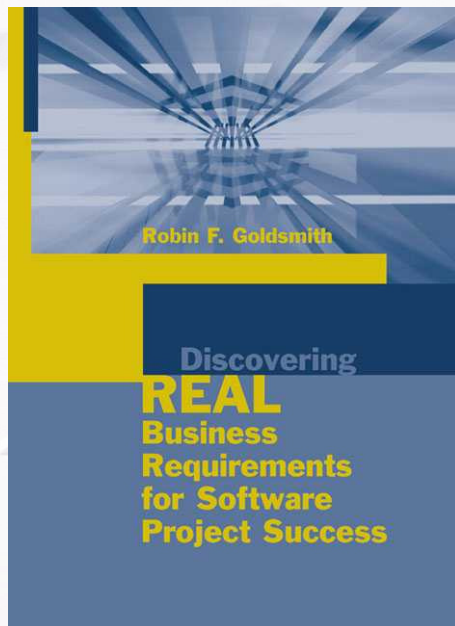


Quality is Key to Prospering from Bad Times

Robin F. Goldsmith, JD

Robin_Goldsmith@iist.org



Author: *Discovering REAL Business Requirements for Software Project Success*
www.artechhouse.com/Default.asp?Frame=Book.asp&Book=1-58053-770-7



Robin F. Goldsmith, JD

robin_goldsmith@iist.org

- President of Go Pro Management, Inc. consultancy since 1982, working directly with and training professionals in requirements, software acquisition, metrics, process improvement, project management, quality and testing.
- Previously a developer, systems programmer/DBA/QA, and project leader with the City of Cleveland, leading financial institutions, and a “Big 4” consulting firm.
- Degrees: Kenyon College, A.B.; Pennsylvania State University, M.S. in Psychology; Suffolk University, J.D.; Boston University, LL.M. in Tax Law.
- Partner with ProvelT.net on REAL ROI™ and ROI Value Modeling™.
- Published author and frequent speaker at leading professional conferences.
- Formerly International Vice President of the Association for Systems Management and Executive Editor of the *Journal of Systems Management*.
- Founding Chairman of the New England Center for Organizational Effectiveness.
- Member of the Boston SPIN and SEPG'95 Planning and Program Committees.
- Chair of record-setting BOSCON 2000 and 2001, ASQ Boston Section's Annual Quality Conferences.
- Member International Institute of Software Testing (IIST) and International Institute for Software Process (IISP) Body of Knowledge Advisory Boards.
- Member IEEE Std. 829-2008 for Software Test Documentation Standard Revision Committee.
- TechTarget requirements and testing subject expert.
- International Institute of Business Analysis (IIBA) Business Analysis Body of Knowledge (BABOK) reviewer and subject expert.
- Admitted to the Massachusetts Bar and licensed to practice law in Massachusetts.
- Author of book: **Discovering REAL Business Requirements for Software Project Success**



Objectives

- Contrast contraction and controlling reactions to economic hard times
- Describe how to determine REAL ROI™ (Return on Investment) for QA/Testing
- Suggest how improving QA/Testing can control and prosper in hard times
 - Traditional approaches' medium payback
 - Much higher payback Proactive Testing™
 - Realizing far greater business value benefits



Contraction → Downward Spiral

- Revenue is declining
- Kneejerk cuts to QA/Testing, training, and customer support
- Poorer products need more, but now get less and poorer, support
- Less satisfied customers buy less and complain more



There's a reason the word "jerk" is in "kneejerk"—Robin Goldsmith



Counter Intuitive--Controlling

“sales and profits can be maintained and increased in recession years and [in the years] immediately following by those who are willing to maintain an aggressive marketing posture, while others adopt the philosophy of cutting back on promotional efforts when sales appear to be harder to get.”

Findings of studies of recessions in 1970, 1974-1975, 1981-1982, 1990-1991 and later compiled by Demand (<http://www.create-demand.com/>)

“Recession Data On The Value of Marketing Through Downturn!”

http://www.gtms-inc.com/tip_marketingrecession.htm

“If you don’t invest in the future of the company, you won’t have one.”

