2). Departmental data for January were as follows:

	<u>S1</u>	<u>S2</u>
Costs incurred:	\$27,000	\$18,000
Service provided to:		
S1	—	20%
S2	10%	—
P1	50%	30%
P2	40%	50%

What are the total allocated service department costs to P2 if the company uses the reciprocal method of allocating its service department costs? (Round calculations to the nearest whole number.)

- A. \$19,800
- B. \$21,949
- C. \$22,500
- D. \$23,051

A Company - Lösungsvorschlag

A Company

Direct method

	<u>Support Departments</u>		P1	P2	Total Costs
	S1	S2			
Costs incurred	27'000.00	18'000.00			45'000.00
Service Department Allocation					
S1	-27'000.00		15'000.00	12'000.00	-
S2		-18'000.00	6'750.00	11'250.00	-
Total Costs	-	-	21'750.00	23'250.00	45'000.00

'Technical' Support Relationship

(↓ supplied by; → used by)

S1	-	10%	50%	40%
S2	20%	-	30%	50%

A Company - Lösungsvorschlag

A Company

Step-down method (S1 first)

	<u>Support Departments</u>		P1	P2	Total Costs
	S1	S2			
Costs incurred	27'000.00	18'000.00			45'000.00
Service Department Allocation					
S1	-27'000.00	2'700.00	13'500.00	10'800.00	-
S2		-20'700.00	7'762.50	12'937.50	-
Total Costs	-	-	21'262.50	23'737.50	45'000.00

'Technical' Support Relationship

(↓ supplied by; → used by)

S1	-	10%	50%	40%
S2	20%	-	30%	50%

A Company - Lösungsvorschlag

A Company

Step-down method (S2 first)

	Support Departments				Total Costs
	S2	S1	P1	P2	
Costs incurred	18'000.00	27'000.00			45'000.00
Service Department Allocation					
S1	-18'000.00	3'600.00	5'400.00	9'000.00	-
S2		-30'600.00	17'000.00	13'600.00	-
Total Costs	-	-	22'400.00	22'600.00	45'000.00

'Technical' Support Relationship

(↓ supplied by; → used by)

S2	-	20%	30%	50%
S1	10%	-	50%	40%

A Company - Lösungsvorschlag

A Company

Reciprocal

	Support Departments				Total Costs
	S1	S2	P1	P2	
Costs incurred	27'000.00	18'000.00			45'000.00
Service Department Allocation					
S1	-31'224.49	3'122.45	15'612.24	12'489.80	-
S2	4'224.49	-21'122.45	6'336.73	10'561.22	-
Total Costs	-	-	21'948.98	23'051.02	45'000.00
<u>Technical' Support Relationship</u>					
(↓ supplied by; → used by)					
S1	-	10%	50%	40%	
S2	20%	-	30%	50%	

Answer (D) is **correct**. The reciprocal method allocates service department costs to other service departments as well as to production departments by means of simultaneous equations, as shown below. Thus, total service cost allocated to P2 is \$23,051 [(\$31,224 × 40%) + (\$21,122 × 50%)].

$$\begin{aligned}
 S1 &= \$27,000 + .2S2 \\
 &\quad \$27,000 + [.2(\$18,000 + .1S1)] \\
 &\quad \$27,000 + \$3,600 + .02S1 \\
 .98S1 &= \$30,600 \\
 S1 &= \$31,224 \\
 S2 &= \$18,000 + .1(\$31,224) \\
 &\quad \$18,000 + \$3,122 \\
 S2 &= \$21,122
 \end{aligned}$$

Gemeinsame Kosten (common costs) Gebündelte Produkte (bundled products)

- ❖ Gemeinsame Kosten (common costs) sind Betriebskosten einer Anlage, einer Aktivität oder eines Kostenobjekts, deren Output mehr als einem Nutzer zukommt.
- ❖ Wenn gebündelte Produkte (bundled products) zu einem Einheitspreis (single price) angeboten werden, entsteht auch hier eine Zuordnungsproblematik.
- ❖ Die Idee dieser «Sammelbestellung» / dieses «Bundle» besteht darin, dass diese günstiger ist, als eine Einzelbeschaffung.

Gemeinsame Kosten (common costs) Gebündelte Produkte (bundled products) - Forts.

