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.

WHAT THIS IS ABOUT

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.

CATEGORY 1 OF 4

Bugs *fixed.*

THE BASE CASE

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.

STAGE 1 · MANUAL TESTING

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.

STAGE 2 · + AUTOMATION

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.)

STAGE 3 · + STATIC TESTING

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.*

"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.

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

THE SUPPORT-CALL MATH

$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/hr × (15/60 hr) × 5 calls = **$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.

TESTING *IS* QUALITY-RISK INSURANCE

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 × 10% = $10,000**
- Functionality problems — **$5,000 × 50% = $2,500**
- Security problems — **$250,000 × 5% = $12,500**
- Other problems — **$10,000 × 10% = $1,000**

CATEGORY 4 OF 4

Projects *guided.*

TESTING METRICS *ARE* PROJECT TRACKING

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.

On a project with **$82,500** of testing + **$247,500** of development budget: **10% × $330,000 = $33,000.**

COMPOSITE ROI → 738%.

350 · 445 · 627 · 666 · 698 · 738.

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's 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.**

Four categories.

Quantifiable.
Defensible.

TAKEAWAYS

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.

> *Without a measurement, we have no solid sense of our work's value. Learning to estimate testing ROI is a critical success factor for testers.*

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Thank you.

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