

The shape of your own cost

Chapter 1 and Appendix B, group 1. Twenty minutes off the trial balance. It sizes everything else: the more of conversion cost is overhead, the more the allocation base decides your margins.

Company / plant		Prepared by	
Period		Date	

Line	Amount	Share of factory cost	Share of revenue	Evidence behind it
Direct material				
Direct labor				
Factory overhead				
Total factory cost				
Revenue				
Selling, general and administrative (period cost: in no part)				

Ratio	Your figure	Calderbrook	Reading
Overhead as a share of conversion cost (overhead / (overhead + direct labor))			
Overhead as a multiple of direct labor			
Overhead as a share of total factory cost			
The multiple when the allocation base was chosen (year, by whom)			

Calderbrook: 73.7 per cent of conversion cost, 2.80 times direct labor, 39.5 per cent of factory cost. Above one half of conversion cost, the allocation base is the largest single assumption in your costing system.

Cost card line, one part	Highest-volume part	Lowest-volume part	Document behind it
Material (purchase order, invoice)			
Direct labor (routing, clock record)			
Overhead (rate x hours: whose division, which divisor?)			
Overhead as a share of unit cost			

Where the overhead share of unit cost reads above thirty per cent, the allocation base is deciding the margin. Calderbrook: 40.4, 35.2, 37.9 and 47.0.

Opening the pool

Chapter 4 and Appendix B, groups 2 and 4. Not a new analysis: the budget lines you already have, regrouped by what makes each one move. Finished when every group has a manager who agrees with the driver beside it.

Company / plant		Prepared by	
Period		Date	

Activity (cost centers inside it)	Cost for the year	Driver	Driver total	Level (unit / batch / product / facility)	Manager who agrees
Setup and changeover					
Order handling and scheduling					
Machine running					
Engineering and change notes					
Quality and inspection					
Other: _____					
Facility cost hiding inside the pools above					
TOTAL (must equal the pool to the cent)					

Manager asked	What makes your week busy? (their words)	What would have to change for your workload to halve?

A labor-hour base is a unit-level base. Spreading batch and product-level cost on it always moves money from long runs to short ones, so the sign of the error is known before anything is computed. Calderbrook: 8,820,000 of 13,440,000 is batch or product-level and every dollar of it is spread per hour.

Driver count reconciliation, one quarter by hand

Chapter 4 and Chapter 16. Check that the file records the event you think it records before anything is costed on it. Expect the first count to be wrong, and name where it is weakest before anyone else does.

Company / plant		Prepared by	
Period		Date	

Driver	Source system	System count	Physical log count	Difference	Cause found
Setups (order-operations with a setup time, or setup hours booked)					
Production orders released					
Machine hours					
Engineering changes (LINES touching a part number, not packages)					
Inspection events					

Item	Answer	Evidence / note
Known failure modes: tick when tested		
A job stopped and restarted booked as two setups		
A changeover across a shift boundary booked to neither shift		
An order split into two releases: one in the schedule, two in the file		
A forty-minute and a four-hour changeover counted as one event each (prefer hours)		
Change packages counted instead of change lines		
Once people know they are costed on it (gaming watch, first year)		
Setup count falling with no changeover programme and no change in order sizes		
Change notes bundled: fewer documents, same work		
Counts compared with machine utilization, orders released and the shop-floor log for sample weeks		

Miscounting concentrates where activity is densest, on the low-volume families the labor-hour base already under-costs, so a first count usually understates the gap.

One family, costed twice

Chapter 3, Chapter 5 and Appendix A. Same material, same labor, same pool: only the address of the overhead changes. Rates multiplied unrounded (87.8776, not 87.88).

Company / plant		Prepared by	
Period		Date	

Line	Absorbed (labor-hour rate)	On its drivers	Difference
Material a unit			
Direct labor a unit			
Overhead a unit			
UNIT COST			
Price			
Unit margin			
Margin per cent			

Pool	Rate (pool / factory driver total)	Family driver count	Charge to the family
Setup and changeover			
Order handling and scheduling			
Machine running			
Engineering and change notes			
Quality and inspection			
OVERHEAD TOTAL / volume = overhead a unit			

Item	Answer	Evidence / note
Before showing anyone		
Absorbed overhead across all families equals the pool		
Driver overhead across all families equals the pool		
Both margin columns foot to the gross profit in the accounts		
The shifts sum to zero (a dollar of rounding in print, zero in the arithmetic)		

Calderbrook bracket: 287.69 absorbed, 436.91 on its drivers; 17.3 per cent reported, -25.5 per cent earned.

The cross-subsidy, as one number

Chapter 6. Predict the sign before you show the size: whichever family has the most units between setups is paying for the one with the fewest.

