



There is no ROI in Test Automation, but you can Monetize it's Value

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TestNet

Spring Event 2013

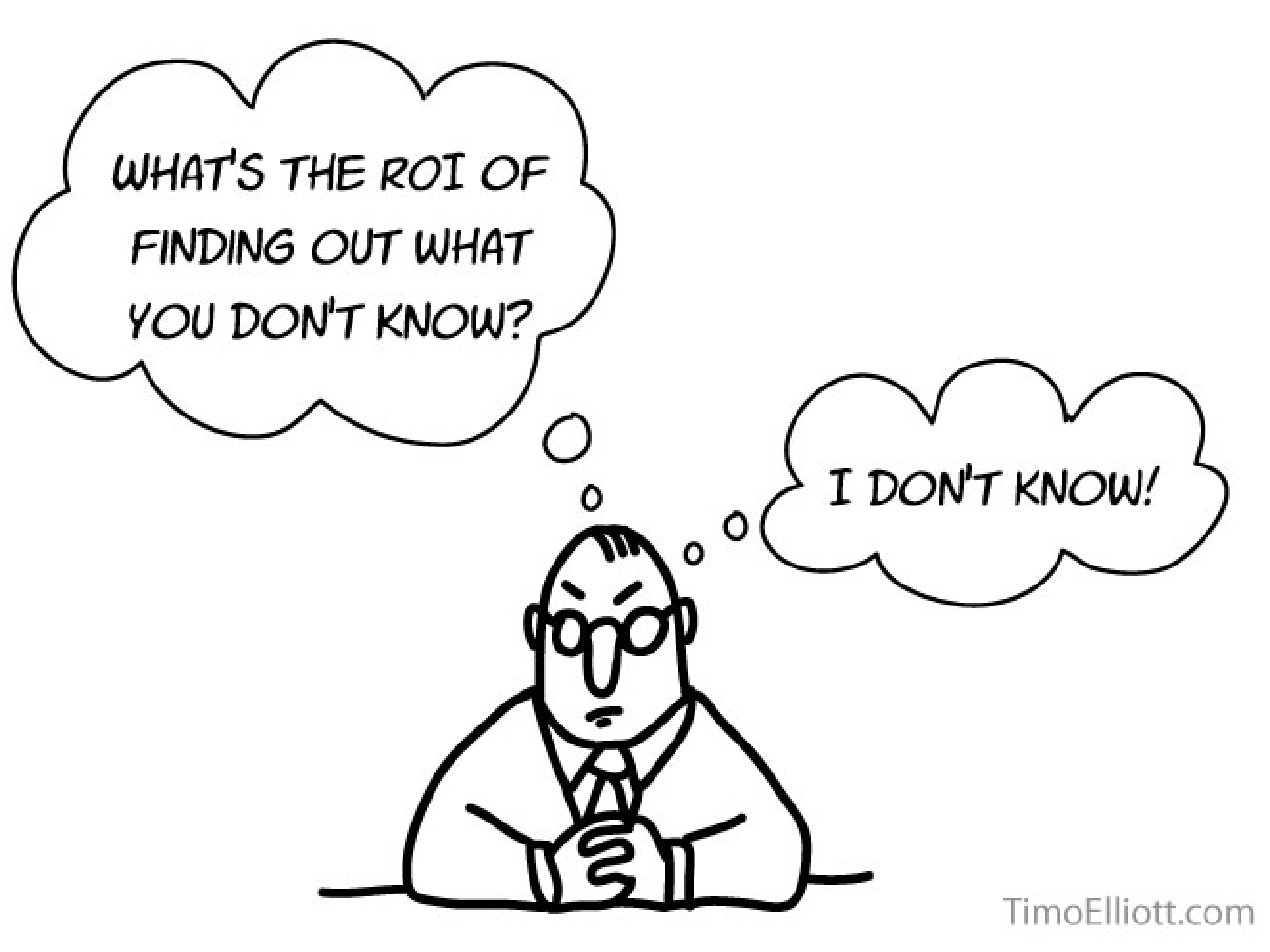
Nieuwegein, Netherlands

By:

