

# Profit-Based Testing:

Understand the contribution of testing  
to the bottom line

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**Presented by Wayne Mallinson**



### 3. Business income improvements

#### A bit of usability:

Development savings

Support savings

Efficiency savings

Sales Increases

### 1. Profit-based

Business 101

Risk-based?

Profit defined



### 2. Testing expense improvements

Better testing – Training

Better testing - Automation

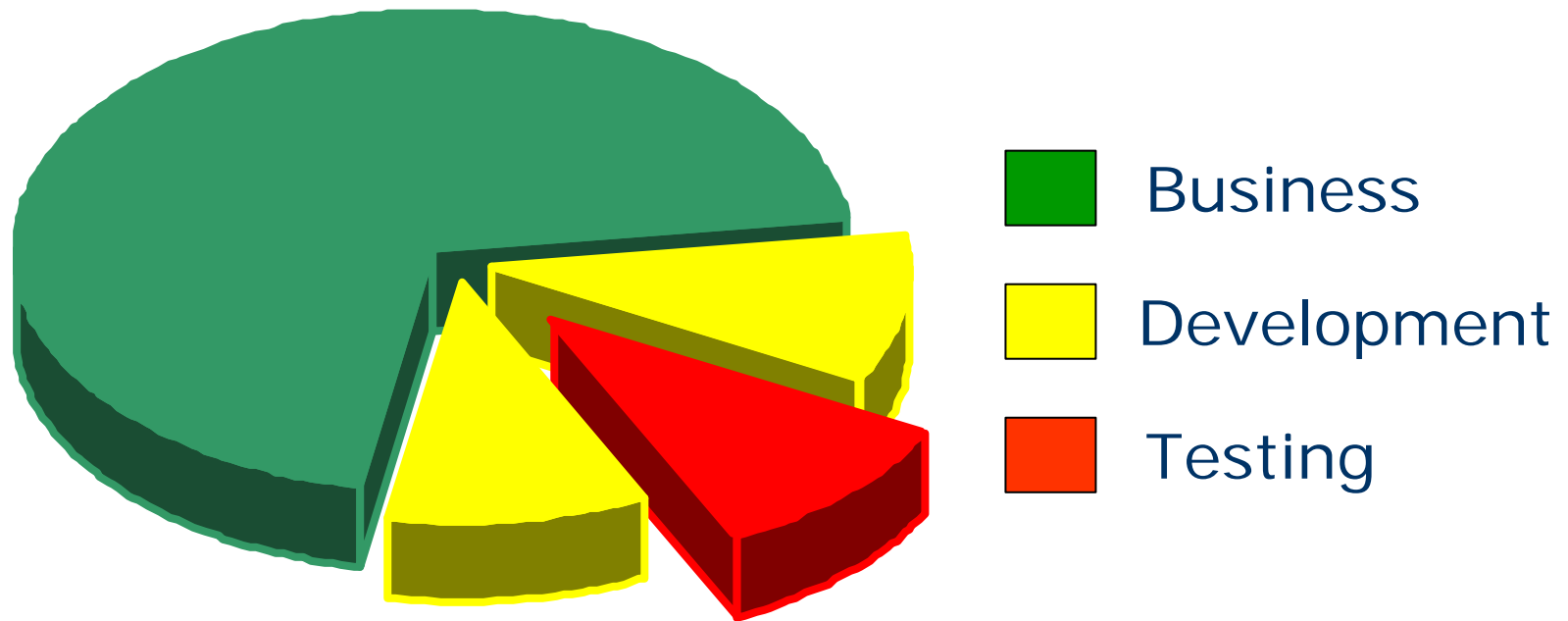
Developer's test tools

Business analyst's test techniques

# Business 101

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Business = Innovation and service delivery



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# Risk-Based Testing

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- ✍ Currently popular
- ✍ Grudge purchase
- ✍ We need a new perspective (new angle)
- ✍ We need the same language as business
- ✍ We need the same aim as business -> make profit

