


Succeeding when you have no time to test

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Succeeding when you have no time to test



Objectives: because programmes never have enough time to test


1. That we identify a framework that we can apply to programmes to ensure that we can succeed when there is no time to test
2. That you can start to implement this framework when you return to your desks

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Acutest: background

- Specialist test consultancy: concentrating solely on testing IT, processes and technology-centred change
- Three primary service strands:
 - Test management and strategy for large projects and programmes
 - Test transformation
 - No time to test



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Succeeding when you have no time to test

- Competition (with prizes)
- Testing questions
- Framework for effective testing
 - Keen observation
 - Precise tests
 - Irrefutable conclusions
- Summary, things to remember

Interrupt

Heckle

Ask questions

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Why do we test?

- Question: Why do we spend all this time testing? Why do we test at all?
- Answer: To find defects. We know they are present and have failed if we do not find them



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Remember our systems contain bugs

- These may be known by many other words including: *ambiguities, claims, defects, errata* (popular with Latin speakers, often used for very old defects), *features, field trouble reports*, and so on through phrases such as *omissions, problem reports* to the end of the alphabet and its associated *user problems*

The key question is: when do we find them?

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What are the relative costs of finding these defects?

Phase	Cost of the fix, relative to phase of fix							
Definition	1							
High level design	2	1						
Low level design	5	2.5	1					
Code	10	5	2	1				
Unit test	15	7.5	3	1.5	1			
Integration test	22	11	4.5	2	1.5	1		
System test	50	25	10	5	3	2	1	
Post delivery	100+	50+	20+	10+	7+	4+	2+	

Traditional areas of independent testing deliver a low return

What are the predicted costs of these defects?

Phase	Cost of the fix, relative to phase of fix							
Definition	1							
High level design	2	1						
Low level design	5	2.5	1					
Code	10	5	2	1				
Unit test	15	7.5	3	1.5	1			
Integration test	22	11	4.5	2	1.5	1		
System test	50	25	10	5	3	2	1	
Post delivery	100+	50+	20+	10+	7+	4+	2+	




Every defect missed here

Is predicted to cost this much here

A framework for testing

“The success of his method might be explained as being due to the exercise of three fundamental rules, keen observation, precise tests and the drawing of irrefutable conclusions from critical premises.”

- Piers Compton about Louis Pasteur

- A framework for testing**
- Keen observation 
 - Precise tests 
 - Irrefutable conclusions 

Keen observation

Top causes of failure:

- What percentage of bugs are caused by bugs in the requirement? **56%**
- What percentage of bugs are caused by design problems? **27%**
- One Acutest customer: the percentage of defects in live caused by design and requirements problems **39%**

- Keen observation**
- Possible outcomes and misunderstandings
 - Causes of failure
 - The biggest problem to overcome is documenting:
 - The requirements
 - The design
 - Testing can debug your specifications

Predicting possible outcomes

- Mary had a little lamb
Its fleece was white as snow
- And everywhere that Mary went
The lamb was sure to go

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Mary had a little lamb

- What are the hidden meanings?
- How many hidden meanings are there in this phrase?
- You have 120 seconds

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How many possible outcomes?

- Mary had a little lamb
- It was Mary's lamb, not Tom's, Ken's or Andrew's
- Mary had a little lamb
- She no longer had the lamb
- Mary had a little lamb
- She had only one lamb, not several

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How many possible outcomes?

- Mary had a little lamb
- It really was small
- Mary had a little lamb
- She did not have a dog, cow, cat, goat or parrot
- Mary had a little lamb
- Tom still has his lambs

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How many possible outcomes?

- Mary had a little lamb
- As contrasted to Ed, who has a hamster and a cat
- Or Tom, who keeps ewes

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How many possible outcomes?



- Substitution of synonyms for each word
- had
 - trick or fool, give birth to, eat...
- lamb
 - young antelope, gentle person, person easily cheated, meat from sheep...
- Then we can have combinations of these

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Keen observation



- "I sometimes think that writing is like driving sheep down a road. If there is any gate to the left or right, the readers will most certainly go into it."

C. S. Lewis





Keen observation

- Keen observation is not 360° vision
- Keen observation is not 100% consistency
- Keen observation is FOCUS on the areas of highest risk



A framework for testing


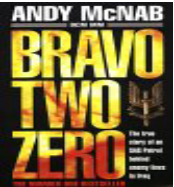
- Keen observation
- Precise tests
- Irrefutable conclusions



Precise tests


Do we dare to test ?

- Andy McNab says that the real motto of the SAS is not 'Who dares wins' but 'Check and test'




How do we identify the tests that matter?

- There are two characteristics of all possible defects:
 - Likelihood of it occurring
 - Impact if it occurs
- For example, there is only a small chance that the office containing your production servers will burn down, but if you don't have a good disaster recovery plan, the impact is high:
 - Likelihood = Unlikely
 - Impact = Interruption



Categorise potential failures...