Scott Barber

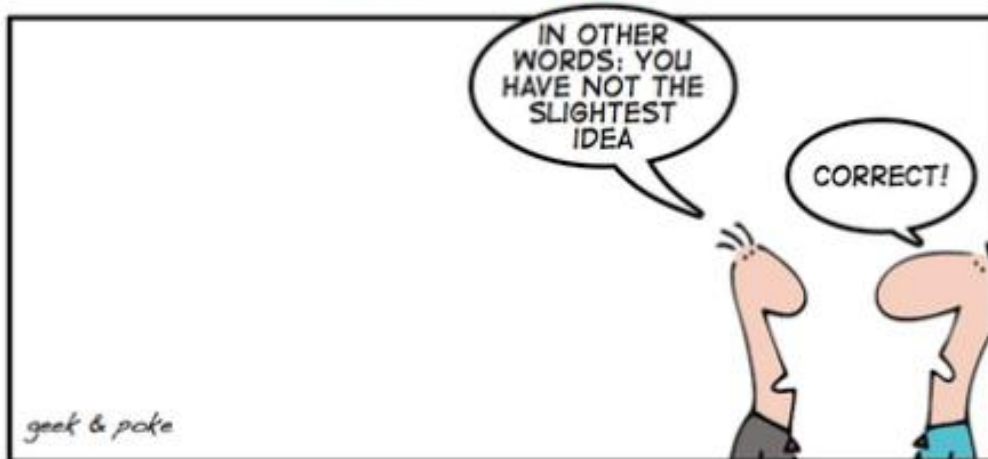
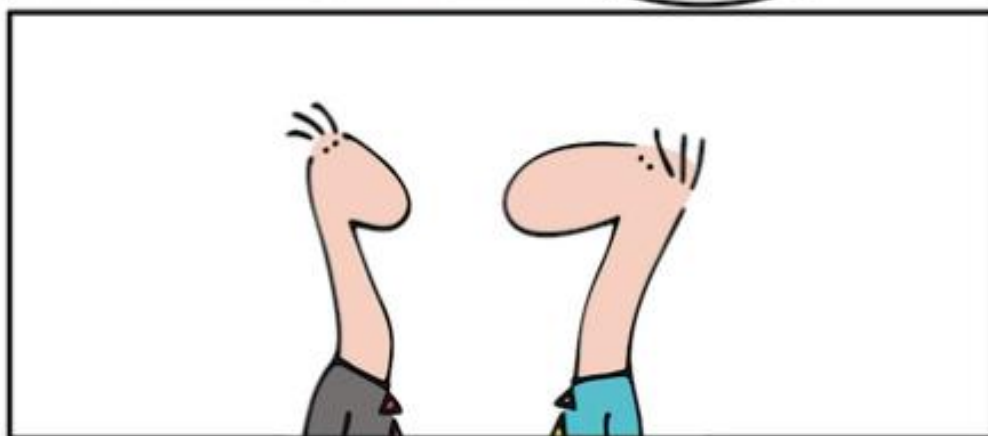
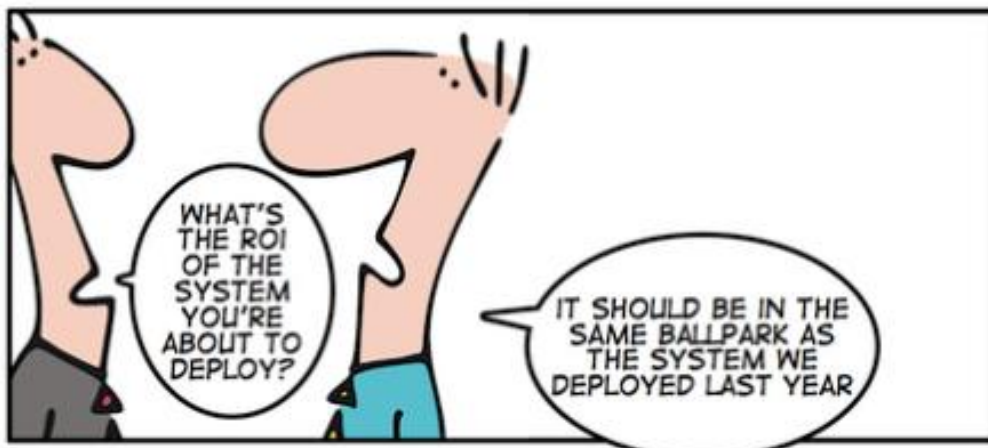
Chief Technologist

PerfTestPlus, Inc.



WHAT'S THE ROI OF
FINDING OUT WHAT
YOU DON'T KNOW?

I DON'T KNOW!