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# Profit Defined

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Profit = Income - Expenses

Profit = Income – Development Expenses  
– Testing Expenses

# Project Defined

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Profit = 10,000,00

– 700,000

– 300,000

? Profit = 9,000,000

Income (Revenue) ←

Testing →

Development →





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# Better Testing: Training

	Development	Testing	Total	Business
	700,000	300,000	<b>1,000,000</b>	10,000,000
<b>More Effective Testing</b>				
Training (+5%)		15,000		Better techniques
Saving (25%)		75,000		
Net Result		<b>60,000</b>	Save 20%	
Hence Testing		<b>240,000</b>	Pay 80%	

# Better Techniques

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BVA : Random testing

50,000: 1

Review Test Cases

5: 1

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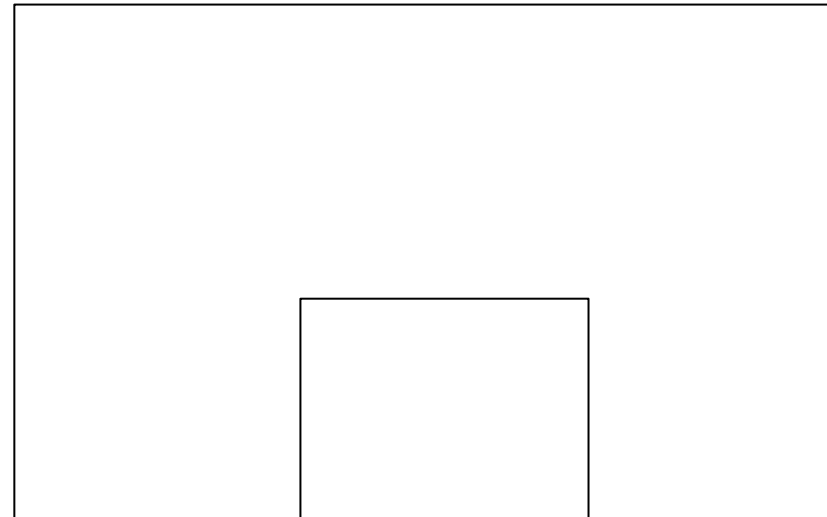
# Better Testing: Automation

	Development	Testing	Total	Business
	700,000	300,000	<b>1,000,000</b>	10,000,000
<b>Test Automation</b>				
Tool and Technician	(x1.3 x 40%)	<b>36,000</b>		Automation
Saving (66% of 40%)		79,200		
Net Result		<b>43,200</b>	Save 14%	
Hence Testing		<b>196,800</b>	To pay 66%	

# Test Automation

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- ✍ 33 x faster
- ✍ 40% or more
- ✍ After hours
- ✍ 5:1, 1:3, 1:33



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# Developer's Test Tools

	Development	Testing	Total	Business
	700,000	300,000	<b>1,000,000</b>	10,000,000
<b>Developer Testing Tools: Whitebox</b>				
Training & Tool (10%)	70,000			White Box Automation
Saving (16%)	112,000	20,160		
Net Result	<b>42,000</b>	<b>20,160</b>	Save 6%/7%	
Hence Testing	<b>658,000</b>	<b>176,640</b>	To Pay 94/59%	



