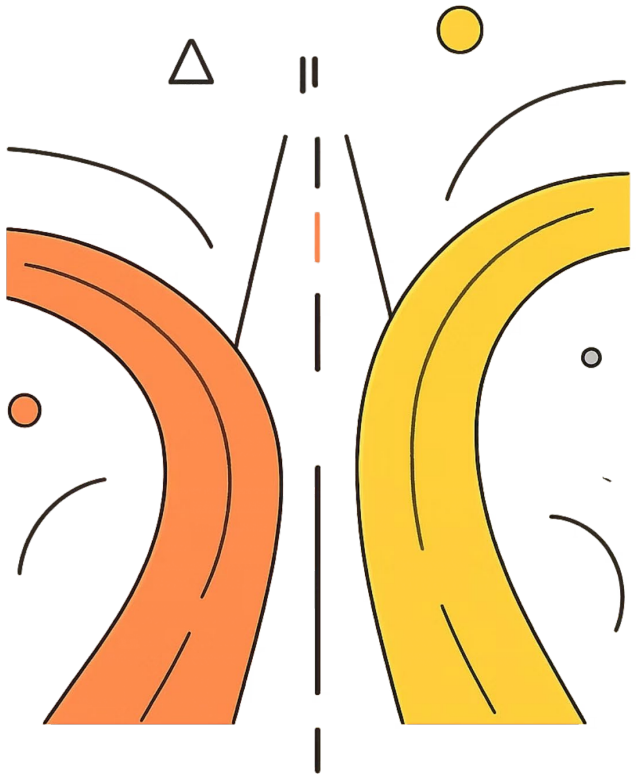


2026 APRA CANADA CONFERENCE

Numbers You Can Trust: Low-Budget Fundraising Revenue Forecasting with Excel Solver and Free AI Tools

$50,000 acquisition budget, four audiences and one tool

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Power of Four Consulting

Thursday, October 22, 2026

SESSION DESIGN

Today is the lesson. The full course continues after the session

TODAY

01 One teaching example

02 Four audiences, one budget, one tool

03 How Solver works

04 Where AI helps

05 A map of the next tools

BLOG EXAMPLE RESOURCES

01 Three-year, four-stream MILP model

02 RE NXT export and stream mapping

03 Four-tier calibration and donor rollforward

04 11-sheet workbook with Solver Controls

05 Complete guide at Poweroffour.ca/blog

All numbers in this session are illustrative.

ALLOCATIOIN RANKING

Would you fund these audiences in response-rate order?

Audience	Expected response	Available names
Proven purchased	1.5%	25,000
Volunteers/alumni	1.0%	15,000
New purchased	0.9% target	40,000
Digital / P2P	0.7%	30,000

$50,000

ACQUISITION BUDGET

Volunteers/ alumni

Past volunteers who have not yet donated or program alumni

Digital / P2P

Supporters already on file with mailing addresses

Costs and donor value are still hidden. Would your ranking change?

ILLUSTRATIVE ASSUMPTIONS

Response rate ignores what a name costs and what a donor is worth

Audience	Available	Name	Package	Cost/contact	Response	3-year value
Proven	25,000	$0.20	$1.30	$1.50	1.5%	$150
New	40,000	$0.15	$1.30	$1.45	0.9%	$140
Volunteers/Alumni	15,000	$0.00	$1.30	$1.30	1.0%	$250
Digital/P2P	30,000	$0.00	$1.30	$1.30	0.7%	$200

3-year value = gross giving per acquired donor

Net = value minus campaign cost only

Use your own cohorts and vendor quotes. Confirm source and consent for rented lists.

ECONOMICS

New loses money. Volunteer alumni lead on return.

Audience	Gross/ contact	Cost/contact	Net/ contact	Net per $1	Break-even
Volunteers/Alumni	$2.50	$1.30	$1.20	$0.92	0.52%
Proven	$2.25	$1.50	$0.75	$0.50	1.00%
Digital/P2P	$1.40	$1.30	$0.10	$0.08	0.65%
New	$1.26	$1.45	-$0.19	-$0.13	1.04%

RESPONSE RANK

1 Proven
2 Volunteers/Alumni
3 New
4 Digital

ECONOMIC RANK

1 Volunteer/Alumni
2 Proven
3 Digital
4 New

A response ranking is useful information. It is not an allocation.