Fred Killeen, General Motors Chief Technology Officer

-- eweek March 2, 2009 page 48

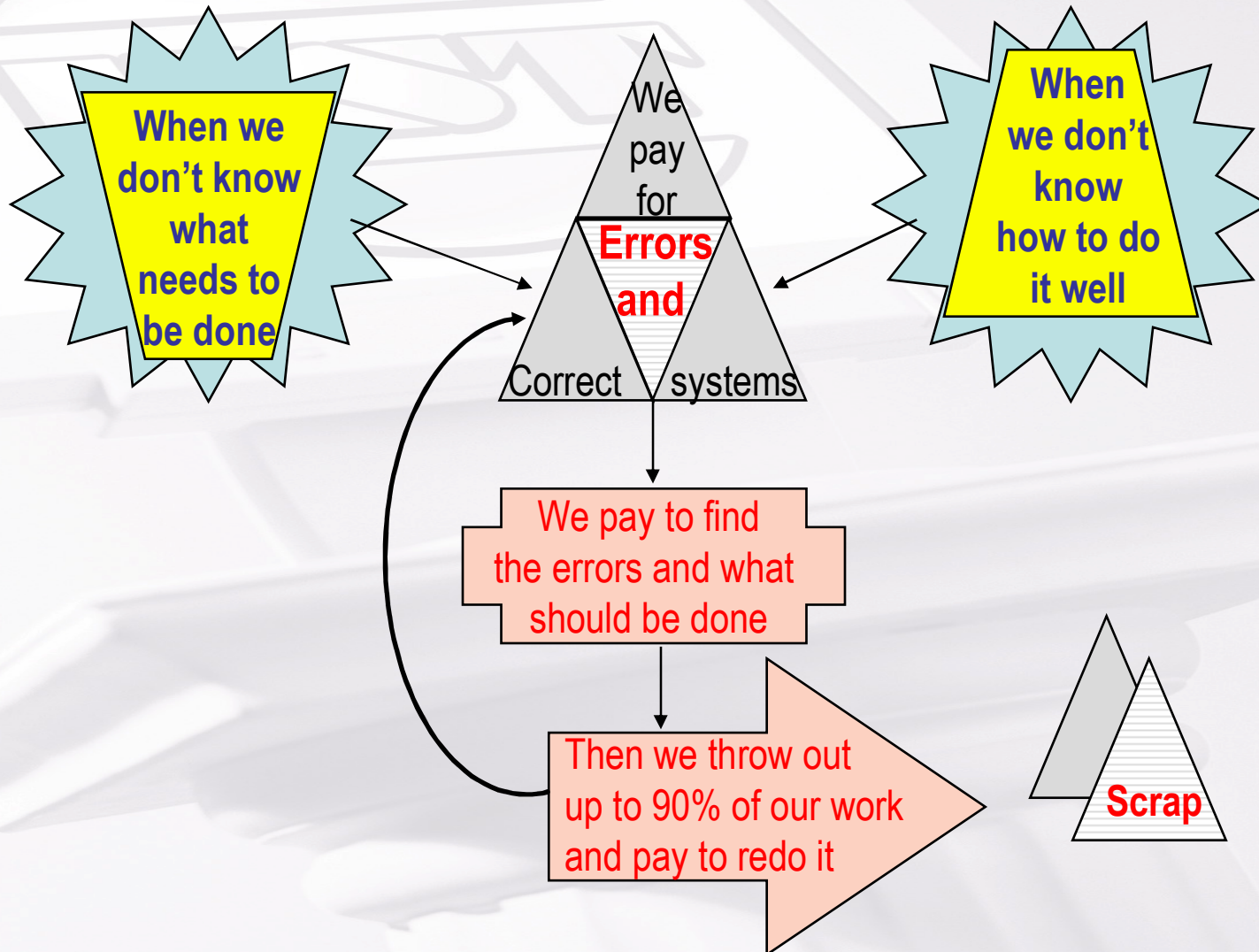


What You Produce is a Critical Part of Your Marketing, Not Just Ads

- Marketing is about making products people want to use and helping them do it; **awareness** and **reputation** are keys
 - *Effectively* discovering REAL, business requirements that customers value
 - *Efficiently* implementing responsive designs that work to provide that value *economically*
- Customers will go to providers with higher quality and lower prices—especially now



