Cost-benefit analysis summary

One page for the person who decides. Fill it in from the workbook's Results and Sensitivity tabs. Read the cash-only figures first.

Decision: what, by when, compared with what

Context	
Business as usual	
Period and discount rate	Year 0 to year ___ ; discount rate ____ % a year (why this rate: _____)
Prepared by and date	

The four numbers	Cash only	Cash and capacity
Net present value (NPV)		
Payback		
Return on investment (ROI), whole period		
Benefit-cost ratio (BCR)		

What would flip the cash case (switching value)	Change needed	How likely?

NPV with an allowance for optimism (one-off costs + ___ %, benefits − ___ %): cash £_____ cash and capacity £_____

Comfort benefits (not priced)	How we will notice	Owner

Dis-benefits and new risks	What we will do about it

Recommendation and conditions

Approved by: _____ Decision: Go / No go / Go with conditions Date: _____

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Example: Harbour Lane IT Ltd (fictional)

A 22-person managed IT services firm (fictional). Replace the server, or move what it does to cloud services? All figures are illustrative.

Decision: what, by when, compared with what
Move the office file shares and the accounts and practice-management software off the office server and onto cloud services, instead of replacing the server, before its operating system goes out of support.

Context	
Business as usual	Buy a replacement server with new operating-system and user licences, have an engineer build it and move the data across, and keep running it, its backups and its support contracts for five years.
Period and discount rate	Year 0 to year 5, today's prices, 8% a year (the rate on the firm's bank loan)
Prepared by and date	Service desk lead, for the managing director

The four numbers	Cash only	Cash and capacity
Net present value (NPV)	£1,509	£9,567
Payback	No outlay: benefits come first	No outlay: benefits come first
Return on investment (ROI), whole period	0.7%	35.3%
Benefit-cost ratio (BCR)	1.08	1.38

What would flip the cash case (switching value)	Change needed to take cash NPV to zero
Subscriptions	+9%
Running savings	-13%
Avoided server	-17%

With an allowance for optimism (50% on one-off costs, 20% off every benefit) the cash NPV is -£3,550 and the cash-and-capacity NPV is £22.

Comfort benefits (not priced)	How we will notice	Owner
Staff reach files from home or a client site without the virtual private network (VPN)	Remote-access tickets per month	Operations manager
No single box in the comms cupboard that stops the office when it fails	Hours of office-wide downtime a year	Service desk lead
Off-site copies of files and mail by default	Monthly restore test passes	Service desk lead
The firm runs on the services it sells, which helps when it advises clients	Cloud projects won where this came up	Managing director

Dis-benefits and new risks	What we will do about it
A broadband failure stops access to files	Keep a 4G backup line and sync the most-used folders to laptops
Subscription prices can rise every year	Fix prices for three years in the contract, or carry a price-rise allowance
Data now sits with a supplier	Check the service against the National Cyber Security Centre's (NCSC) cloud security principles before signing

Recommendation and conditions
Go, on two conditions. (1) Fix the subscription prices for three years in the contracts: a rise of about 9% would wipe out the cash case. (2) Put the freed engineer days to work: The 14 engineer days a year freed (18 saved, 4 spent) go into building the packaged Cyber Essentials certification service that the gap analysis found the firm did not yet offer. Review at month 12 against the register.

Approved by: Managing director Decision: Go, with both conditions Date: _____

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Harbour Lane example: the register

Each row compared with business as usual. Costs you avoid by not replacing the server are benefits of the proposal. Capacity rows are staff time at the loaded day rate of £183 (salary £36,000 plus employer National Insurance and pension, over 232 working days).