LINEAR PROGRAMMING MODEL

Solver turns the worksheet into an optimization model

We define the structure of the problem; Solver searches for the best permitted combination.

01

Objective

Define the optimum we want to maximize or minimize.

02

Fixed inputs & assumptions

Response rates, costs, values, and block size define the model.

03

Decision variables

Values Solver changes to improve the objective.

04

Constraints

$50K budget, available names, and minimum tests

05

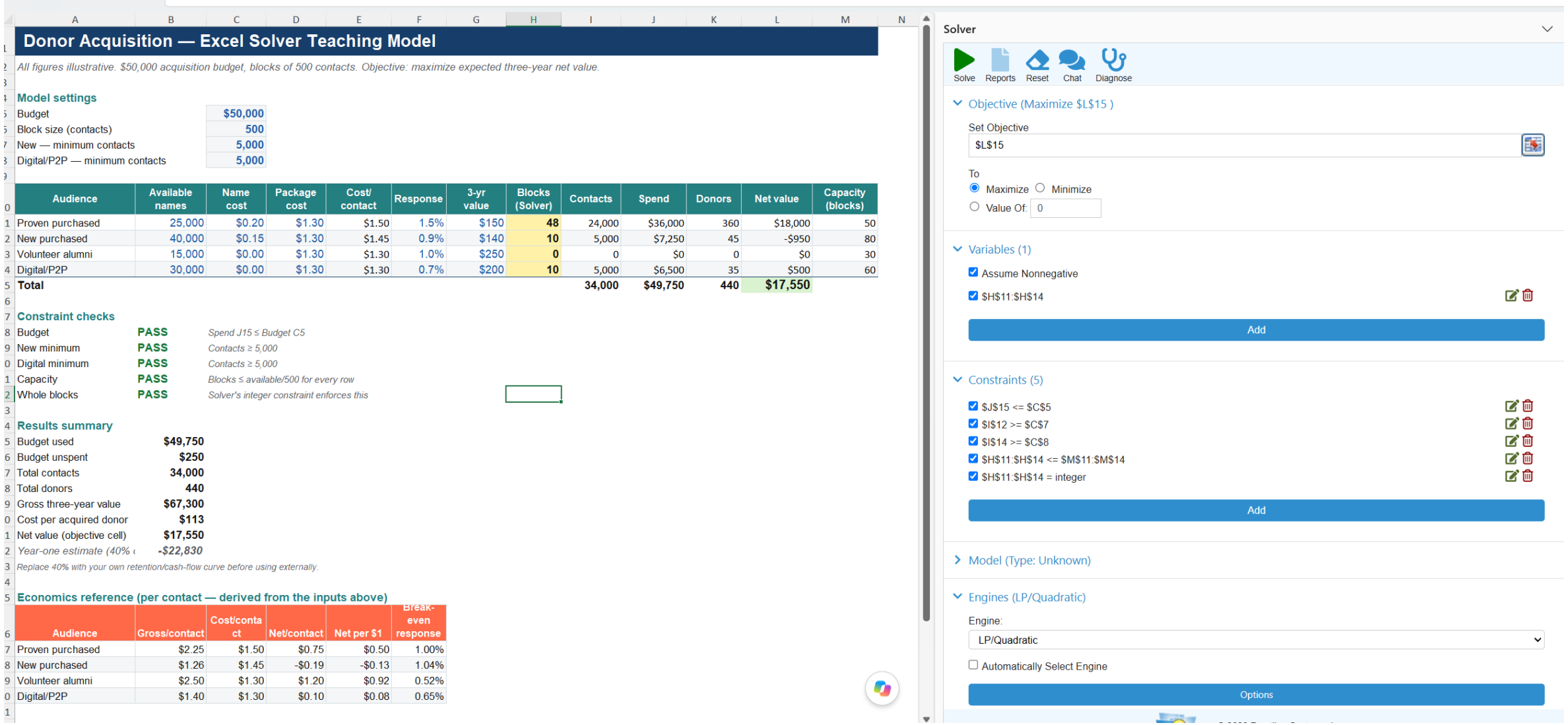
Method

Simplex LP is the method for this linear programming model.