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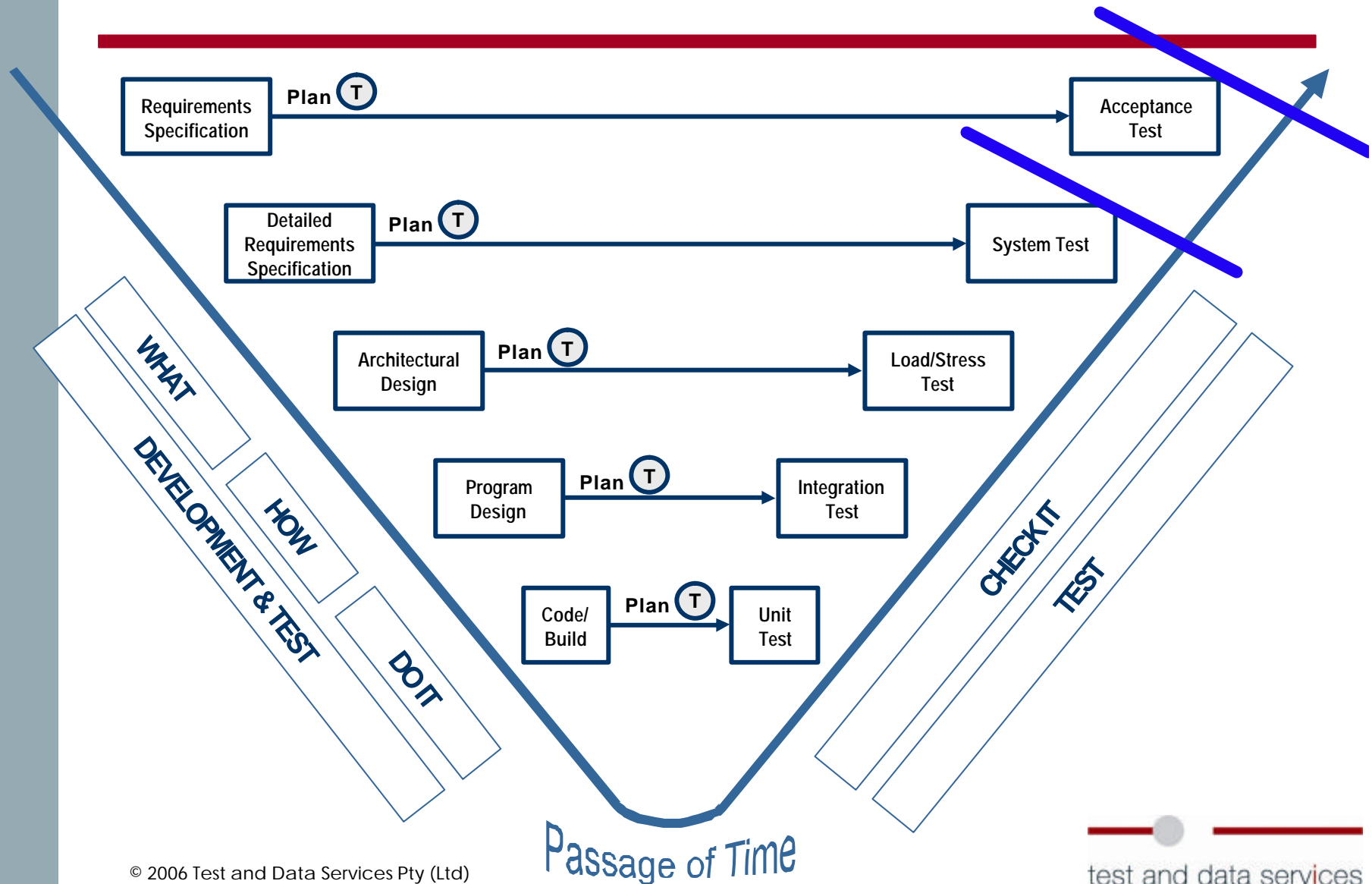