What Development Dollars Buy



You Can't Afford to Waste Time and Money

- You never could, but somehow always did
- Now, there's less leeway and higher stakes
- Your higher quality actually can cut your costs
 - You've got to know how to do it
 - **It's not just doing more and spending more of the same ways you're accustomed to**
 - That takes leadership, learning, and more ...



Isn't This Quality's Same Old Song? Why Don't *They* Listen?

Either:

Our Quality message isn't true

or

**Our Quality message is true but
isn't communicated effectively**

Which is it? Are you sure?

Too likely, it's both!

We need to recognize and accept this before we can address it



What We Need to Do

- Candidly identify what's really happening
 - Development, operations, and support
 - Quality and Testing
 - **Business value**
- Measure our costs and results
 - Calculate current REAL ROI™
 - Quantify both tangibles and intangibles
 - Software development/testing and **business**
- Identify the most important improvements
 - Implement and measure actual REAL ROI™
 - Adjust as appropriate and repeat



Key Measures—Results and Causes

- New/changes development time, effort, cost—requirements, design, coding, documenting, etc.
- Defect density, per development phase
 - Number by severity detected and when
 - Source origin (injection)—requirements, design, code, test, fixes
 - Escaping
- Cost of defects
 - QA/Testing time, effort, cost per phase/type of test
 - Development time, effort, cost to fix per phase/test type
 - Other impacts on costs and revenues, e.g., damage, lost business, fines & penalties, missed market, support



Value of Quality/Testing

- What it's costing us to do what we do now
 - Do it first
 - Do it over, finding and fixing the problems
 - Other quantified tangibles and “intangibles”
- Benefits of specific results improvements
 - System development
 - **Business value**
- Investment costs of achieving the benefits
 - Quality Assurance and Testing
 - Development, methodology, software process
 - Other, e.g., support, documentation, training