- Likelihood of occurring
 - Unlikely
 - Quite likely
 - Very likely
- Impact if it occurs
 - Minor impact, no interruption to service or functionality
 - Visible impact, but workaround possible
 - Service interrupted, process cannot continue



Prioritise, mitigate

Likelihood of failure	Very likely			/
	Quite likely			
	Unlikely			
		Minor	Visible	Interrupted

Impact of failure

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What's the secret

- The secret is being sensible
 - If we have an area where it is almost impossible to find bugs, because the quality of the code is so good – we will stop testing and go to an area where we are more likely to find bugs
 - If we are testing and find a rich seam of bugs, we will continue to 'mine' them

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Non functional testing

- Don't forget tests for:
 - Performance
 - Usability
 - Security
 - Process

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Precise tests: with appropriate tools

- Tools can be liberating:
 - saving time, repetition, costs
- Tools can be like drugs
 - wasteful, expensive, much regretted
- Knowing when to automate tests is key
 - experience is needed to do this




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Precise tests

- What's the optimum answer ?
- Risk based testing
- Professional approach
- Training, techniques, tools

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A framework for testing

- Keen observation 
- Precise tests 
- Irrefutable conclusions 

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Irrefutable conclusions

- Testing provides objective and accurate information on risks, issues and milestones through-out the programme lifecycle, not just in the final phase
- This clarity enables managers to make informed and timely choices as the programme proceeds

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Irrefutable conclusions



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Irrefutable conclusions

There is no one right answer

However:

- Some answers are better than others
- There are many wrong answers



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Common view of testing

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Irrefutable conclusions

- Where can testing help in improving clarity and control ?
 - Planning and effective use of resources
 - Risk management and launch decisions
 - Understanding the programme status
 - Forecasting and trend assessments

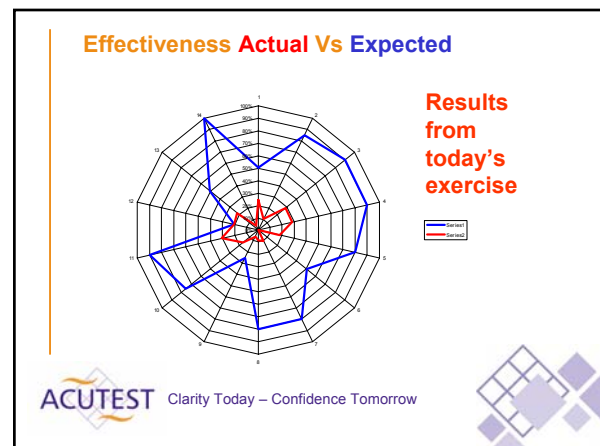
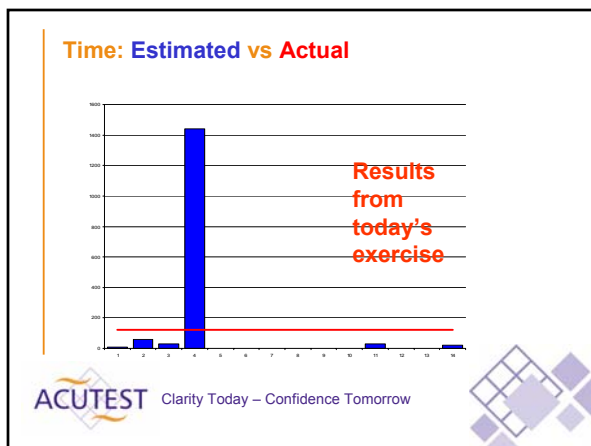
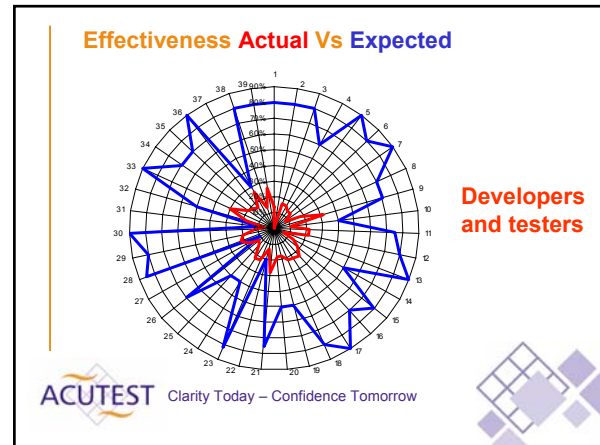
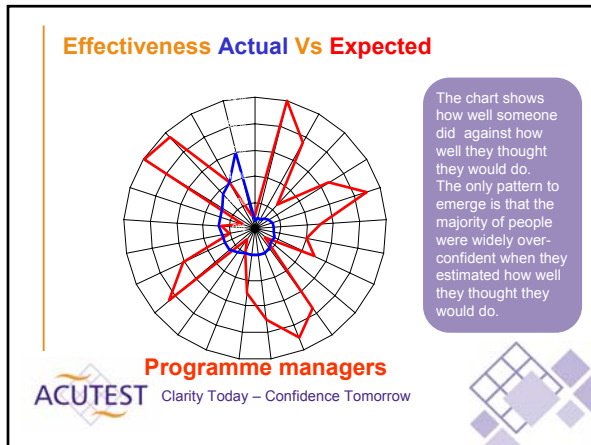
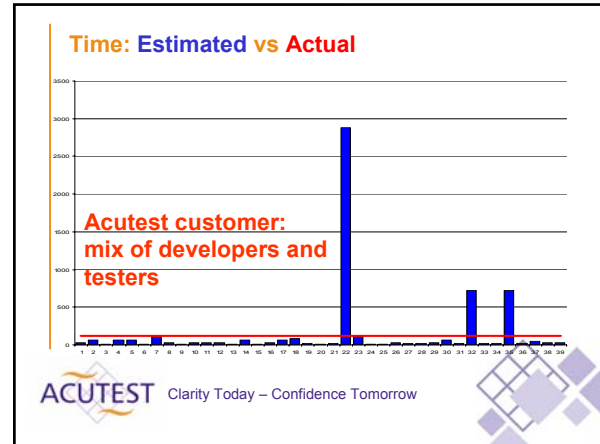
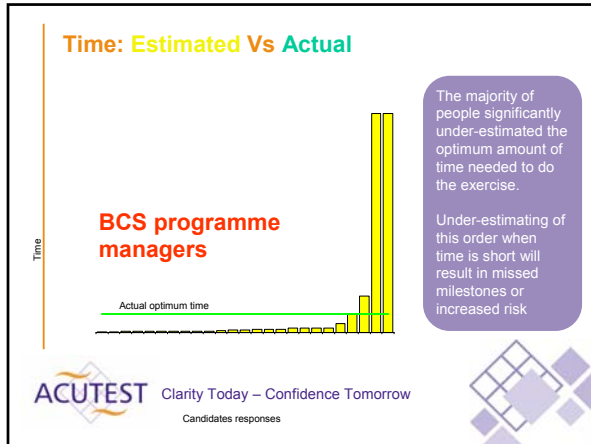
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Irrefutable conclusions