- ❖ Zwei Allokationsmethoden sind dabei üblich:
 - Einzelbetrachtung (stand-alone)
 - Grenzbetrachtung (incremental)
- ❖ Bei der **Einzelbetrachtung** erfolgt die Kosten- bzw. Erlös-Allokation anhand der einzelnen Kosten bzw. Preise.
- ❖ Hinweis: Bei der Erlösverrechnung kann der Verkaufspreis, die Einzelstückkosten oder die physischen Einheiten als Basis der Verrechnung angewendet werden.

Gemeinsame Kosten (common costs) Gebündelte Produkte (bundled products) - Forts.

- ❖ Bei der **Grenzbetrachtung** muss zuerst eine Rangordnung der Nutzer/Produkte festgelegt werden.
- ❖ Anschliessend werden die Kosten bzw. Erlöse gemäss dieser Rangordnung zugeordnet (gemäss einzelner Kosten bzw. Preise).
 - Der Nutzer bzw. das Produkt mit Rang 1 erhält somit die vollen Einzelkosten- bzw. Einzelerlös-Verrechnung;
 - Die Nutzer bzw. Produkte mit Rang 2, 3 usw. erhalten nur noch solange die Einzelkosten- bzw. Einzelerlös-Verrechnung bis die zu verrechnende Summe aufgebraucht ist.

HDR, 14ed, Exercise 15-23, Ben and Gary

15-23 Allocation of common costs. Ben and Gary are students at Berkeley College. They share an apartment that is owned by Gary. Gary is considering subscribing to an Internet provider that has the following packages available:

Package	Per Month
A. Internet access	\$60
B. Phone services	15
C. Internet access + phone services	65

Ben spends most of his time on the Internet (“everything can be found online now”). Gary prefers to spend his time talking on the phone rather than using the Internet (“going online is a waste of time”). They agree that the purchase of the \$65 total package is a “win-win” situation.

Required

1. Allocate the \$65 between Ben and Gary using (a) the stand-alone cost-allocation method, (b) the incremental cost-allocation method, and (c) the Shapley value method.
2. Which method would you recommend they use and why?

HDR, 14ed, Exercise 15-23, Ben and Gary - Lösungsvorschlag zu 1. overview and a.

Three methods of allocating the \$65 are:

	Ben	Gary
Stand-alone	\$52	\$13
Incremental (Gary primary)	15	50
Incremental (Ben primary)	60	5
Shapley value	55	10

a. Stand-alone cost allocation method.

$$\text{Ben: } \frac{\$60}{\$60 + \$15} \times \$65 = \frac{4}{5} \times \$65 = \$52$$

$$\text{Gary: } \frac{\$15}{\$60 + \$15} \times \$65 = \frac{1}{5} \times \$65 = \$13$$

HDR, 14ed, Exercise 15-23, Ben and Gary - Lösungsvorschlag zu 1. b.

b. Incremental cost allocation method.

Assume Gary (the owner) is the primary user and Ben is the incremental user:

User	Costs Allocated	Cumulative Costs Allocated
Gary	\$15	\$15
Ben	<u>50</u> (\$65 – \$15)	\$65
Total	<u>\$65</u>	

This method may generate some dispute over the ranking. Notice that Ben pays only \$50 despite his prime interest in the more expensive Internet access package. Gary could make the argument that if Ben were ranked first he would have to pay \$60 since he is the major Internet user. Then, Gary would only have to pay \$5!

Assume Ben is the primary user and Gary is the incremental user:

User	Costs Allocated	Cumulative Costs Allocated
Ben	\$60	\$60
Gary	<u>5</u> (\$65 – \$60)	\$65
Total	<u>\$65</u>	

HDR, 14ed, Exercise 15-23, Ben and Gary - Lösungsvorschlag zu 1. c. und 2.

c. Shapley value (average over costs allocated as the primary and incremental user).

User	Costs Allocated
Ben	$(\$50 + \$60) \div 2 = \$55$
Gary	$(\$15 + \$5) \div 2 = \$10$

2. The Shapley value approach is recommended. It is fairer than the incremental method because it avoids considering one user as the primary user and allocating more of the common costs to that user. It also avoids disputes about who is the primary user. It allocates costs in a manner that is close to the costs allocated under the stand-alone method but takes a more comprehensive view of the common cost allocation problem by considering primary and incremental users that the stand-alone method ignores.