ROI

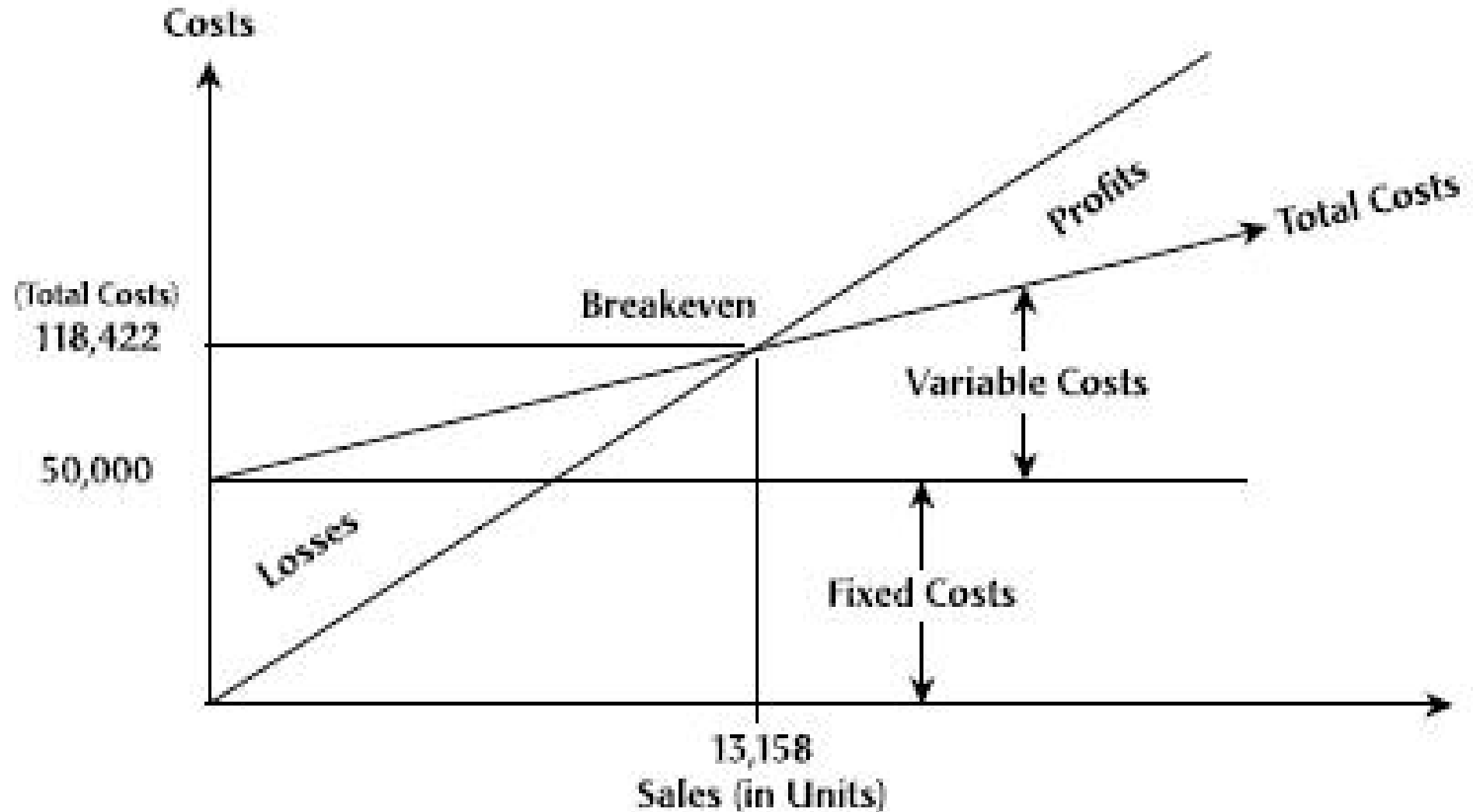
What is ROI?

“In purely economic terms, it is one way of considering profits in relation to capital invested.”

“ROI and related metrics provide a snapshot of profitability...”