All Benefits Ultimately Are Financial

Making Them Conscious Provides Advantage

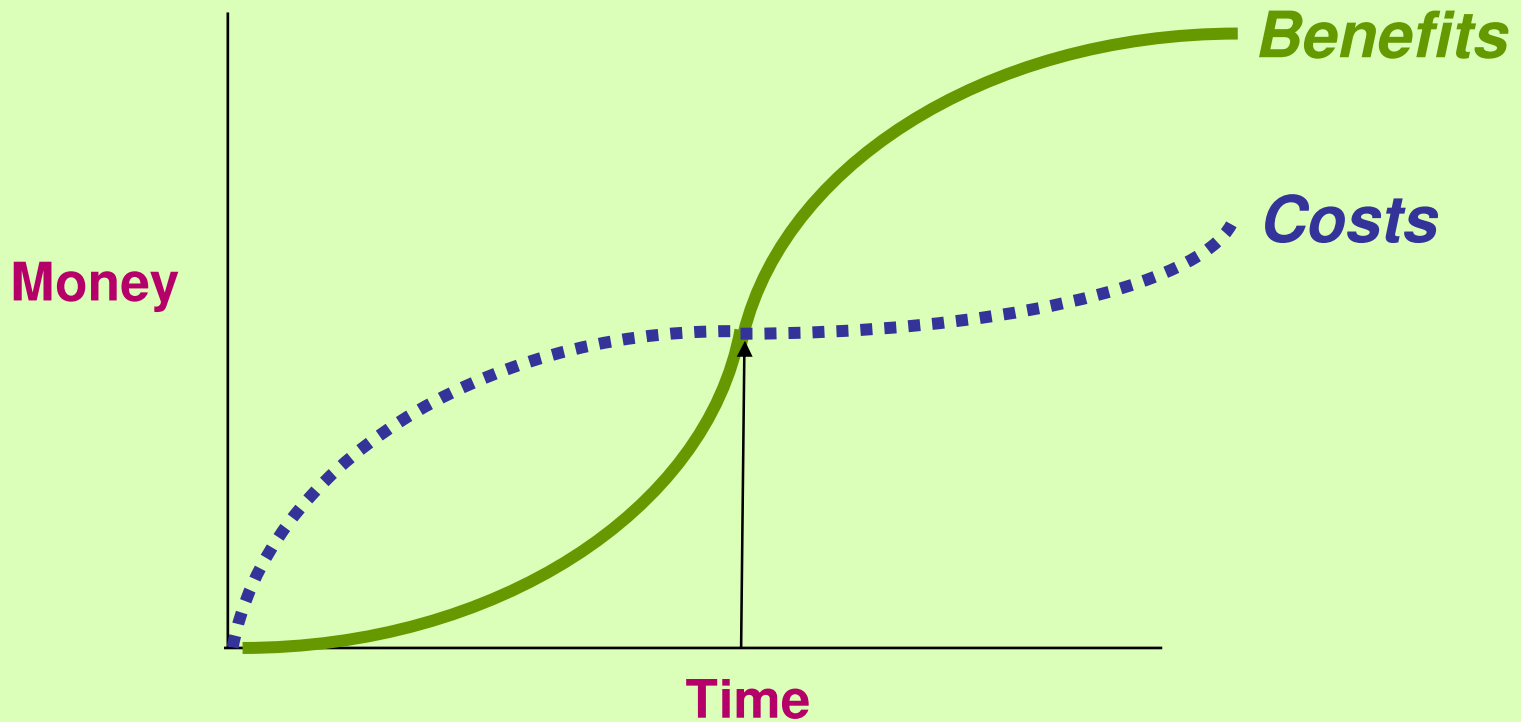
- **Expense Savings** (all goes to bottom line)
 - Eliminate current expenditures
 - Avoid future (otherwise additional) expenditures
- **Revenue** (only net goes to bottom line)
 - Enhancement (sell more, higher margins)
 - Protection/retention (compliance, competitiveness)

**Dilemma: Benefits tend to be overstated
Costs of achieving benefits
tend to be understated**



ROI Considers Costs and Benefits

Common Calculation: Payback Period



Discounted Cash Flow Scenario: _____

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Revenues					
Expenses					
Net Annual Benefit					
Discount Factor (10%)	.909	.826	.751	.683	.621
Net Present Value					
Total in today's \$					



Discounted Cash Flow Guidelines

- Net expenses and revenues each year (net annual benefit), multiply by discount factor for year to compute net present value, and total across useful life for total in today's money.
- Expenses go directly to the bottom line; revenues go only indirectly (i.e., must first subtract added costs of producing added revenue—profit margin)
- Timing and duration of revenues and expenses must be reflected in extent realized in each year over full useful life (convention is 5 years)
- Can be one-time events or continuous, fixed or variable—linear or stepwise; need to include factors such as growth, inflation, wearing out, and capacity exceeded

Can show net benefits as a single scenario; but it's clearer to show benefits as differences between scenarios reflecting all relevant revenues and expenses, direct and indirect.



Expressed as an Annual Percentage, Can Compare to Other Investments

$$\text{ROI} = \frac{\text{Average Annual Benefit \$}}{\text{Investment \$}}$$

- ***Also called “Return on Capital” and usually is based on discounted cash flow***
- ***Similar to more complex calculation of Internal Rate of Return (IRR) which determines the discount rate achieved by the cash flow***
- ***Often must exceed organization’s “hurdle rate” return which can be expected with minimal risk***



Calculations Are Necessary but Not the Key to REAL ROI™

- Key is getting the “story” right, plausibly linking what you’ll do, and its costs, to getting the results and benefits you want
- Benefits are driven by REAL business requirements that provide value when met
- QA/Testing contributes by helping
 - Catch requirements and design problems
 - Demonstrating products/systems work