HDR, 14ed, Exercise 15-25, Yves Parfum Company

15-25 Revenue allocation, bundled products. Yves Parfum Company blends and sells designer fragrances. It has a Men's Fragrances Division and a Women's Fragrances Division, each with different sales strategies, distribution channels, and product offerings. Yves is now considering the sale of a bundled product consisting of a men's cologne and a women's perfume. For the most recent year, Yves reported the following:

	A	B
1	Product	Retail Price
2	Monaco (men's cologne)	\$ 48
3	Innocence (women's perfume)	112
4	L'Amour (Monaco + Innocence)	130

Required

- Allocate revenue from the sale of each unit of L'Amour to Monaco and Innocence using the following:
 - The stand-alone revenue-allocation method based on selling price of each product
 - The incremental revenue-allocation method, with Monaco ranked as the primary product
 - The incremental revenue-allocation method, with Innocence ranked as the primary product
 - The Shapley value method, assuming equal unit sales of Monaco and Innocence
- Of the four methods in requirement 1, which one would you recommend for allocating L'Amour's revenues to Monaco and Innocence? Explain.

HDR, 14ed, Exercise 15-25, Yves Parfum Company - Lösungsvorschlag 1.a. & 1.b.

1a. Under the stand alone revenue-allocation method based on selling price, Monaco will be allocated 30% of all revenues, or \$39 of the bundled selling price, and Innocence will be allocated 70% of all revenues, or \$91 of the bundled selling price, as shown below.

Stand-alone method, based on selling prices			
	Monaco	Innocence	Total
Selling price	\$48	\$112	\$160
Selling price as a % of total (\$48 ÷ \$160; \$112 ÷ \$160)	30%	70%	100%
Allocation of \$130 bundled selling price (30% × \$130; 70% × \$130)	\$39	\$91	\$130

1b. Under the incremental revenue-allocation method, with Monaco ranked as the primary product, Monaco will be allocated \$48 (its own stand-alone selling price) and Innocence will be allocated \$82 of the \$130 selling price, as shown below.

Incremental Method (Monaco rank 1)		
	Monaco	Innocence
Selling price	\$48	\$112
Allocation of \$130 bundled selling price (\$48; \$82 = \$130 – \$48)	\$48	\$82

HDR, 14ed, Exercise 15-25, Yves Parfum Company - Lösungsvorschlag 1.c. & 1.d.

1c. Under the incremental revenue-allocation method, with Innocence ranked as the primary product, Innocence will be allocated \$112 (its own stand-alone selling price) and Monaco will be allocated \$18 of the \$130 selling price, as shown below.

Incremental Method (Innocence rank 1)			Monaco	Innocence
Selling price			\$48	\$112
Allocation of \$130 bundled selling price (\$18 = \$130 – \$112; \$112)			\$18	\$112

1d. Under the Shapley value method, each product will be allocated the average of its allocations in 1b and 1c, i.e., the average of its allocations when it is the primary product and when it is the secondary product, as shown below.

Shapley Value Method			Monaco	Innocence
Allocation when Monaco = Rank 1; Innocence = Rank 2 (from 1b.)			\$48	\$ 82
Allocation when Innocence = Rank 1; Monaco = Rank 2 (from 1c.)			\$18	\$112
Average of allocated selling price (\$48 + \$18) ÷ 2; (\$82 + \$112) ÷ 2			\$33	\$ 97

HDR, 14ed, Exercise 15-25, Yves Parfum Company - Lösungsvorschlag 2.

- ❖ If there is no clear indication of which product is the more “important” product, or, if it can be reasonably assumed that the two products are equally important to the company's strategy, **the Shapley value method is the fairest of all the methods because it averages the effect of product rank.**
- ❖ In this particular case, note that the allocations from the stand-alone method based on selling price are reasonably similar to the allocations from the Shapley value method, so the managers at Yves may well want to use the much simpler stand-alone method. The stand-alone method also does not require ranking the products in the suite, and so it is less likely to cause debates among product managers in the Men's and Women's Fragrance divisions.
- ❖ If, however, one of the products (Monaco or Innocence) is clearly the product that is driving sales of the bundled product, then that product should be considered the primary product.