Company / plant		Prepared by	
Period		Date	

Family	Units a setup	Units an order	Units an engineering change	Absorbed overhead	Driver overhead	Shift
Family / part group 1 (highest volume)						
Family 2						
Family 3						
Family 4 (lowest volume)						
TOTAL						

The number	Your figure	Calderbrook
Cross-subsidy (sum of the negative shifts)		
As a share of operating profit		
As a share of the overhead pool		
As a share of revenue		
Largest single family's share of the cross-subsidy		

Item	Answer	Evidence / note
Before the meeting		
Say "misattribution", refuse "loss": the money is in the bank and in the right total		
Concede the audit completely; keep back only the denominator (IAS 2 / ASC 330: normal capacity)		
Write the two names on the board (most and fewest units a setup) before showing the table		
Split your largest family by batch size: does the same migration run again inside it?		

Calderbrook: 4,053,091, which is 55.6 per cent of operating profit, and 2,909,759 of it on one family. A second cross-subsidy nested inside each family can only add to it.

Capacity: the rate computed twice

Chapter 8, Chapter 2 and Appendix B, group 7. The same pool over the hours worked and over the hours the plant can work. IAS 2 and ASC 330 allocate fixed production overhead on normal capacity.

Company / plant		Prepared by	
Period		Date	

	Labor hours	Machine hours
Practical capacity		
Hours actually worked		
Idle hours		
Utilization		

	Your figure	Calderbrook
Absorption rate at actual hours		
Absorption rate at practical capacity		
Gap an hour, and per cent		
COST OF IDLE CAPACITY (idle hours x practical rate)		
As a share of the pool / of operating profit		
Machine rate at actual / at practical machine hours		

Item	Answer	Evidence / note
The definition of practical capacity, signed off		
Shifts counted		
Weekends counted or not		
Planned maintenance deducted		
Changeover allowance (recompute when the mix moves)		
Training and short-handed days allowed		
The SAME figure used in the last capital request		
Signed off by (board member) and held for the year		

Calderbrook: 87.88 against 80.00; 15,060 idle hours carrying 1,204,800, 9.0 per cent of the pool and 16.5 per cent of operating profit. A rate that rises in a bad year is this defect.

The cost of one order, and the two break-evens

Chapter 9 and Appendix B, group 6. Label which question each answer belongs to: the full-cost figure asks whether the order pattern pays over a year; the avoidable one whether next week's order brings in cash.

Company / plant		Prepared by	
Period		Date	

Family	Setups an order	Cost of one order, full	Cost of one order, avoidable	Contribution on a unit, full	Contribution on a unit, avoidable	Break-even full / avoidable	Average order
Family / part group 1 (highest volume)							
Family 2							
Family 3							
Family 4 (lowest volume)							

Cost of one order = setups of the family x setup rate / its orders + the order rate. Contribution full = price less the unit cost excluding the batch charge. Avoidable: the same with the avoidable shares.

Order quantity	Unit cost	Unit margin	Margin %	Margin on the order
25				
50				
100				
250				
1,000				
Customer's current average				

Item	Answer	Evidence / note
Before a minimum order quantity is set or waived		
Are inspections counted per order? If they come out whole against orders, they are batch-level cost too		
Is the plant capacity-constrained? If so the avoidable test is too low: add the displaced contribution		
What would halve the setups an order (routing, fixtures, cell scheduling), and its payback		
Price and quantity negotiated in the same conversation		

Calderbrook bracket: 1,069.19 to start an order, 34.9 and 6.1 units to break even, ordered in 8.945.

Make or buy on three costs

Chapter 10 and Appendix B, group 8. Build the avoidable cost before the quote arrives, pool by pool, with each share given in writing by the manager who owns the budget.

Company / plant		Prepared by	
Period		Date	

Pool	Family's driver charge	Share that leaves (manager, in writing)	Avoidable	Stranded
Setup and changeover				
Order handling and scheduling				
Machine running				
Engineering and change notes				
Quality and inspection				
TOTAL				

A unit	Amount	Says (quote below it = buy)
Outside quote		
Absorbed cost		
Avoidable cost (material + labor + avoidable overhead)		
Full driver cost		
Effect of buying a year ((avoidable - quote) x volume)		
Overhead stranded a year		

Item	Answer	Evidence / note
Costs of buying the model leaves out		
Qualification and first-article		
Audits and supplier management		
Freight and lead time		
Dual sourcing and safety stock		
Before the third contract is signed		
Recompute the absorption rate on the hours that survive every decision in the pipeline		
Margin of the family nobody is discussing, after all of them		
Margin thinner than your worst input? Write "indistinguishable" on the paper		

Calderbrook: all three quotes sit below the absorbed cost; buying the bushings at 5.90 costs 2,857,439 a year and strands 958,654; after all three the survivor absorbs at 192.29 an hour.