We define the model. Solver tests permitted combinations and finds the best result.

SOLVER IN ONE MINUTE

What is Excel Solver?



Donor Acquisition — Excel Solver Teaching Model

All figures illustrative. $50,000 acquisition budget, blocks of 500 contacts. Objective: maximize expected three-year net value.

Model settings

Budget	$50,000
Block size (contacts)	500
New — minimum contacts	5,000
Digital/P2P — minimum contacts	5,000

Audience	Available names	Name cost	Package cost	Cost/ contact	Response	3-yr value	Blocks (Solver)	Contacts	Spend	Donors	Net value	Capacity (blocks)
Proven purchased	25,000	$0.20	$1.30	$1.50	1.5%	$150	48	24,000	$36,000	360	$18,000	50
New purchased	40,000	$0.15	$1.30	$1.45	0.9%	$140	10	5,000	$7,250	45	-$950	80
Volunteer alumni	15,000	$0.00	$1.30	$1.30	1.0%	$250	0	0	$0	0	$0	30
Digital/P2P	30,000	$0.00	$1.30	$1.30	0.7%	$200	10	5,000	$6,500	35	$500	60
Total								**34,000**	**$49,750**	**440**	**$17,550**	

Constraint checks

Budget	PASS	*Spend J15 ≤ Budget C5*
New minimum	PASS	*Contacts ≥ 5,000*
Digital minimum	PASS	*Contacts ≥ 5,000*
Capacity	PASS	*Blocks ≤ available/500 for every row*
Whole blocks	PASS	*Solver's integer constraint enforces this*

Results summary

Budget used	**$49,750**
Budget unspent	**$250**
Total contacts	**34,000**
Total donors	**440**
Gross three-year value	**$67,300**
Cost per acquired donor	**$113**
Net value (objective cell)	**$17,550**
Year-one estimate (40% ‹	***-$22,830***

Replace 40% with your own retention/cash-flow curve before using externally.

Economics reference (per contact — derived from the inputs above)

Audience	Gross/contact	Cost/contact	Net/contact	Net per $1	Break-even response
Proven purchased	$2.25	$1.50	$0.75	$0.50	1.00%
New purchased	$1.26	$1.45	-$0.19	-$0.13	1.04%
Volunteer alumni	$2.50	$1.30	$1.20	$0.92	0.52%
Digital/P2P	$1.40	$1.30	$0.10	$0.08	0.65%

Solver

Solve Reports Reset Chat Diagnose

Objective (Maximize $L$15)

Set Objective

$L$15

To

Maximize Minimize

Value Of: 0

Variables (1)

Assume Nonnegative

$H$11:$H$14

Add

Constraints (5)

$J$15 <= $C$5

$I$12 >= $C$7

$I$14 >= $C$8

$H$11:$H$14 <= $M$11:$M$14

$H$11:$H$14 = integer

Add

Model (Type: Unknown)

Engines (LP/Quadratic)

Engine:

LP/Quadratic

Automatically Select Engine

Options

ACCESS AND SETTINGS

Where to find Solver and what the model asks it to do

DIALOG SETTINGS

Set Objective	Total net value, set to Max
Changing cells	Four audience block cells (500 names a block)
Constraints	Spend ≤ $50K, capacity, New/Digital ≥ 10 blocks, integer
Method	Simplex LP or LP/Quadratic

ENABLE SOLVER

WINDOWS DESKTOP

File › Options › Add-ins › Excel Add-ins › Go › Solver Add-in. Then Data › Solver.

MAC DESKTOP

Tools › Excel Add-ins › Solver Add-in. Then Data › Solver.

EXCEL FOR THE WEB

Insert › Add-ins › search “Solver” › Add. It opens as a side panel. Verify in your tenant.

One variable type in Desktop Excel Solver. Two or more in the online Excel version.