ID	Type	Line	Basis	Year 0	Year 1	Year 3	5-yr total
C1	Cost · Cash	Specialist to move the accounts database to the hosted service	Supplier's fixed quote	£1,800			£1,800
C2	Cost · Capacity	Engineer time: plan, move and test files and permissions	12 days × £183 loaded day rate	£2,196			£2,196
C3	Cost · Capacity	Staff time: learning the new file locations	22 staff × 2 hours, at £183 a day	£1,074			£1,074
C4	Cost · Cash	Licence upgrade for cloud file storage and device management	£5 a user a month × 22 users		£1,320	£1,320	£6,600
C5	Cost · Cash	Hosted accounts and practice-management software	Supplier's quote, £200 a month		£2,400	£2,400	£12,000
C6	Cost · Cash	Backup of the cloud files and mailboxes	£2.50 a user a month × 22 users		£660	£660	£3,300
C7	Cost · Capacity	Engineer time: looking after the cloud set-up	4 days a year × £183		£732	£732	£3,660
B1	Benefit · Cash	Replacement server not bought	Hardware quote, with three-year warranty	£6,500			£6,500
B2	Benefit · Cash	Server operating system and user licences not bought	Licence quote	£2,600			£2,600
B3	Benefit · Capacity	Engineer time to build the replacement server avoided	6 days × £183	£1,098			£1,098
B4	Benefit · Cash	On-site accounts software support contract ends	Current annual contract		£1,250	£1,250	£6,250
B5	Benefit · Cash	Server hardware support not needed in years 4 and 5	Extended warranty quote, £480 a year				£960
B6	Benefit · Cash	Electricity for the server, storage and uninterruptible power supply (UPS)	Firm's own estimate		£700	£700	£3,500
B7	Benefit · Cash	On-site backup storage and off-site copy service end	Current contracts		£720	£720	£3,600
B8	Benefit · Capacity	Engineer time on patching, backup checks and server faults avoided	18 days a year × £183, from the ticket log		£3,294	£3,294	£16,470
B9	Benefit · Cash	UPS batteries and a disk replacement avoided	Expected in year 3			£450	£450

Years 2, 4 and 5 match year 1 except B5 (hardware support, years 4 and 5 only, £480 a year) and B9 (year 3 only). Full year-by-year figures are in the workbook.

Cash, by year	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Benefits	£9,100	£2,670	£2,670	£3,120	£3,150	£3,150
Costs	£1,800	£4,380	£4,380	£4,380	£4,380	£4,380
Net	£7,300	-£1,710	-£1,710	-£1,260	-£1,230	-£1,230
Cumulative	£7,300	£5,590	£3,880	£2,620	£1,390	£160
Discount factor at 8%	1.000	0.926	0.857	0.794	0.735	0.681
Discounted net	£7,300	-£1,583	-£1,466	-£1,000	-£904	-£837

Cash NPV = sum of the discounted net row = £1,509. The money flows backwards compared with a typical project: the proposal saves £9,100 of hardware and licences in year 0 and pays it back in subscriptions over five years. So there is nothing to pay back, and NPV is the number to read.

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How to use this template

1. Name the decision and the alternative

Write one sentence: what you would do, by when, compared with what. The comparison is business as usual, and business as usual is rarely free: the old server still needs replacing, the old process still needs staff.

2. Register every cost, year by year

One-off costs in year 0, running costs in the years they fall. Include your own people's time, and mark it as capacity, not cash.

3. Register the benefits and grade them

Every benefit is cash, capacity or comfort. Costs you avoid by not doing business as usual are benefits of the proposal.

4. Discount at your own price of money

Turn each year's figures into today's money with the rate you pay to borrow, or the return you could get elsewhere, then add them up: that is the net present value (NPV).

5. Read four numbers, in this order

NPV first, then payback, return on investment (ROI) and the benefit-cost ratio (BCR). Read the cash-only figures before the ones that include capacity.

6. Try to break it

Change each big assumption, find the value at which the answer flips (the switching value), and add an allowance for optimism. If a plausible change flips the decision, say so.

Grade every benefit

Grade	What counts	How to treat it
Cash	A bill stops, a bill shrinks, or money starts arriving. You could point to the bank statement where it shows.	Count it in full. This is the number the decision should stand on.
Capacity	Time or effort freed: hours no longer spent on a task. It turns into cash only if a bill changes (overtime, a contractor, a hire you no longer need) or the time is sold.	Price it at cost, show it on its own line, and name who will use the freed time and on what.
Comfort	Lower risk, better service, happier staff, resilience. Real, but no bill changes.	Describe it, say how you would notice it, and do not add it to the totals. Where you can, price a risk as an expected loss and show it separately.

The formulas

Present value: PV = amount ÷ (1 + r)^year. At 8%, £1,000 in year 3 is worth £794 today.

Net present value: NPV = PV of benefits − PV of costs. Above zero beats business as usual.

Payback: Years until cumulative net cash turns positive. Discounted payback does the same with discounted figures.

Return on investment: ROI = (total benefits − total costs) ÷ total costs, over the period, not discounted.

Benefit-cost ratio: BCR = PV of benefits ÷ PV of costs. Above 1.0 is the same as a positive NPV.

Switching value: The change in one assumption that takes NPV to zero: −NPV ÷ that group's effect on NPV.

Excel's NPV(): Treats its first value as a year away. Use =year0 + NPV(rate, year1:yearN).

General information to help structure a decision, not financial, tax or investment advice. Harbour Lane IT Ltd and all its figures are fictional. The full guide, the worked example and the Excel workbook are at the address below.

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