14 / BOTTOM-UP EXPERIMENTATION

3M

A second test for sticky notes

Does a weak launch mean a weak product-or the wrong way of testing it?



Adhesive notes in use, 2008. Photograph: EraserGirl.
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An unfamiliar adhesive note receives a mixed market response. The team must decide whether to stop, repeat conventional research or let customers learn through use.

Art Fry and the product team | Late 1970s • after the initial market test

35-45 minutes to prepare / 75 minutes to discuss
Original public-source teaching case • First member edition • 1 November 2026

PRINCIPLED BUSINESS IN PRACTICE

Introduction

About Principled Business

Principled Business (PB) is a nonprofit organization that brings together business leaders to advance capitalism through education, relationships and action. It helps founders, executives and investors understand free enterprise, apply its principles in their organizations, and explain the contribution business makes to people's lives.

The PB manifesto grounds capitalism in individual agency, private ownership and voluntary production and trade. These commitments take practical form in everyday business decisions.

Bottom-up experimentation

PB recognizes that useful knowledge often emerges through local initiative and trial. Leaders must make room for experiments while defining the evidence and safeguards that govern further investment.

3M's adhesive notes show how an unusual product can require a different experiment. Bottom-up initiative is useful when it creates knowledge that changes a decision. Students must design a trial that distinguishes stated enthusiasm, first purchase and repeated use while keeping the cost of learning visible.

PB presents this case to make the principle usable in a real business decision. Your recommendation should connect the principle to a workable policy, account for the people affected, and identify evidence that could change your mind.

What you will learn

01 Diagnose what an unsuccessful test does and does not establish.

02 Calculate conversion, repeat purchase and the incremental cost of an experiment.

03 Set a decision rule before a new test begins.

> **Apply it to your own business**
> Which product or process in your organization is difficult to understand without trying it? What small experiment would reveal actual behavior rather than polite interest?

Source: About Principled Business; Capitalists for Capitalism Manifesto, Section 2: Bottom-Up Experimentation.

NOTES FOR STUDENTS AND TEACHERS

Using this case study

This packet includes the case, exhibits, worksheet, sources, answers and teaching notes. Allow 35-45 minutes to prepare and 75 minutes for discussion. Have a calculator or spreadsheet available.

Pages	What to use and when
4-8	Decision, evidence, exercise and alternatives. Read before discussion.
9	Decision worksheet. Complete before reading the answers.
10	Sources and reading notes. Check the evidence and its limits.
11-12	Worked answers, outcome and teaching plan. Read after deciding.

For students

Read once to identify the decision, then work through the exhibits. Separate historical facts from the invented classroom exercise. Use the case's decision boundary; write down assumptions when evidence is missing. Complete the calculation and worksheet on page 9. Be ready to defend your recommendation and the strongest objection to it.

For individual study, decide before turning to pages 11-12. Compare your reasoning with the worked analysis and write a short reflection on what you would change. Choose one action to try in your own organization.

For teachers and discussion leaders

Read the full packet and timed plan before teaching. Assign pages 1-10 first and reveal the final two pages after students commit to a choice. Record the alternatives, evidence and disagreements on the board.

Insist on separate denominators for conversion and repeat purchase. The historical Boise figure concerns stated purchase intent; it must not be presented as observed sales.

> **How to assess the work**
> Look for a clear choice, accurate analysis, stated assumptions, attention to affected people, a fair objection, and an implementation plan with an owner and review point. Assess reasoning rather than agreement with the historical decision.

AFTER A MIXED RESPONSE • BEFORE ANOTHER TEST

The decision

Spencer Silver’s lightly adhering material found a practical use through Art Fry’s work on removable notes. Internal use suggested promise. An initial four-city launch under the Press ’n Peel name produced mixed results, according to 3M’s history. [T1]

Place yourself with the product team before another commitment. The product may be less useful than its advocates believe. It may also be difficult for prospective buyers to understand without using it. Those explanations point toward different decisions: stop development, improve the offer, or change the way the next test exposes customers to it.

Choose the next experiment

Decide whether to conduct another conventional selling test, invest in hands-on sampling or stop. State the hypothesis being tested and what result would change your recommendation. Define what the team will observe beyond a favorable comment.