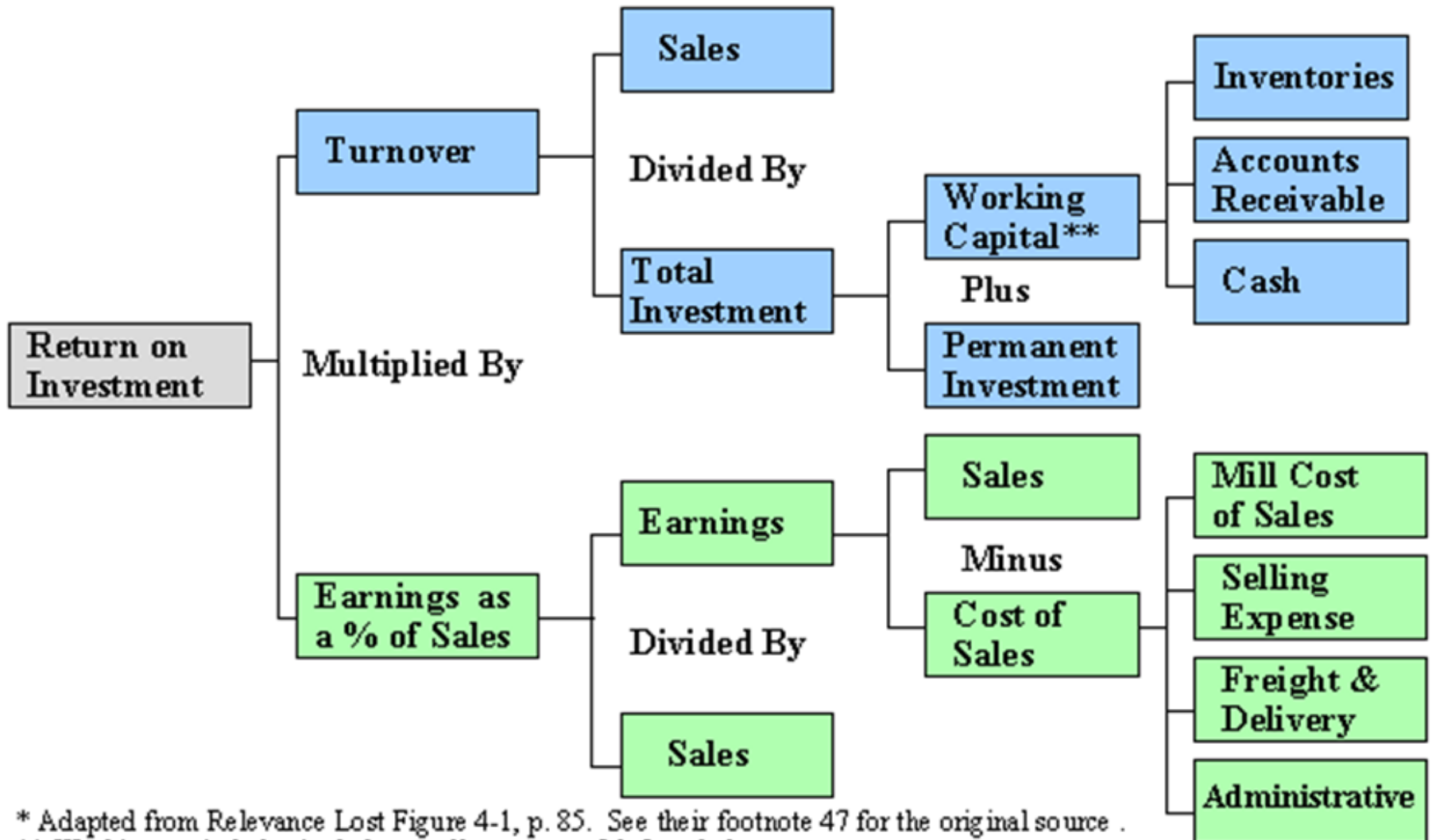
*Quotes from Wikipedia

ROI Graph



ROI Formula

The Du Pont Return on Investment Formula*



* Adapted from Relevance Lost Figure 4-1, p. 85. See their footnote 47 for the original source .

** Working capital also includes small amounts of deferred charges.

ROI Equations

$$\frac{\text{Net Income} + \text{Interest} (1 + \text{Tax Rate})}{\text{Book value of Assets}} = \text{ROI}$$

$$\text{ROI} = \frac{\sum_{i=1}^n \frac{R_i}{(1+r_R)^i} - \sum_{i=1}^n \frac{D_i}{(1+r_D)^i} - \sum_{i=1}^n \frac{M_i}{(1+r_M)^i}}{\sum_{i=1}^n \frac{D_i}{(1+r_D)^i} - \sum_{i=1}^n \frac{M_i}{(1+r_M)^i}}$$