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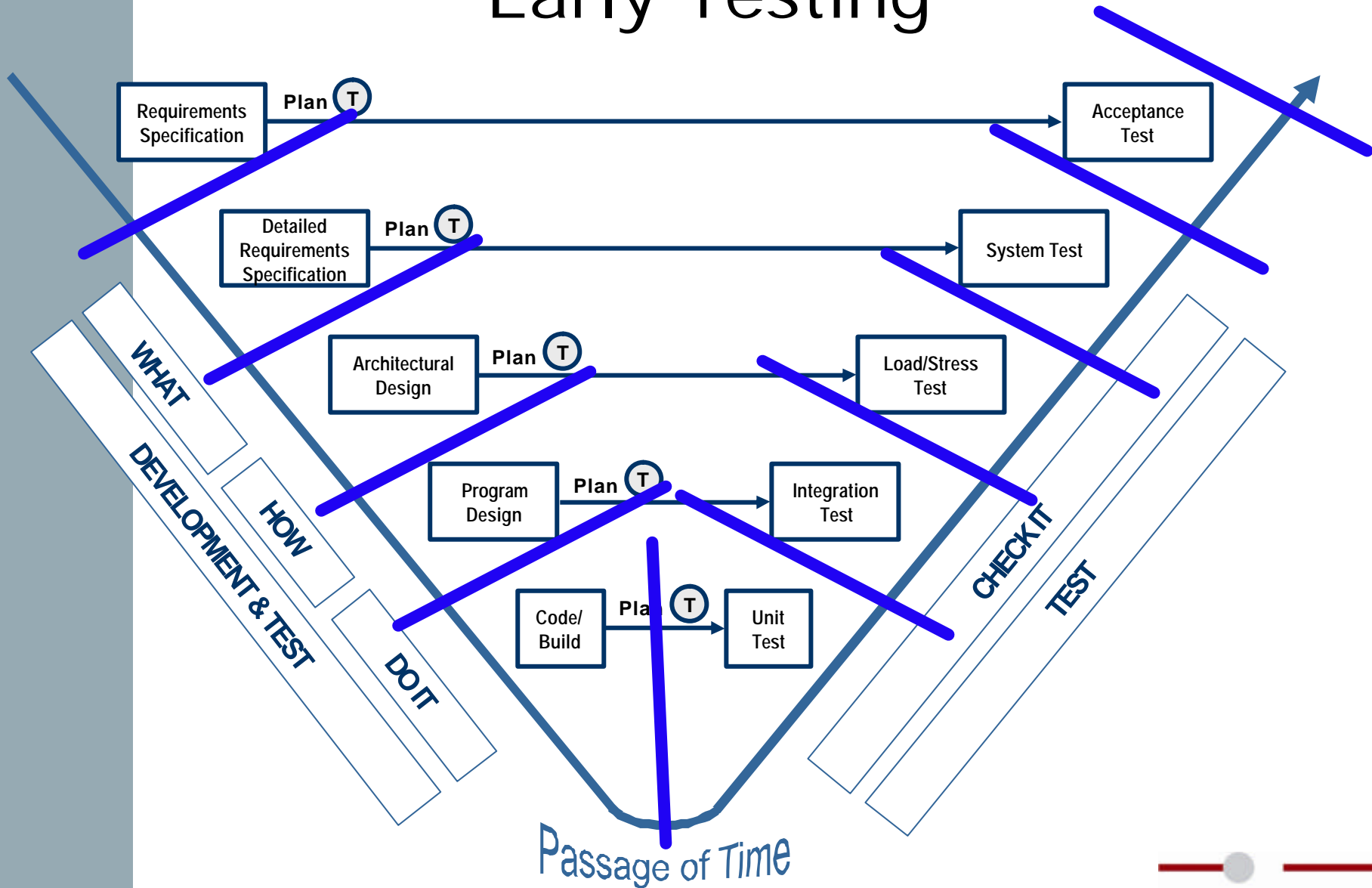
# Business Analyst's Test Techniques

