

Leila's map shop: identify the decisions

Leila makes downloadable walking maps. A single map costs £2 and a three-map bundle £5. Each purchase is one order and one payment. Her forecast is 120 orders: 75% singles and 25% bundles. You will evaluate operating, an additional order, a price change and a service switch. All people, services and figures are fictional.

State Leila's time alternative and past commitments

Leila has twenty hours for maps and editing together next month. Editing is available for any of those hours at £18 per hour after its incremental expenses. She values the activities equally apart from financial return. Last month's £240 illustrations and six design hours are unrecoverable. A £12 laptop allocation changes neither spending nor alternative use.

Service A: record the complete operating terms

Service A is already configured. It charges £0.20 plus 3% of each order's price and an avoidable £40 monthly operating charge. Delivery and storage cost £0.10 per order. Each order needs three minutes of service time, and monthly maintenance takes four hours. Leila can stop next month without a cancellation charge.

Service B: separate recurring and one-off differences

Service B charges £0.05 plus 5% per order and £55 per operating month. Delivery expense, three-minute service time and four-hour maintenance are unchanged. Switching from A requires £36 cash and two additional hours once. Both services have identical reliability, customer experience and demand in the model. These are assumptions, not claims about actual providers.

Define measures and rounding before calculating

Calculate fees exactly and aggregate before rounding. There are no taxes, refunds, advertising costs, failed payments or other expenses in this model. Cash surplus subtracts stated cash outlays from revenue. Economic surplus relative to editing also subtracts the value of displaced editing time. Expected fractional orders describe averages, while realised orders are whole counts.

Worked example: another seller's weighted order

Noor sells illustrative templates for £4 or £9, with a 60:40 order mix.

Weighted price is $0.6 \times £4 + 0.4 \times £9 = £6$. A fee of £0.10 plus 2% averages £0.22. Delivery costs £0.18; two minutes valued at £24 per hour cost £0.80. Contribution is therefore £4.80 per order.

Worked example: reconcile two monthly calculations

Noor expects fifty orders, pays £65 monthly and spends 1.5 maintenance hours. Fixed economic costs are $£65 + £36 = £101$. Economic surplus is $50 \times £4.80 - £101 = £139$. Alternatively, £300 revenue less £11 fees, £9 delivery and £65 monthly charges gives £215 cash surplus; total time costs £76.

Worked example: compare complete time allocations

Suppose Noor has ten hours available for templates and alternative work paying £24 per hour. Alternative work alone gives £240. Operating uses nineteen-sixths of an hour, leaving forty-one-sixths for other work, worth £164. Adding £215 business cash surplus gives £379. The advantage over £240 is £139, matching the incremental method.

Worked example: an additional order has a different threshold

For Noor, an extra order priced at p contributes $0.98p - £1.08$ before any new fixed costs. Setting this equal to zero gives $p = 1.08/0.98$, approximately £1.10204. With penny prices, £1.11 is the lowest positive-contribution price. This assumes spare capacity, unchanged other sales and no additional setup requirement.

Worked example: derive a demand boundary

If Noor raises both prices by 20% with mix unchanged, weighted price becomes £7.20 and the fee £0.244. Contribution becomes £5.976. To match the previous £139 surplus, solve $N \times £5.976 - £101 = £139$. The boundary is approximately 40.1606 expected orders, a 19.6787% decline from fifty. This is a condition, not a demand forecast.

Apply the method to Leila's proposed prices

Leila considers a 10% increase to £2.20 and £5.50 on Service A. Keep the same expected mix and other costs. Compare scenarios of 102 and 96 expected orders, and derive the volume that matches her original economic surplus. No demand curve is supplied. Changes in mix, support time or customer exposure could change the comparison.

Worked example: compare recurring service costs

A separate seller, Rowan, has £10 orders. Provider X charges £0.30 plus 2%; provider Y charges £0.10 plus 3%. Their fees are £0.50 and £0.40 per order. Y saves £0.10 per order but costs £8 more monthly. Its recurring advantage is therefore $£0.10N - £8$, positive above eighty orders.

Worked example: add switching costs and time

Rowan's switch costs £20 cash and 1.5 hours worth £20 per hour, totalling £50. At 180 monthly orders, recurring advantage is £10. Cumulative advantage after m months is $£10m - £50$: minus £20 after three months, zero after five and plus £10 after six. This undiscounted calculation assumes stable monthly conditions.

Evaluate Leila's services over stated horizons

Return Leila to the original £2 and £5 prices. Compare B with A at 120 orders, first on recurring costs and then including switching. Derive recurring and first-month volume thresholds. Separately examine 240 orders per month for ten months, with no discounting, and compare the cumulative results after three and ten months.

A threshold must fit the resource budget

Check Leila's twenty-hour limit before recommending any order threshold. Maintenance uses time even at low volume, and switching consumes additional first-month time. For comparison, Noor's ten-hour budget, 1.5 maintenance hours and two minutes per order permit 255 orders. An extra one-hour setup would reduce that illustrative first-month capacity to 225.

Write a conditional, auditable recommendation

Your brief should cover operating, pricing and switching under their separate scenarios. Support it with checked calculations, units and stated assumptions. Identify two material uncertainties and practical ways to investigate them. Distinguish Leila's private economic return from effects on walkers or neighbourhoods. The written brief is ungraded reflection; numerical checks do not certify the quality of the whole recommendation.