What can we conclude about testing analysis?

- We can draw irrefutable conclusions regarding how good staff are at estimating the effort to test
 - Based on exercises run by Acutest consultants
- We can draw irrefutable conclusions regarding how well staff estimate the coverage of our tests
 - Based on exercises run by Acutest consultants

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Irrefutable conclusions...

1. When planning tests, people usually under-estimate the elapsed time needed
2. When writing tests, people usually over-estimate coverage and performance

When testing time is short it is vital that there is:

- An accurate understanding of how much testing is achievable
- A realistic assessment of how effective the testing is in identifying defects

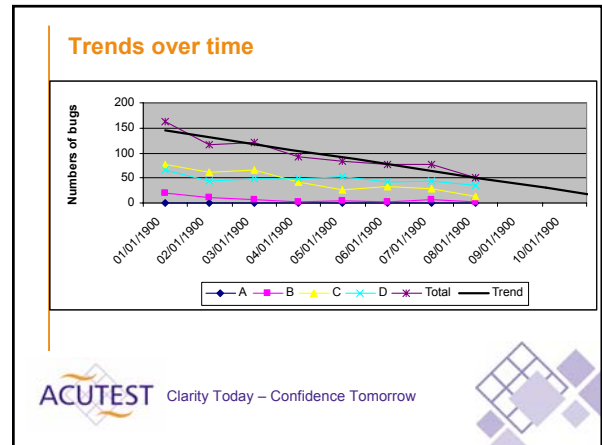
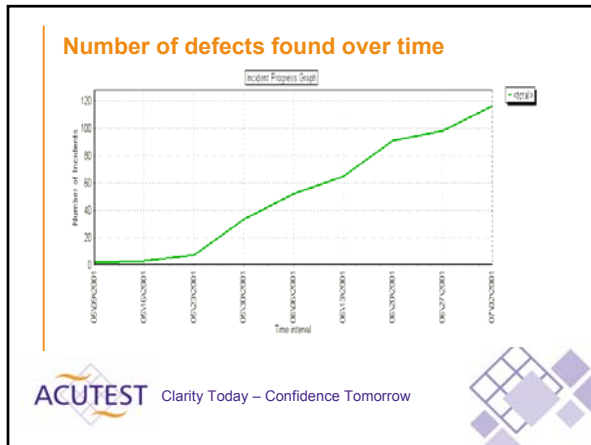
This requires more than just intelligent, generalist skills

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Irrefutable conclusions

- Testing produces data for programme management, including:
 - Bugs found, where, impact, scope
 - Testing completed
 - Forecast of bugs to be found
 - Release/Don't release information
 - Data to help the planning of support
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Conclusions, projections and corrections

- Forecasts based on test results
 - While past performance is no guarantee of future behaviour, it is all we have to go on....
 - Test results will allow the project to identify weak areas and introduce remedial action

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If you apply this framework...

- **50 per cent reduction in elapsed test time**
- **30 per cent reduction in effort**
- You can reduce the elapsed testing time by more than 50 per cent
- You can reduce the overall testing effort by more than 30 per cent
- You can go live sooner and with greater confidence...

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