Cost to serve: one part, two customers

Chapter 11 and Appendix B, group 9. Six counts joined to a customer name, priced at rates carved out of SG&A.; Money on one page, never percentages.

Company / plant		Prepared by	
Period		Date	

Line	Rate	Customer A count	Customer A cost	Customer B count	Customer B cost
Units and list price					
Discount off list					
NET REVENUE					
Factory cost (driver cost x units)					
Orders					
Order lines					
Deliveries					
Expedites					
Returned units					
Receivable (net revenue x rate x days / 360)					
COST TO SERVE					
PROFIT and margin on net revenue					

Item	Answer	Evidence / note
Before the annual price review		
Do the rates vary systematically by customer (a 40-mile and a 400-mile delivery)?		
Ceiling test: rates x counts scaled to the family fit inside SG&A;		
Which service levels are free today (call-off, weekly delivery, no minimum drop, priority)?		
Customer's batch sizes and stock held for them (not in the model: understates the frequent orderer)		

Calderbrook fitting, 46,000 units each: 23,925 against 225,723 to serve; 28.42 against 14.66 per cent. The customer on the larger discount is the more profitable one.

The price correction, and the quote in front of you

Chapters 12 and 13. Target price = driver cost / (1 - target margin). Look at the sign before the size: if two prices should come down, you are mis-pricing, not under-pricing.

Company / plant		Prepared by	
Period		Date	

Family	Price now	Absorbed cost	Driver cost	Your quote at target	Driver-costing rival at target	Gap	Target price change
Family / part group 1 (highest volume)							
Family 2							
Family 3							
Family 4 (lowest volume)							

For a family that loses money	Amount	Question it answers
Floor: the driver cost		
Target: driver cost / (1 - target margin)		
Unit cost that falls with the units (material, labor, machine)		
Batch and program cost that stays when units leave		
Your measured elasticity (last three price moves)		
Largest rise that still pays at that elasticity		

Item	Answer	Evidence / note
Sequence		
Defense first: stop conceding volume, price new part numbers, set minimums (none announced, all reversible)		
Increases and defense to the board as one decision		
Cuts to a published list only on a second period's counts, and only where the segment is ring-fenced		
Accounts buying more than one family re-priced as accounts		

A lost unit takes only its material, labor and machine time with it. On a family that loses money, volume that walks away at the old price deepens the loss rather than curing it.

Before you quote a part: eight measurements

Chapter 16. Each answerable in days from data the business already holds. The last one makes the other seven actionable.

Company / plant		Prepared by	
Period		Date	

Measurement	Your figure	Date / source
1. Overhead as a share of conversion cost		
2. Pools in the ledger, and the driver of each		
3. Units a setup: highest-volume family and lowest, and their ratio against labor hours a unit		
4. Average order quantity against both break-evens, family by family		
5. Absorption rate at actual and at practical capacity		
6. Avoidable cost, pool by pool, on any make-or-buy		
7. Cost to serve of the customer, not only the part		
8. Is the quoted margin computed on the absorbed number or the driver number?		

Item	Answer	Evidence / note
Errors that survive a review (tick when excluded)		
Rate computed on actual volume rather than practical capacity		
Driver counted from a system nobody reconciles		
Cross-subsidy quoted without its share of profit		
Make-or-buy run on absorbed cost		
Minimum order quantity set by the sales director rather than by arithmetic		

The number of pools is the smallest number that changes a decision: split one, recost, and put it back if no quote, make-or-buy, minimum or price moves.

The overhaul, in the order that survives

Chapters 14 and 16 and Appendix B, group 10. The arithmetic is a week. The implementation fails in four known ways; this page is the sequence against them.

Company / plant		Prepared by	
Period		Date	

Step	Owner	Evidence it is done	Date
1. One family, one quarter; pool build-up footed to the trial balance to the cent			
2. Present as provisional, weakest points named by you			
3. Counts audited by hand on the two drivers carrying the most money			
4. A second independent period reproduces the first			
5. Driver cost in the quotation file as a second column (no price, no plan changed)			
6. Two or three quarters of estimators watching both numbers on live quotes			
7. Commission plan changed at its next scheduled renewal			
8. Named owner of the denominator and of the base; review date set			

Item	Answer	Evidence / note
Monthly pack, from now on		
Revenue growth and overhead growth on the same line, same base period		
Setups, production orders, engineering changes and inspections underneath them		
Cost of idle capacity as its own line, with utilization beside it		
Your batch elasticity fitted from three years of volumes and setup counts		

Calderbrook, Case B: revenue up 10.3 per cent, overhead up 23.8 per cent, operating profit down 431,133, and every leading indicator improved.