SEED MODEL IN SPEADSHEET

Response-order allocation delivers $17,550 net

	A	B	C	D	E	F	G	H	I
1	Audience	Available	Blocks	Contacts	Cost / contact	Response	3-year value	Spend	Net value
2	Proven	25,000	**48**	24,000	$1.50	1.5%	$150	$36,000	**$18,000**
3	New	40,000	**10**	5,000	$1.45	0.9%	$140	$7,250	**-$950**
4	Volunteer	15,000	**0**	0	$1.30	1.0%	$250	$0	**$0**
5	Digital / P2P	30,000	**10**	5,000	$1.30	0.7%	$200	$6,500	**$500**
6	**TOTAL**		**68**	**34,000**				**$49,750**	**$17,550**

Contacts = Blocks × 500 **Spend = Contacts × cost** **Net = Contacts × Response × Value – Spend**

OBJECTIVE CELL I6

$17,550

BUDGET CHECK H6

$49,750 ≤ $50,000

MINIMUM TESTS C3 / C5

10 blocks each · OK

Yellow cells are Solver decisions. Blue cells are fixed inputs. Green cells are formulas and outcomes.

SOLVER RUN

Solver converts response rankings into a feasible contact plan

	A	B	C	D	E	F	G	H	I
1	Audience	Available	Blocks	Contacts	Cost / contact	Response	3-year value	Spend	Net value
2	Proven	25,000	**22**	11,000	$1.50	1.5%	$150	$16,500	**$8,250**
3	New	40,000	**10**	5,000	$1.45	0.9%	$140	$7,250	**-$950**
4	Volunteer	15,000	**30**	15,000	$1.30	1.0%	$250	$19,500	**$18,000**
5	Digital / P2P	30,000	**10**	5,000	$1.30	0.7%	$200	$6,500	**$500**
6	**TOTAL**		**72**	**36,000**				**$49,750**	**$25,800**

D2 = C2 × 500 → 11,000 **H2 = D2 × E2 → $16,500** **I2 = D2 × F2 × G2 − H2 → $8,250**

OBJECTIVE CELL I6

$25,800

BUDGET CHECK H6

$49,750 ≤ $50,000

MINIMUM TESTS C3 / C5

10 blocks each · OK

Optimization adds $8,250 in net value—without increasing spend or sacrificing either test.

BASE SOLUTION

Solver funds Volunteer alumni and Proven and preserves both tests

Audience	Contacts	Cost	Donors	Net value
Proven	11,000	$16,500	165	$8,250
New	5,000	$7,250	45	-$950
Volunteer	15,000	$19,500	150	$18,000
Digital/P2P	5,000	$6,500	35	$500
TOTAL	**36,000**	**$49,750**	**395**	**$25,800**

$25,800

3-YEAR NET VALUE

$49,750

SPEND

36,000

CONTACTS

395

DONORS

$126

COST / DONOR

YEAR 1 ≈ -$19.5K

Assumes 40% of value arrives in year one

This campaign is an investment. The payback occurs across three years.

WHY SOLVER

Solver turns constraints into a clear decision path

01 CAPACITY BINDS

15,000

Volunteer names—not budget—set the ceiling.

02 TEST THE PLAN

$7,200

Fund both tests only when their expected value exceeds cost.

03 ALLOCATE THE FLEX

$490

Send each extra $1K to Proven until capacity binds.

WITHOUT SOLVER	WITH SOLVER
Rank audiences and spend down the budget	Value capacity, testing, and the next dollar together

The answer is not a ranking—it is a constrained decision sequence.

STRESS TEST

The allocation flips at a threshold. Small tests are noisy

Change	Net value	Allocation response
Proven 1.3%	$22,500	Unchanged
Proven 1.2%	$20,850	Unchanged
Proven ≤ ~1.05%	$18,800	Proven out; Digital → 17,500
Volunteer 0.8%	$18,350	Volunteer 14K; Proven 12K
New 1.2%	$27,900	Unchanged
Digital 0.6% / 0.8%	$24,800 / $26,800	Unchanged

STAGED PROVEN WAVE

5,000

CONTACTS FIRST

75 donors

Expected at 1.5%

59–94

Approx. 95% range

≤60 donors: RERUN

Allocation flips near 1.08%

Small tests catch big misses. They do not settle close calls.