Testing is not a Product*

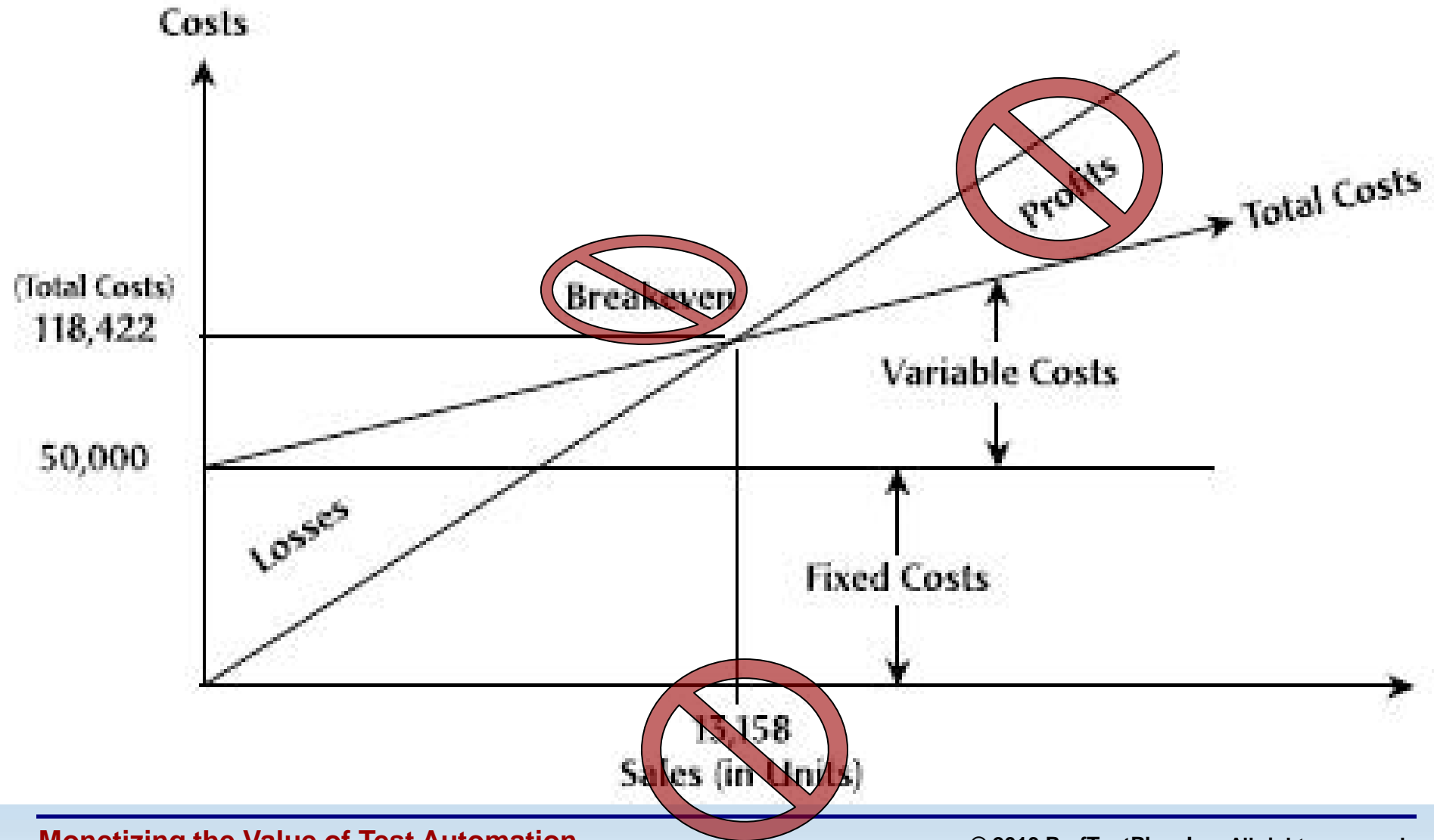
**Unless you sell Testing Services*

To business it is one or more of:

- An Information Service *(optional expense)*
- A Risk Management Tool *(optional expense)*
- A Risk Mitigation Method *(optional expense)*
- A Compliance Mandate *(unfortunate expense)*
- A way to spread blame *(just sad)*

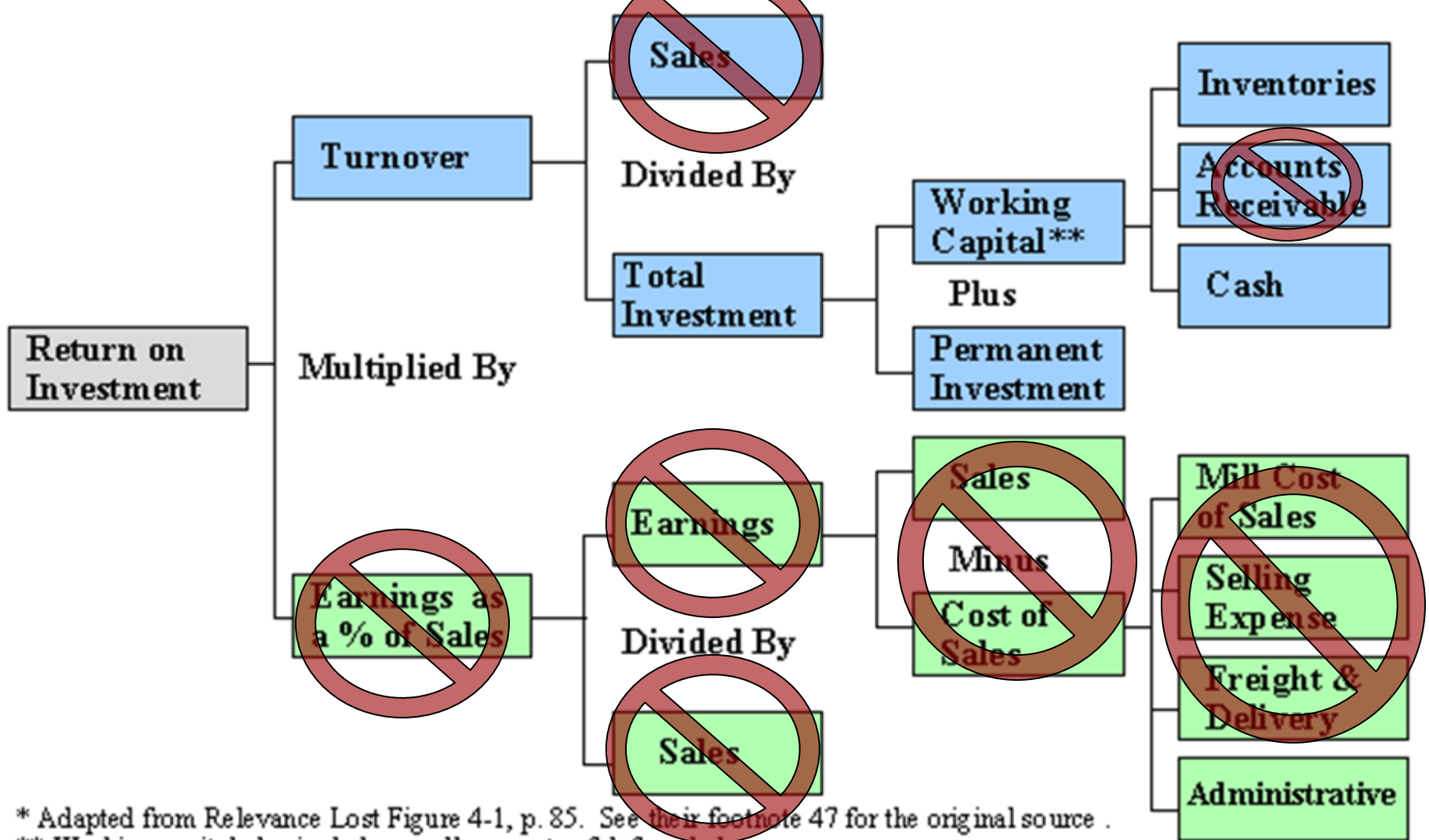
Therefore...

