

• SINCE 1994

Four ways
testing adds value.

BUGS FIXED · BUGS FOUND · RISKS MITIGATED · PROJECTS
GUIDED · REX BLACK, INC.

Piet or Bonnie?

PIET SAYS

"Testing is just a big black hole at the end of the project. The more money we throw at it, the more it consumes."

BONNIE SAYS

"Testing is a value-adding activity that occurs throughout the project. By making smart test investments, we reap big rewards."

Most test managers want to work for Bonnie.

The hard part is convincing Piet — and Piet's CFO.

In plain English.

Testing adds measurable value in **four distinct ways**. Quantify each separately. Sum them. You go into the budget conversation with a defensible ROI — not a request.

This talk answers:

- **What's the base ROI** from bugs you find and fix?
- **What's the hidden value** of bugs you find but don't fix?
- **How does testing act like insurance** against quality risks?
- **What's testing's share** of project-tracking value?

738%

COMPOSITE ROI IN THE WORKED
EXAMPLE — FOUR VALUE
CATEGORIES STACKED ON THE
SAME TESTING INVESTMENT.

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CATEGORY 1 OF 4

Bugs *fixed.*

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Cost of (poor) quality.

Cost of quality = cost of conformance + cost of nonconformance.

- **Conformance** — testing, quality assurance.
- **Nonconformance** — fixing bugs, retesting, angry customers, reputation, lost business.

The classic escalation:

\$1 to find a bug in review · **\$10** in programmer testing · **\$100** in tester testing · **\$1,000** in customer usage.

ROI: 350%.

Add an independent test team.

- **Developers** find 250 bugs pre-release.
- **Testers** find 350 more.
- **Customers** find roughly 40% fewer bugs.
- Quality costs drop by roughly a third.

ROI = (benefit – cost) / cost. Denominator = cost of the team. Numerator = old quality cost minus new

ROI: 445%.

Add **\$150,000** of tools — amortized over 12 quarterly releases.

Complement manual with automation where it pays: regression · load · performance · structural API checks.

Quality costs halved vs. baseline.

Customers find ~66% fewer bugs than baseline.

(Where the "Investing in Software Testing" argument ends.)

ROI: 627%.

Layer static testing: testers review design and requirements specs, ask smart questions, **prevent ~150 bugs from ever being built.**

- Customers find **~90% fewer** bugs than baseline.
- Quality costs down by **two-thirds**.

Static testing is the highest-leverage investment per dollar. Review-stage cost (\$1/bug) versus customer-stage cost (\$1,000/bug). The math moves sharply in its favor.

CATEGORY 2 OF 4

Bugs *found
that don't get fixed.*

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"WHAT THE HECK GOOD IS THAT?"

Known-but-unfixed has *real value*.

If we know where a bug is — even if we don't fix it — we can:

- **Prevent** the user from encountering it. Documentation, UI changes, sensible defaults.
- **Warn** users in release notes so they can avoid it.
- **Provide workarounds** to help/support so calls get shorter and users get answers.

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The value is real. **The trick is measuring it.**

\$50 saved per *known* bug.

Assume a call for a **known** bug is **15 minutes shorter** than a call for an unknown one. Each bug generates **5 calls** on average. Support person costs **\$40/hr** fully loaded.

$\$40/\text{hr} \times (15/60 \text{ hr}) \times 5 \text{ calls} = \text{\$50 per known bug}$ in support time alone.

Over **650 additional bugs** documented in the same test cycle:
\$32,500 of value at zero additional testing cost.

COMPOSITE ROI → 666%.

CATEGORY 3 OF 4

Risks *mitigated.*

Testing as insurance.

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Expected payout = likelihood × cost.

Testing reduces **cost of exposure**. Structurally identical to what insurance does: a statistical mechanism for pooling risk.

Example "quality-risk premium":

- Performance problems — $\$100,000 \times 10\% = \$10,000$
- Functionality problems — $\$5,000 \times 50\% = \$2,500$
- Security problems — $\$250,000 \times 5\% = \$12,500$

CATEGORY 4 OF 4

Projects *guided.*

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Capers Jones' numbers.

Poor project tracking is a primary cause of project failure (Jones, *Estimating Software Costs*).

FAILURE RATE

- Very small, *with* tracking: **2%**.
- Medium, *with* tracking: **~20%**.
- Medium, *without*: **~40%**.
- Very large, *without*: **85%**.

TESTING'S SHARE

If good testing provides **half** of the tracking risk-reduction benefit, it claims **10%** of the project's at-risk value.

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On a project with **\$82,500** of testing + **\$247,500** of development budget:

10% × \$330,000 = \$33,000

THE LADDER

350 · 445 · 627 · 666 ·
698 · 738.

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COMPOSITE

Four categories. One investment.

BUGS FIXED

Stage 1 → **350%**

Stage 2 → **445%**

Stage 3 → **627%**

BUGS FOUND, NOT FIXED

- \$32,500 (support-call savings)
→ **666%**

RISKS MITIGATED

- \$26,000 (quality-risk premium)
→ **698%**

PROJECTS GUIDED

- \$33,000 (tracking share)
→ **738%**

Industry analyst benchmarks: **~800%** —
same order of magnitude.

DO THE MATH

Even a bad metric *beats* no metric.

Many testers are allergic to finance. **That's a career-limiting instinct.**

Without a measurement, we have no defensible sense of the work's value — and in most organizations **managers will not fund work with no measurable ROI.**

Start the calculation. Be conservative so the number survives scrutiny. Apply **Gilb's₁₉ Law**: even a bad metric is better than no metric, because you can iteratively improve a bad metric into a good one. **You cannot improve what you don't measure.**

TAKEAWAYS

Four categories.

Quantifiable.
Defensible.

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Four to hold against.

- **Testing adds value in four distinct ways.** Bugs fixed · bugs found-not-fixed · risks mitigated · projects guided. Quantify each separately and sum.
- **Static testing is the highest-leverage test investment.** \$1 in review vs. \$1,000 at the customer.
- **Documented known bugs have measurable value.** Support calls get shorter. Users get workarounds.
- **Testing metrics are project tracking.** Defect trends, completed tests, coverage by risk — **principal tracking signal** for the project as a whole.

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Thank you.

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