AI WITH GUARDRAILS

AI earns its place around the model, not inside it

AI DOES NOT BUILD OR CHECK THE MODEL. YOU DO. AGGREGATES ONLY. NO DONOR-LEVEL DATA.

01

AUDIT ASSUMPTIONS

What variables are missing? What would make the forecast materially wrong?

02

BUILD SCENARIOS

Create sensitivity tables in plain English. Rerun Solver for a re-optimized plan.

03

DRAFT BOARD NARRATIVE

Explain the allocation, year-one deficit, and key risks in plain language.

Copilot in Excel requires a license. The same aggregate prompts can run in a free assistant.

AI pressure-tests, extends, and communicates. You own every number.

PROMPT EXAMPLE

Ask AI to challenge assumptions—not invent benchmarks

Assumption Review and Critique

WHAT TO ASK — MODEL CONTEXT + ASSUMPTIONS

You are reviewing a fundraising revenue forecasting model. Here are the assumptions:

- Renewal rate: 42%
- Average renewal gift: $125
- Upgrade rate: 15%
- Average upgrade: $65
- Acquisition cost per donor: $40
- Average first gift: $55
- Mid-Level conversion: 7%
- Average mid-level gift: $1,000
- Cost ratio ceiling: 50%

PLEASE IDENTIFY

1. Which assumptions are most likely to be fragile
2. Which should be validated against your historical data
3. What conservative and optimistic ranges would be reasonable
4. What questions leadership should ask before approving the forecast

Do not invent external benchmarks. Focus on model logic and risk.

WHAT AI PROVIDES

Challenge assumptions without external claims • Identify sensitivity points • Suggest validation tests

WHAT TO WATCH FOR

AI may invent benchmark data. Ignore those claims; ask it to focus on model logic instead.

AI-GENERATED BOARD NARRATIVE

Approve the base plan—but release it in stages

1 EXECUTIVE SUMMARY

Solver recommends a $25,800 net-value plan: Proven 11K, New 5K, Volunteer 15K, and Digital 5K. The allocation is reasonably resilient, but the expected return changes materially when response assumptions weaken.

2 THREE KEY ASSUMPTIONS

- Response rates and three-year donor values remain close to forecast.
- Volunteer capacity remains 15,000 names; Proven absorbs most budget changes.
- New and Digital tests remain worth their short-term cost as learning investments.

3 TWO MAJOR RISKS

- Performance: Volunteer at 0.8% lowers net value to $18,350; Proven near 1.1% shifts funding toward Digital.
- Evidence: small tests catch major misses but may not reliably distinguish close alternatives.

4 RECOMMENDED DECISION

Approve the base allocation with a staged 5,000-name Proven release. Rerun Solver before the remaining release if the first wave produces about 60 donors or fewer.

5 PLAIN-LANGUAGE BOARD EXPLANATION

We will fund the strongest opportunities, test before full release, and adjust if results fall below the trigger.

NEXT TOOLS

Stay in Solver until the question outgrows a static allocation

Need	Next tool	Solver limit	Skill
Seasonality	Prophet / Colab	No time dimension	Basic Python
Outcome ranges	Monte Carlo	One point estimate	Excel or NumPy
Many audiences / periods	PuLP / SciPy	Small static models	Intermediate Python
Visual time-series forecast	Power BI forecast	No visual / time-series view	Power BI basics
Larger Excel optimization	OpenSolver	Model size / solver options	Advanced Excel

Volunteer assumptions drive most of the spread. Rerun before quoting externally.

THE CLOSE

From a guess to a method

BEFORE

Acquisition budget

= last year × 1.03

AFTER

OBJECTIVE CELL I6

$25,800

11,000 Proven · 15,000 Volunteer · 5,000 New · 5,000 Digital

The Excel model and Solver template from today are yours.

poweroffour.ca/blog

Workbook · Solver template · sized for a one-person analytics function

Thank you — questions welcome