

Test Process Improvement; Measurement is Critical to Success!

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Listen | Challenge | Understand | Interpret | Create

Need to Improve?



Need to focus on quality

- § Projects need to balance delivery of quality on time and to budget
- § Historical delivery focuses on cost and timescale alone - often results in increased costs and produces lower quality output;
 - Projects invariably being over budget and behind schedule
 - Evidence of increased costs in production support - the major hidden cost of software development!
- § Quality requires focus on the “Do it once and do it right” principle
- § Focus on quality to achieve three project objectives will achieve controlled costs, controlled timescales and higher product quality;



This is progress!



The test process is critical!

- § Testing demonstrates levels of quality and, by finding and removing defects, will improve quality
- § Any activity that identifies issues is “testing” in its fullest sense
 - All types of testing activities consumes approximately 50%+ of the IT budget
- § If you are able to improve the quality of the test process and the product the process delivers;
 - You will reduce delivery and support costs
 - You will deliver on or before time
 - More chance to deliver what the client wants



Evaluate your capability

§ Start by:

- Identifying where you are today – strengths and opportunities
- Identify where you need to go (and why!)

§ TMMi model is:

- The emerging global standard test process reference model
- The “best of breed” taken from existing models , standards and practitioners
- A model that includes the test industry recognised good practices
- Generic –applicable to all development and delivery models including industry sectors
- Specific –covers all required activities and deliverables expected of a good quality test process

TMMi Output

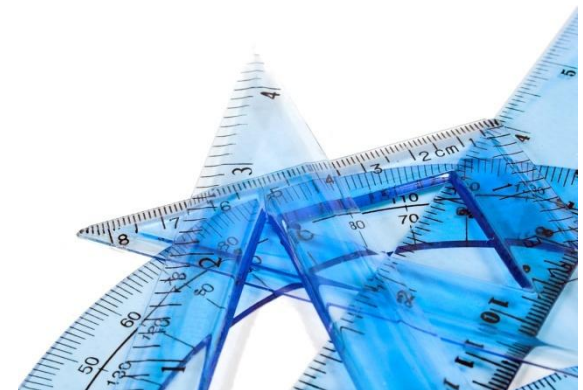
§ A TMMi Assessment will produce:

- A structured identification of strengths within the test process
- A structured definition of process improvement requirements

§ Any process improvement requirements indicate;

- Where there is a poor quality process element
- A potential for poor product quality being delivered

§ The (optional) ability to calculate potential Return on Investment of process improvements to the business to demonstrate the value that is achievable



Approaching Process Improvement

What is test process improvement?

Continuous improvement of the quality and the efficiency of the testing process, in the context of the whole software development life cycle.

The ISTQB glossary seems to have got its focus wrong when it defines test process improvement as:

A continuous framework for test process improvement that describes the key elements of an effective test process, especially targeted at **system testing and **acceptance testing**.**

The process improvement process



Initiate

Confirm the objective, choose appropriate model

Measure

Undertake the assessment

Prioritise/Plan

List the possible process improvements

Define/Redefine

Create/amend the processes

Operate

Process improvements are deployed

Validate

Benefits are realised and success criteria met

Evolve

Stop/start the next stage of improvement

Methodology - IMPROVE



The business case

- § To define objective and priorities
- § Need to define the benefits – don't over-exaggerate
 - Intangible
 - Tangible
- § Understand the costs involved
- § Timescales
- § Quick wins



Intangible benefits

- § Clearer and well understood processes
- § Repeatability
- § Reduction in key person dependency – single point of failure
- § Measurement of progress
- § Measurement of process
- § Clear roadmap of what to do next
- § Better career opportunities
- § Happier staff



Financial benefits

Potential Benefits and Implementation Estimates Summary

PIP ID	PIP Summary	Estimated Person/Day	Estimated Cost	Potential Benefit	Net Potential Benefit
1	Institutionalisation and mandating of generic (consolidated) Test Framework elements	48	48,000	214,290	166,290
2	Define approach, process, procedures, templates, training, guidance for Risk Based Prioritisation	15	15,000	114,097	99,097
3	Document the structured procedures, templates training, tools to undertake informal and structured reviews	15	15,000	586,170	571,170
4	Consolidate elements into comprehensive Monitoring & Control Process definition	24	24,000	196,065	172,065
5	Evaluate and define Test Standard specific suite of training modules and make available via Learning Zone	15	15,000	0	-15,000