Traditional Approach

Low Marginal Cost → High Payback

- Get involved earlier to review requirements and design testability and know better what to test
- Evolutionary QA and Testing improvements catch *more* defects before getting to field
 - Use more disciplined techniques to more thoroughly plan and design test cases
 - Measure and manage testing projects and process
 - Increase use of automated testing tools



For Example, \$100,000 Project

Requirements	\$10,000
Design	15,000
Development	50,000
QA/Testing	25,000

100,000

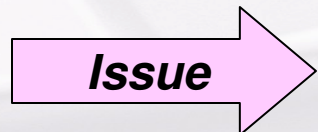
Maintenance	200,000
-------------	---------

\$100,000 Project = \$300,000



For Example, \$100,000 Project

Requirements	\$10,000
Design	15,000
Development	50,000
QA/Testing	25,000
+20% Training	5,000



	105,000
Maintenance	200,000
-20%	-40,000

\$100,000 Project = \$265,000

Benefit	<u>\$35,000</u>
Useful Life	5 years
Annual Benefit	\$7,000
Investment	\$5,000
ROI	140%
Payback	8.57 mo.



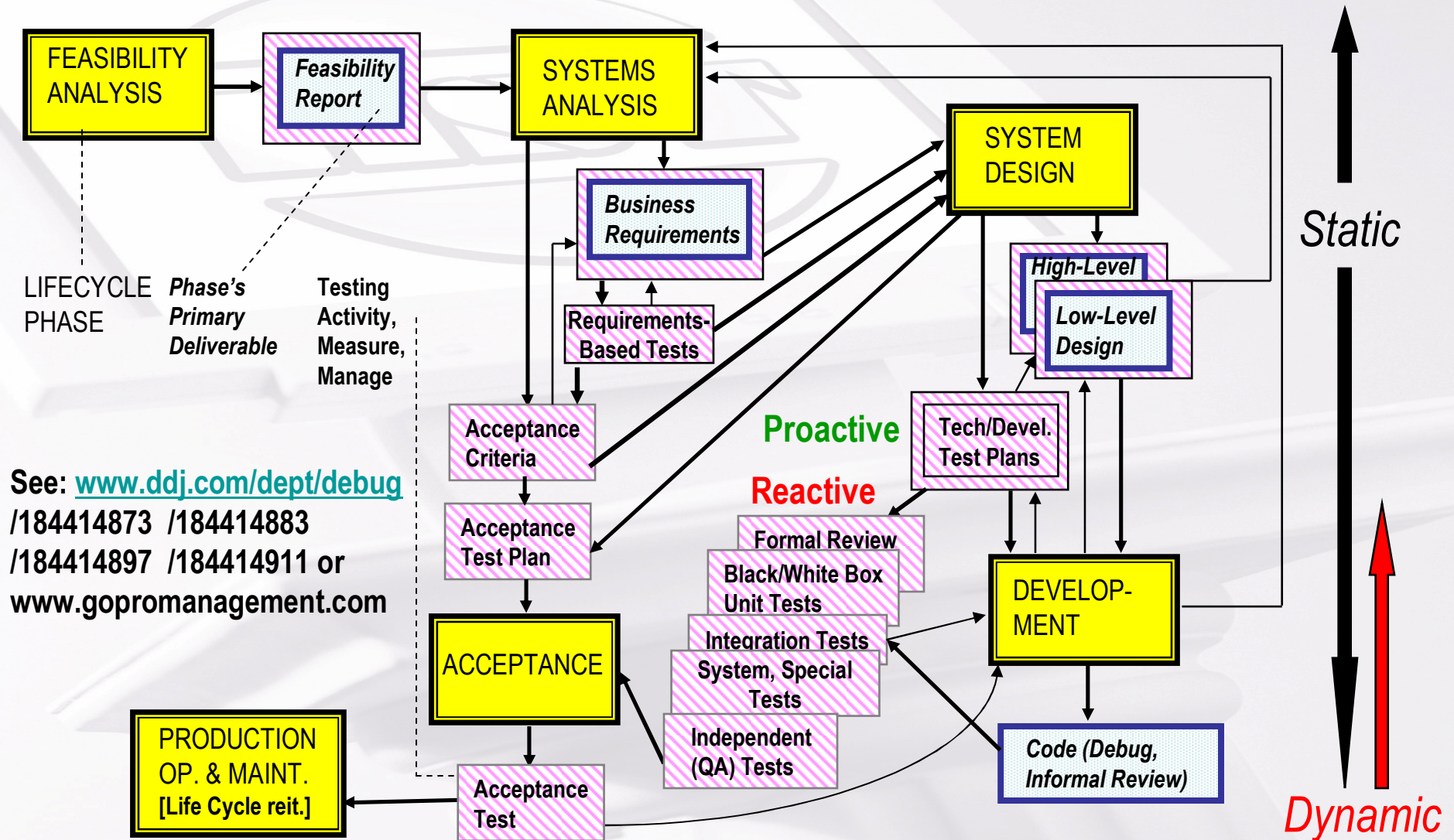
Breakthrough Higher Payback

- Get good at discovering REAL business requirements to reduce biggest error and rework creep cause
- Apply Proactive Testing™ to catch and prevent *more* defects *earlier* when cheaper
 - 21+ ways to catch wrong and overlooked, as well as unclear/untestable requirements/designs
 - Special methods that identify numerous ordinarily-overlooked risks to be tested

*It's not just spending more time doing what you do now,
It's spending your time differently, much more productively*

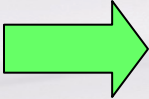
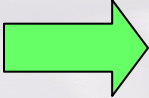


Proactive Testing™ Life Cycle



For *Example*, \$100,000 Project

Proactive Testing™

Requirements	\$10,000	+\$5,000	\$15,000
Design	15,000	+5,000	20,000
Development	50,000	-20,000	30,000
QA/Testing	25,000	+5,000	
		-10,000	20,000
	-----		-----
	100,000		85,000