	Development	Testing	Total	Business
	700,000	300,000	<b>1,000,000</b>	10,000,000
<b>Business Analyst Testing</b>				
Training & Reviews (15%)	105,000			White Box Automation
Saving (31% of SDLC)	217,000	77,143		
Net Result	<b>112,000</b>	<b>20,160</b>	Save 16%/7%	
Hence Testing	<b>546,000</b>	<b>99,497</b>	To Pay 78%/33%	

# Developer and Business Analyst

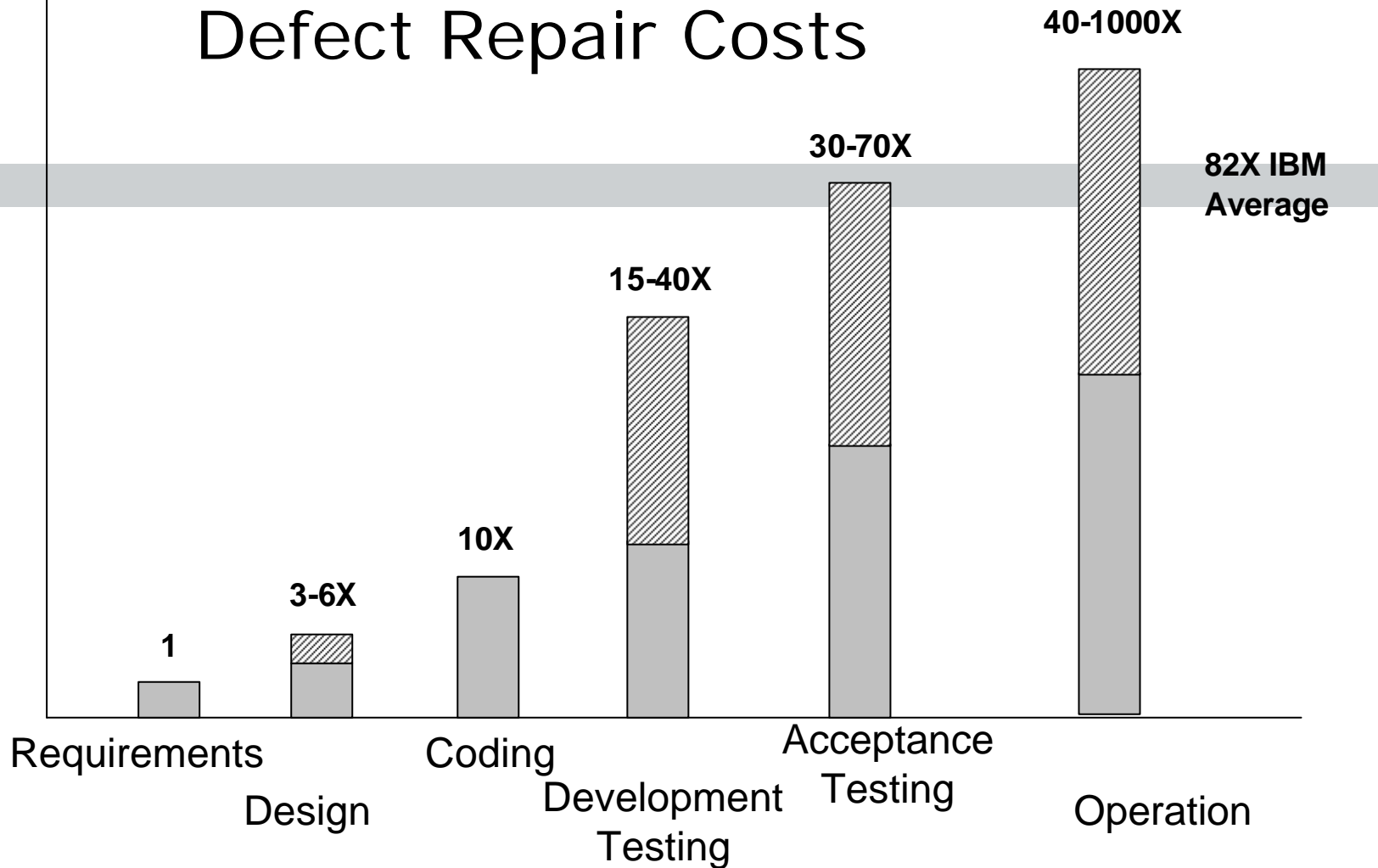


# Early Testing



Relative cost to fix an error

# Defect Repair Costs



The cost of fixing errors escalates as we move the project towards field use. From an analysis of sixty-three projects cited in Boehm: *Software Engineering Economics* (Boehm, 1981)

# Quality is a Team Effort

			Cumulative	Remaining		Remaining		Repair		
	Inject	Injected	Cumulative	Detect and Repair	Percentage	Quality	Cost Factor	Repair Costs		
Requirements	50	300	300	150	50.0	50.0	1	150	50	
Detailed Requirements	50	300	600	225	37.5	62.5	1	225		
Architectural Design	50	100	700	163	23.2	76.8	3	488	50	
Program Design	50	100	800	131	16.4	83.6	6	788		
Code	50	200	1000	166	16.6	83.4	10	1656		
Unit Test	50	28	1028	97	9.4	90.6	15	1449	50	
Integration in the small	50	16	1044	56	5.4	94.6	25	1409		
Architectural test	50	9	1053	33	3.1	96.9	30	986		
System Test	50	5	1059	19	1.8	98.2	40	767		
User Acceptance Test	50	3	1062	11	1.1	98.9	55	615		
Operations	100	2	1064	13	0.0	100	82	1070		
		1000		1064						9603

