

Claims AI ROI Calculator

A practical business-case workbook for quantifying capacity, claims outcomes, full delivery cost, three-year cash flow, and uncertainty.

3	5	4
modeled years	benefit components	investment metrics

Version 1.0 | Printable planning workbook

Use with claims, finance, actuarial, technology, data, legal, compliance, privacy, security, model risk, procurement, and operations.

How the model works

The calculator estimates a three-year business case. It separates capacity value, claims outcome benefits, initial investment, recurring operating cost, benefit realization, ramp, and discounting. Replace every example with an evidence-backed assumption and named owner.

Core formulas

Measure	Formula
Capacity value	Annual claims x eligible share x minutes per claim x time reduction x adoption / 60 x loaded hourly cost
Claims outcome benefit	Addressable baseline x expected attributable improvement
Scenario-adjusted benefit	Sum of benefit components x benefit multiplier
Initial investment	(Technology + internal labor + change/training) x (1 + contingency)
Annual net cash flow	Scenario-adjusted benefit x annual ramp - recurring operating cost
NPV	Year 0 investment plus discounted Year 1-3 net cash flows
ROI	(Three-year benefits - three-year costs) / three-year costs
Benefit-cost ratio	Three-year benefits / three-year costs

Important	Time saved is not automatically cash savings. Value it only when the insurer can redeploy capacity, avoid hiring, reduce overtime or vendor expense, improve throughput, or produce another measurable outcome.
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Benefit assumptions

Define one scope and time period. Use addressable baselines and conservative attribution. Record the source and owner for every assumption.

Assumption	Input	Evidence / owner
Annual claim volume		
Eligible claim share		
Minutes per eligible claim		
Expected time reduction		
Sustained adoption		
Loaded hourly cost		
Addressable avoidable loss/expense baseline		
Expected attributable improvement		
Addressable external expense		
Expected expense reduction		
Current annual recoveries		
Expected recovery uplift		
Other annual quantified benefit		

Double-counting check: Confirm that capacity, external expense, loss/expense improvement, recovery, and other benefits do not describe the same economic effect.

Cost assumptions

Include the cost of making the AI useful and governable in production. Vendor price alone is not the total cost of ownership.

Cost	Year 0 / annual	Evidence / owner
Initial technology and integration		
Initial internal delivery labor		
Initial workflow change and training		
Initial cost contingency		
Annual software, hosting, and consumption		
Annual support and operations		
Annual data and integration operations		
Annual controls, evaluation, and monitoring		
Annual human review and quality assurance		
Discount rate		

Often missed	Claims subject-matter time, evaluation data preparation, workflow exceptions, retained human review, monitoring, complaints and appeals, vendor oversight, audit evidence, model or prompt changes, incident response, and recovery.
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Three-year cash-flow model

Choose a scenario, enter its benefit multiplier, initial-cost contingency, and annual benefit ramp, then complete the cash flow.

Scenario	Benefit multiplier	Initial contingency	Year 1 ramp	Year 2 ramp	Year 3 ramp
Conservative	70%	25%	40%	70%	90%
Base	100%	15%	60%	85%	100%
Upside	120%	10%	75%	100%	110%

Cash-flow line	Year 0	Year 1	Year 2	Year 3
Benefit ramp				
Gross benefits				
Recurring costs				
Initial investment				
Net cash flow				
Discount factor	1.000			
Discounted net cash flow				

Investment metric	Result
Three-year NPV	
Three-year ROI	
Estimated payback	
Benefit-cost ratio	
Steady-state net annual benefit	

Assumption sensitivity

Use sensitivity to identify which assumptions can change the decision. Test benefits and costs separately rather than changing every input at once.

Cost / benefit multiplier	70%	85%	100%	115%	130%
80%					
95%					
110%					
125%					
140%					

Evidence priorities

Assumption	What would strengthen it?	Owner / date
Eligible volume	Historical claim counts, segmentation, exclusions, and seasonal pattern	
Time reduction	Time study, task-level baseline, workflow observation, and retained work	
Claims outcome change	Back-test, matched comparison, prospective evaluation, and attribution method	
Adoption and ramp	User research, workflow trial, training plan, capacity, and exception rate	
Operating cost	Vendor quote, architecture, consumption, monitoring, review, and support estimate	

Benefit realization and attribution

A credible business case explains how modeled improvement becomes measurable financial or operating value. Complete the questions below before approval.

Question	Response / evidence
What current-state baseline and period are used?	
Which claims, decisions, tasks, users, and jurisdictions are in scope?	
What counterfactual or comparison will support attribution?	
How will time saved be redeployed or converted to value?	
Which benefits overlap, and how was double counting removed?	
What quality, consumer, compliance, or leakage guardrails must remain stable?	
Who owns each metric and how often will it be measured?	
What result will stop, redesign, or limit deployment?	

Interpretation	A positive NPV does not prove the model is safe, compliant, accurate, fair, operationally fit, or suitable for a particular decision. Investment approval and use approval are separate decisions.
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Decision record

Record the decision, conditions, evidence plan, and next review. Preserve the assumptions used so later results can be compared to the approved case.

Decision element	Record
Use case and scope	
Scenario selected	Conservative / Base / Upside
NPV / ROI / payback	
Decision	Hold / Explore / Validate / Approve / Decline
Executive sponsor	
Finance reviewer	
Claims value owner	
Required controls and approvals	
Success and stop criteria	
Next review date	

Use the editable Excel workbook for automatic scenario calculations and the companion reference guide for evidence standards, attribution, benefits, costs, governance, and insurance examples.