The case does not invent private discussions among the researchers. It uses the historical sequence to ask how leaders should evaluate an unfamiliar product when early evidence is ambiguous.

> **Decision boundary**
> You do not yet know the sampling campaign’s result or the product’s eventual popularity. A good test should be capable of producing an answer the advocates would find disappointing.

THE BUSINESS LOGIC

Learn from use, not admiration

A test measures a proposition

A conventional display can test whether people understand and buy an offer from its presentation. A hands-on sample can test whether direct experience changes that response. If the two methods answer different questions, a weak result from one does not automatically settle the other.

Behavior has stages

Interest, trial, first purchase and repeat purchase are distinct observations. A customer can enjoy a free sample without valuing the product enough to pay. A first purchase can be curiosity. Repeat use provides additional evidence, though it still needs to cover the cost of acquisition and service.

Experiments have commercial costs

A trial may lose money while producing useful knowledge. The justification is the decision it improves and the cost it helps avoid, not a claim that every experiment should immediately earn a profit. Leadership should name the question, budget and next commitment before approving the test.

Advocates and skeptics should agree on the measures in advance. Otherwise, a disappointing result can be reinterpreted endlessly while a favorable result is accepted too quickly. Record the conditions under which the team will expand, revise or stop.

> **A useful discipline**
> Ask what you would learn if the test failed. If the answer is “we would need another test of the same kind,” sharpen the hypothesis or the decision rule.

EXHIBIT 1 • HISTORICAL CONTEXT AND TEST DESIGN

What the first test left open

Historical observation [T1]	Possible interpretation	Evidence still needed
A novel removable adhesive had been developed.	There may be an unfamiliar use worth exploring.	A customer task with sufficient value.
Internal use encouraged the team.	Experience can reveal utility.	Demand beyond enthusiastic colleagues.
The four-city launch was mixed.	The offer, presentation or demand may be weak.	A test that separates those explanations.

Make the next comparison fair

Use comparable customer groups, a defined observation period and consistent prices. Record exposure, trial, purchase and repeat behavior. If assignment is not randomized, identify the selection differences that could explain the result. The next exhibit assumes random assignment only to simplify the teaching comparison.

Protect the possibility of stopping

Decide what would count as evidence against wider launch. Examples include weak repeat purchase, excessive acquisition cost or a product that does not work reliably in normal use. A specific stopping rule can protect creative initiative by making the size of the commitment understandable.

> **Historical measure to remember**
> The later Boise result in the source is stated purchase intent. It is not an audited conversion or repeat-purchase rate.

EXHIBIT 2 • INVENTED CLASSROOM EXERCISE

What did the trial buy?

Assume 800 comparable participants are randomly assigned equally to two tests. A uses a conventional display. B adds a hands-on sample. Each initial buyer purchases one pack; each repeat buyer purchases one additional pack within 45 days. Contribution is $4 per paid pack before test cost.

Measure	A. Display	B. Sample
Participants exposed	400	400
Initial paid buyers	40	100
Repeat buyers within 45 days	20	70
Total test cost	$300	$900

All counts and costs are fictional. Repeat buyers are a subset of initial buyers. Test cost includes the free samples; do not count samples as paid purchases. Ignore purchases after 45 days and any wider publicity effect.

01 Calculate initial conversion and repeat purchase as a percentage of initial buyers.

02 Calculate paid packs, contribution and net result for each test.

03 What is B’s incremental net cost relative to A? How many additional paid packs at $4 contribution would offset it?

04 Would you authorize a larger test? State what the current results leave uncertain.

> **Keep the denominator**
> A repeat rate among buyers and a repeat rate among everyone exposed answer different questions. Label the measure before comparing results.

ALTERNATIVES • IMPLEMENTATION • ASSIGNMENT

Decide what to test next

Choice	Reason to choose it	What it must establish
Stop	Avoid further spending if the customer problem is too weak.	Why another targeted test is unlikely to change the decision.
Repeat conventional selling	Test an improved message or offer.	What changed and why it addresses the earlier weakness.
Hands-on trial	Let customers experience an unfamiliar use.	Paid demand, repeat behavior and sustainable acquisition cost.