			Cumulative	Remaining		Remaining		Repair		
	Inject	Injected	Cumulative	Detect and Repair	Percentage	Quality	Cost Factor	Repair Costs		
Requirements	10	300	300	30	90.0	10.0	1	30	10	
Detailed Requirements	10	300	600	57	85.5	14.5	1	57		
Architectural Design	10	100	700	61	78.8	21.2	3	184		
Program Design	10	100	800	65	73.3	26.7	6	391		
Code	10	200	1000	79	70.8	29.2	10	787		
Unit Test	10	118	1118	83	66.5	33.5	15	1239		
Integration in the small	10	124	1242	87	62.8	37.2	25	2168		
Architectural test	10	130	1372	91	59.7	40.3	30	2732		
System Test	50	137	1509	478	31.7	68.3	40	19121		
User Acceptance Test	50	80	1588	279	17.6	82.4	55	15336		
Operations	100	46	1635	325	0.0	100	82	26676		
		1000		1635						68720
				1.54						7.16

# Project Savings on Expenses

Profit = 10,000,00

– 546,000

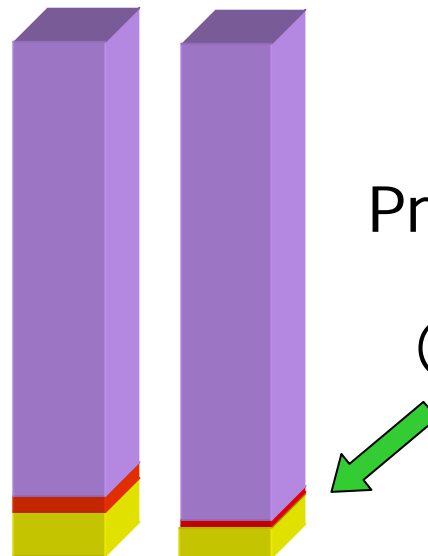
– 99,497

Profit = 9,354,503

Up 3.94%

Income (Revenue) ←

Testing →  
Development →



Profit up 3.9%

(IT Down 35.5%)

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# Usability Testing

	Development	Testing	Total	Business
	700,000	300,000	<b>1,000,000</b>	10,000,000
<b>Sales Increases</b>				
Usability Testing	70,000			Web Factors
EXTRA INCOME (40% revenue)	4,000,000			
Net Result	<b>3,930,000</b>		561%	
Hence Development	<b>(3,384,000)</b>	<b>99,497</b>	483%	

# Project Savings and Gain

Profit = 13,930,000

– 546,000

– 99,497

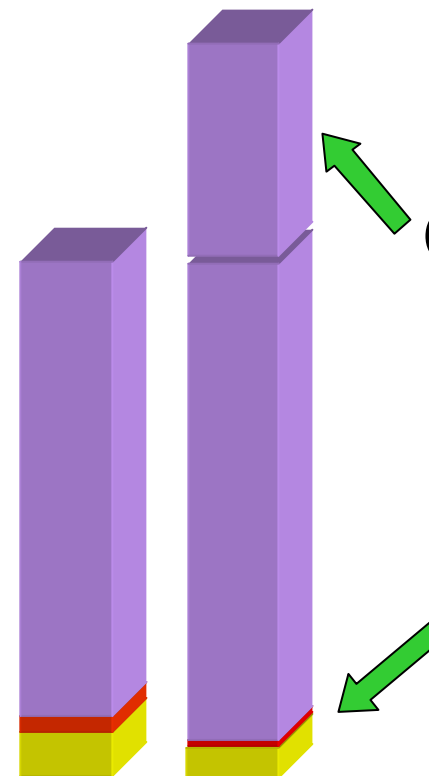
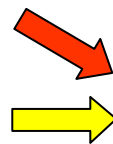
Profit = 13,284,503

Up 36.5%

Income (Revenue) ←

Testing

Development →



Profit up 36.5%

(Influence  
32.6%)

(Influence  
3.9%)

# Profit-Based Testing?

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- ✍ Needs to be managed by metrics
- ✍ As in Six Sigma projects – values should be assessed by accountants in finance department
- ✍ Pure risk?, pure profit? -> maybe value is best
- ✍ Perhaps a better name is “value-based” testing
- ✍ However for the interim, until value-basis is commonplace, let’s err on using the term “profit-based” when referring to testing

# Thank you

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