ROI Graph for Testing



ROI Formula for Testing

The Du Pont Return on Investment Formula*



* Adapted from Relevance Lost Figure 4-1, p. 85. See their footnote 47 for the original source .

** Working capital also includes small amounts of deferred charges.

ROI Equations

$$\frac{\text{Net Income} + \text{Interest} (1 + \text{Tax Rate})}{\text{Book value of Assets}} = ROI$$

$$ROI = \frac{\sum_{i=1}^N \frac{P}{(1+r)^i} - \sum_{i=1}^N \frac{D_i}{(1+r_D)^i} - \sum_{i=1}^N \frac{M_i}{(1+r_M)^i}}{\sum_{i=1}^N \frac{D_i}{(1+r)^i} - \sum_{i=1}^N \frac{M_i}{(1+r_M)^i}}$$

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"We're looking at a six figure return.
Unfortunately, they're all zeros."



"And this is where our ROI became an IOU."

To Put it Simply

Testing as an independent activity has

No Inherent Value

The benefit of testing is derived from the

Resulting Information

Meaning...

ROI calculations

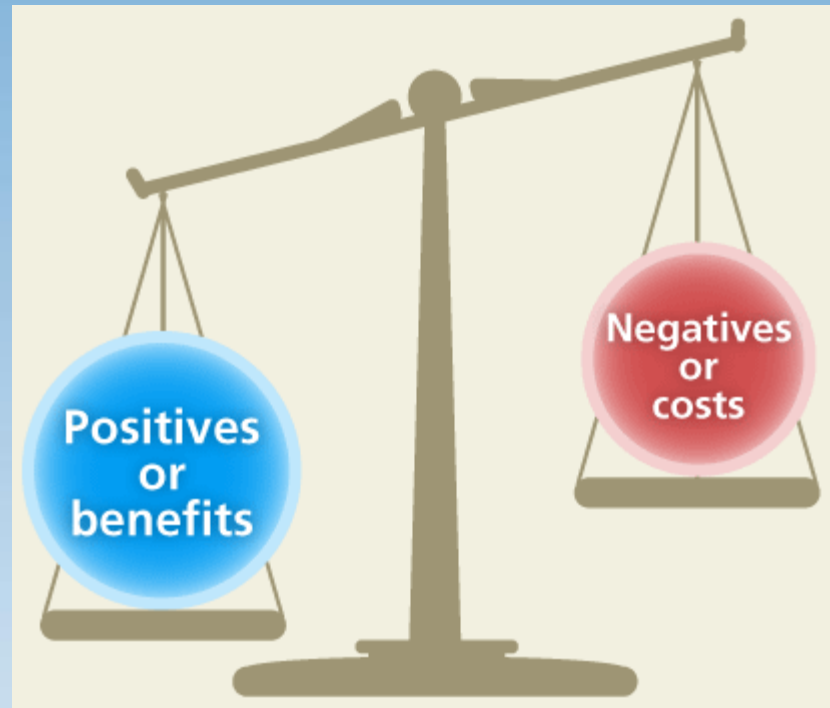
Do Not Apply

**to testing... whether it is
manual, automated,
or outsourced.**

And Therefore...

We need to use

Cost Benefit Analysis



CBA, Simple Example

	Halogen	LED
Watts per bulb (including transformer)	57w	6.5w
Lifespan	1000hr	20000hr
Bulb cost (each)	\$12	\$29
KWH per year	93.6	10.7
Power cost over 10yrs	\$271.44	\$30.95
Cost of bulb replacements over 10yrs	\$197	\$0
Total cost for 10yrs	\$468.44	\$59.95
Saving		\$408.49
Multiply by (number of bulbs in your home)		\$\$\$\$\$

CBA, Accounting Perspective

Let's see... If I spend the next hour
day trading I could make \$4,000...
If I spend it having sex I make nothing...
I'm just not seeing how your proposition
benefits me...



COST BENEFIT ANALYSIS

www.getmilked.com

CBA, American Example



Test Automation

The Costs

The Cost of Automation

How much money have you spent on this test automation?

Just \$200,000.