Maintenance	200,000	-100,000	100,000
	-----		-----
\$100,000 Project = \$300,000			\$185,000



Return on a Better Way

Through Early Delivery

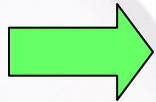
Benefit	<u>\$15,000</u>
Useful Life	1 year
Annual Benefit	\$15,000
Investment	\$15,000
ROI	100%+
Payback	10.2 mo.+

Full Useful Life

Benefit	<u>\$115,000</u>
Useful Life	5 years
Annual Benefit	\$23,000
Investment	\$15,000
ROI	153%+
Payback	7.83 mo.+



Better Return on a Better Way



Through Early Delivery

SW Dev Benefit	\$15,000
Bus. Savings	\$15,000
<i>Net Revenue</i>	<i>\$15,000</i>
Total Benefits	<u>\$45,000</u>
Useful Life	1 year
Annual Benefit	\$45,000
Investment	\$15,000
ROI	300%
Payback	4 mo.

Full Useful Life

SW Dev Benefit	\$115,000
Bus. Savings	\$75,000
<i>Net Revenue</i>	<i>\$75,000</i>
Total Benefits	<u>\$265,000</u>
Useful Life	5 years
Annual Benefit	\$53,000
Investment	\$15,000
ROI	353%
Payback	3.36 mo.



Consider the Alternatives to Quality

- Added costs
 - Customer support
 - Software maintenance and support
 - Fixing damage
- Reduced revenue
 - Failure to gain new sales
 - Loss of existing customers

Is it good strategy to race to market with a defective product?



Now Is the Best Time to Learn How and Implement Improved Quality/Testing

- Workload down, may be easier to find time
- Greater worker motivation to increase their skills and knowledge
- Shh! Often incentive prices for training, lodging, and even travel

Failure to get and apply adequate training causes good people to leave



Objectives

- Contrast contraction and controlling reactions to economic hard times
- Describe how to determine Return on Investment (ROI) for QA/Testing
- Suggest high-payback QA/Testing that challenges common obstacles to gaining the desperately-needed financial benefits QA/Testing offers

Please complete an evaluation. Thank you.