Your assignment

01 State the hypothesis and the decision a new test will inform.

02 Set the budget, sample, comparison and observation period.

03 Define a scale, revise and stop rule before seeing the result.

04 Explain what would prevent the team from mistaking enthusiastic comments for commercial demand.

Write the test brief so that another team could execute it and reach the same interpretation of the measures. Include how unfavorable observations will be recorded and who has authority to end the test.

> **A leadership question**
> How can you give a promising local idea a fair hearing without giving its advocates an unlimited claim on resources?

WORKSHEET • COMPLETE BEFORE READING THE TEACHING NOTES

Your decision

Write as the decision-maker. Use the historical evidence and the classroom model for their stated purposes. A recommendation needs a boundary, an owner and a test.

My recommendation and the principle it puts into practice

The calculation or evidence that matters most; its main limitation

Who bears the risk, and how their choice or voice is protected

The strongest objection and my response

First action, accountable owner, review date and stop/change trigger

EVIDENCE • METHOD • LIMITS

Sources and reading notes

A reconstructed decision after the initial Press ’n Peel market test and before the sampling campaign. 3M’s history supplies the sequence. The controlled trial, sample sizes, purchases and costs are entirely invented.

T1 3M / Post-it Brand, History of Post-it Notes

Adhesive discovery, internal use, mixed four-city launch, Boise sampling and 1980 introduction.

Open source document →

T2 Principled Business, Capitalists for Capitalism Manifesto

Bottom-up experimentation provides the interpretive framework.

Open source document →

How to read the evidence

The company history is a retrospective success account. It does not supply the fictional experiment’s purchase data or a causal estimate. The case avoids treating persistence alone as evidence that further spending was justified.

All quantities in the classroom exercise are invented unless explicitly identified as historical. The models omit factors deliberately for discussion; they are not company forecasts. Photographs are documentary context, with dates and licenses on the cover.

Original Principled Business teaching material. No company approval or affiliation with Harvard Business School is implied. No private interviews or unpublished company records were used. Public sources checked 1 November 2026.

TEACHING NOTES • READ AFTER COMPLETING THE DECISION

Worked analysis

Behavior and economics

Result	A	B
Initial conversion	10%	25%
Repeat rate among initial buyers	50%	70%
Paid packs in 45 days	60	170
Contribution before test cost	$240	$680
Net test result	−$60	−$220

B produces $440 more contribution but costs $600 more to run, so its incremental net cost is $160. Forty additional paid packs at $4 contribution would offset that difference, if they were genuinely incremental and did not require additional cost.

A worthwhile loss is still a cost

The hands-on test improves both initial conversion and observed repeat behavior in this invented sample. It may justify further learning even though its 45-day net result is worse. The recommendation should identify what remains uncertain: persistence, representativeness, product reliability and acquisition economics at larger scale.

Among all participants exposed, repeat purchase is 5% for A and 17.5% for B. Those measures answer a different question from the 50% and 70% repeat rates among initial buyers. Neither measure should be replaced with stated intent.

> **Common errors**
> Do not count free samples as revenue, omit the experiment’s cost, or assume that a higher conversion rate automatically produces a profitable launch.

TEACHING NOTES • READ AFTER COMPLETING THE DECISION

Outcome and teaching plan

What happened next

3M followed with a hands-on sampling effort known as the Boise Blitz. Its history reports that 90% of people who tried the product said they would buy it-a statement of intent, not measured purchasing. Post-it Notes entered U.S. stores in 1980. [T1]

A 75-minute discussion

Minutes	Facilitation plan
0-10	Choose stop, conventional test or sampling; state the hypothesis.
10-25	Separate explanations for the weak first result.
25-40	Calculate conversion, repeat behavior and incremental test cost.
40-55	Write a test brief with scale, revise and stop rules.
55-65	Reveal the historical sampling result and examine the intent-versus-behavior distinction.
65-75	Identify a local idea that deserves a more informative test.

> **Closing question**
> What is the smallest experiment that could change your mind about an idea you currently favor or doubt?

Assess the decision at its stated boundary. Later success cannot prove the original choice was sound; later failure cannot, by itself, prove it was unreasonable.