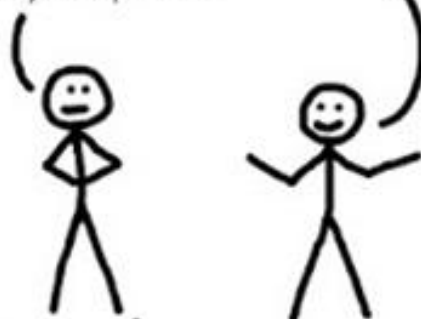


hmmm, how many bugs have you found?



Oh, so how many manual testing hours have you replaced?

None



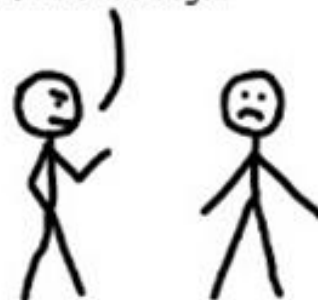
None



If you want to level the risk on being unemployed, then go and find some bugs!!

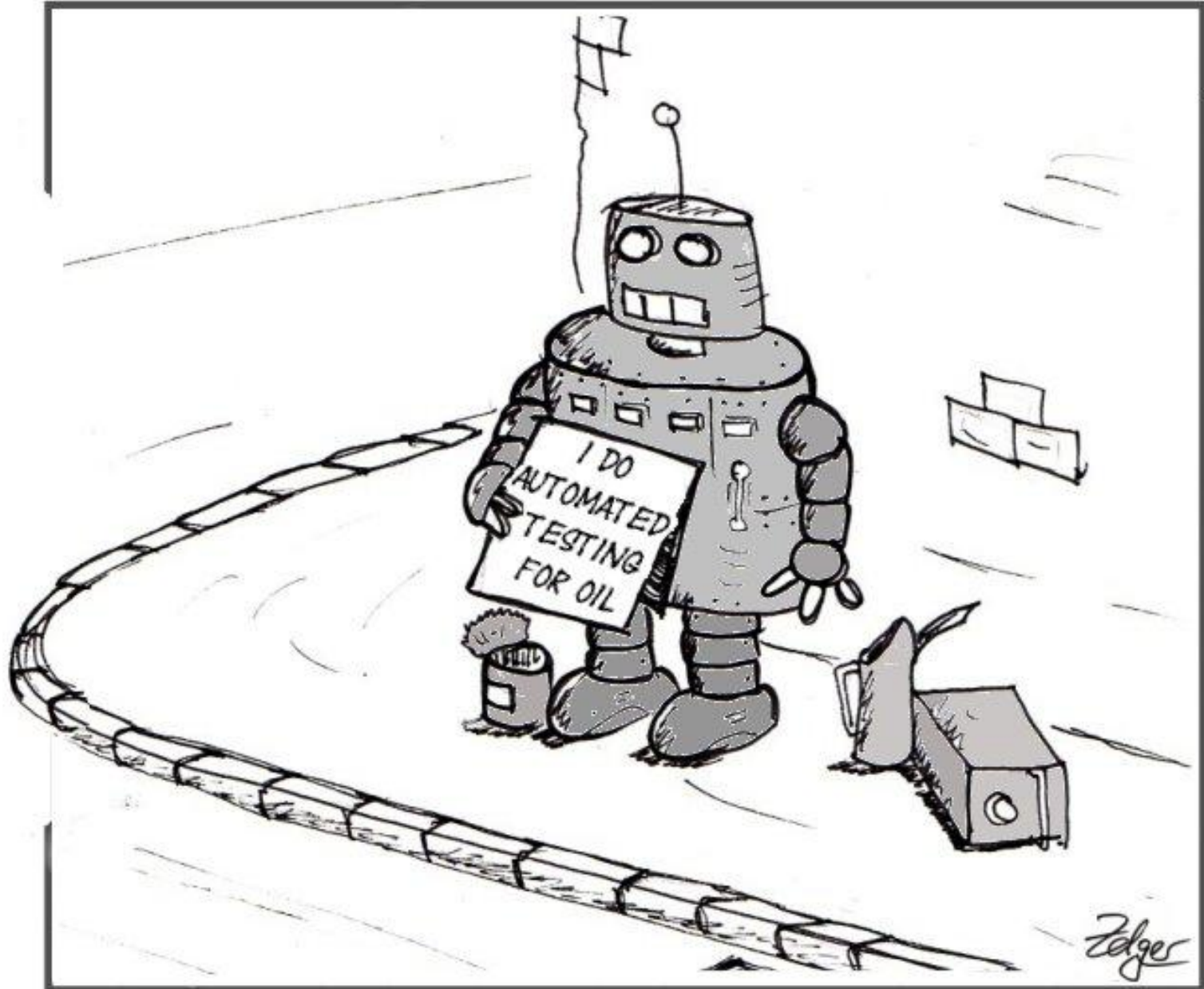
What are you doing then?

Leveling risks.



Cartoon designed by Raimond Sinivee

AG



www.zelger.org

**It was a shock to his master when he realized,
robots need maintenance, too**

Typical Test Automation Costs

- Tools (even open-source can have associated costs)
- Hardware/Environments (differential cost)
- Training (actual cost + productive time lost)
- Design (differential time)
- Automating (time and/or staff augmentation)
- Maintaining (differential from current maintenance)
- Staff Salary Increase (and/or staff replacement)
- Change-Related “Stuff” (process doc updates, etc.)

Management View of Costs



Test Automation

The Benefits

Example 'A'

What Are Benefits of Automated Testing?

Setups
Cost Reduction
???



The number of resources for regression test are reduced.

You can reuse tests on **different versions** of an application, even if the user interface changes.



Automated tools run tests significantly faster than human users.

**borrowed from SlideShare as a generic example*

Example 'B'

The Benefits/Purpose of Automation testing



Speed up Test Execution: In less span of time you can run more no of test scripts which not only reduces the time but also speeds up the execution task.



Achieved Improved Test Coverage: Your coverage is more than what you could do manually.



Ensures Consistency, Accuracy and Efficiency: The tests run are consistent, accurate and efficient.



Reliability and Transparency: The tests can perform the exact same steps every time without concern about human error.



Repeatability and Reusability: Once you automate your test cases i.e. you convert the test cases into test scripts they can be run any number of times since they are stored and they can be reused at a later point of time when needed.



Return on Investment (ROI)



Quality

**borrowed from SlideShare as a generic example*

Benefits, Scott's View

- BVT / Smoke / Pre-Test (*↓ time to “oops”*)
- More Data Variance (*↓ gaps, ↓ sampling, ↓ design time*)
- Dev/Test Relations (*↑ collaboration & shared resources*)
- Free Humans from Checking (*↑ high-value testing*)
- Test Data Creation/Maintenance (*↓ desire to stab self in eye with spoon, ↑ time to make use of data*)
- Enable New Tests (*like response times & resource usage*)
- Devs can Screen Bug Fixes (*↓ desire to stab dev in eye with spoon*)
- Auto-Magic Audit Trail (*↓ audit prep time, ↑ high-value testing*)

Monetize Example (Part 1)

Investment in Automation:

Capital Expenditures:

- **Software Licenses** (5 emp x €4000) => **€20,000**
- **Software Subsequent Years** (5 x €1000) => **€5,000**
- **Hardware** (5 machines @ €1500/hr) => **€7,500 / 18mo**

Training & Ramp Up:

- **3 day class** (onsite trainer) => **€5,000**
- **3 day work loss** (5 emp x 3 day @ €800/d) => **€12,000**
- **90 day staff aug during ramp up** (2 emp) => **€60,000**

Year 1: €102,000

Years 2+: €10,000

Monetize Example (Part 2)

BVT / Smoke / Pre-Test:

Manual:

- **Execution** (5 emp x 1day @ €800/day) => **€4000 each**
- **Maintenance** (5 emp x 1hr @ €100/hr) => **€500 /build**

Automated:

- **Execution** (1 emp x 2hr @ €125/hr) => **€250 each**
- **Maintenance** (1 emp x 1day @ €100/hr) => **€1000 /build**

Annual Frequency

- **Executions ~ 18**
- **Builds ~ 12**

Monetize Example (Part 3)

Annual	Manual	Automated Yr 1	Automated Yrs 2+
Investment	N/A	€102,000	€10,000
BVT/Smoke/Pre-Test			
Execution (x18)	€72,000	€4,500	€4,500
Maintenance (x12)	€6,000	€18,000	€12,000
SubTotal	€78,000	€22,500	€16,500
Audit Trail	€50,000	€15,000	€5,000
Total:	€128,000	€162,000	€48,000

Can't Monetize? SROI!

“...Our Mission Is to change the way the world accounts for value that enables better decision-making and ultimately, achievement of the vision for SROI...”

SROI is based on seven principles:

- **Involve stakeholders**
- **Understand what changes**
- **Value the things that matter**
- **Only include what is material**
- **Do not over-claim**
- **Be transparent**
- **Verify the result**



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Avoid Analysis Paralysis

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"Big surprise. That Cost/Benefit analysis
cost us more than any benefit we've ever
gotten from it."

SROI too Complex?

**Ask Stakeholders who
have budgets...**

***What would you
be willing to spend
for “X”?***

Let's Review

There is no ROI in Testing

- No profit/revenue, no ROI – Managers should know this

Testing itself has no inherent value

- It is only the results that *may* be valuable (beneficial)

Cost Benefit Analysis is what needs to be done

- What do I want? What does it cost? Is it worth it?
- Can't monetize it? SROI it!

Business doesn't care if it benefits you

- They want to hear how it benefits them!

If costs outweigh benefits...

- ***find more benefits!!!***

Questions?





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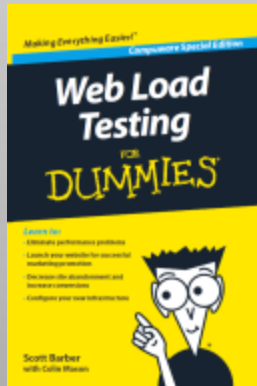
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