TOTAL NET POTENTIAL BENEFITS			117,000	1,110,622	993,622
Confidence Factor	95%			1,055,091	
Implementation Factor	50%		175,500		
ADJUSTED NET POTENTIAL BENEFITS					879,591

Define-redefine

- § Based on the process improvements identified and agreed - either
- define any new methods, processes and templates
- Or
- where existing processes exist, but need updating, they are re-defined to bring them up to date

Operate

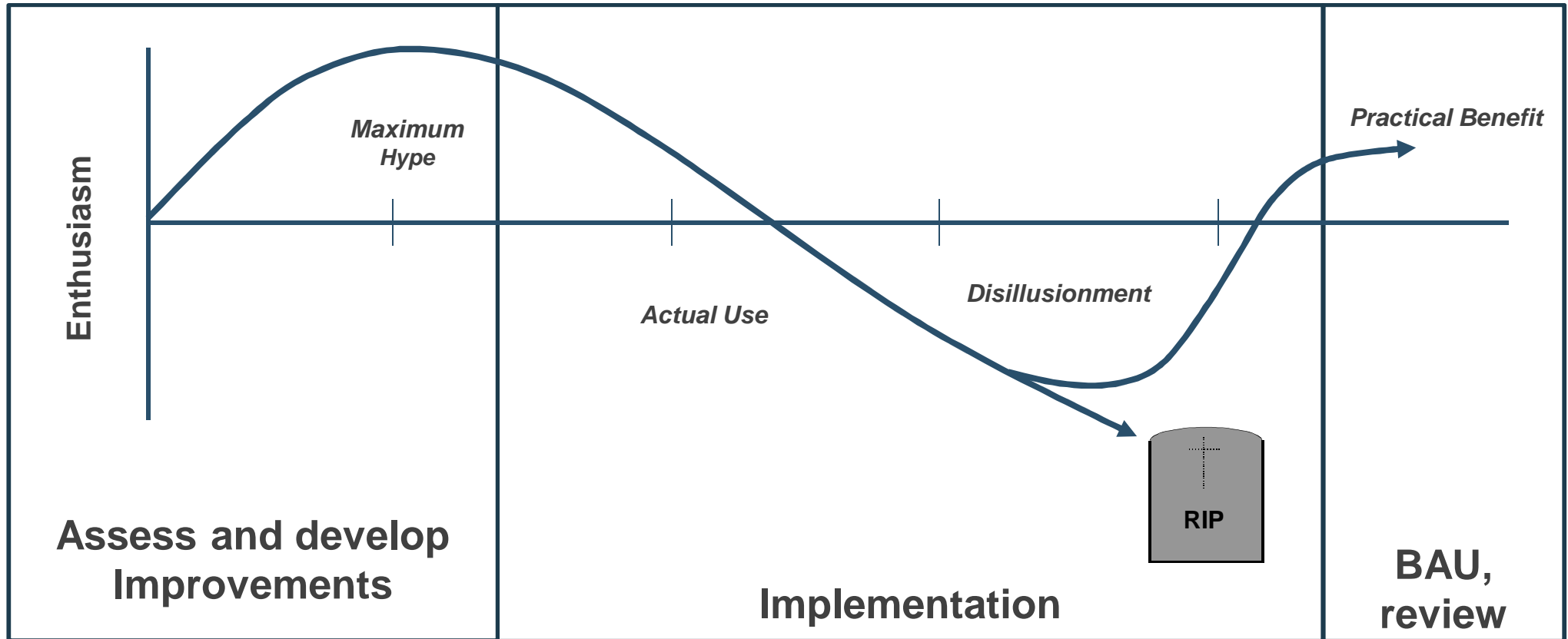
- § This is the rollout phase
- § Will be at least 80% of the improvement project

- § Agree the improvements to be rolled out
 - pilot project or piece of work?
 - with the support team to see if they have any questions
 - feedback to the process
- § Provide training
- § Provide mentoring

Validate

- § Benefits realisation stage as well as refinement stage
- § Measurement of benefits – depends on having a good understanding of the start position!
- § Both tangible and intangible
- § Have the improvement project's success or exit criteria been met?
- § Close of the formal improvement project

Implementation



<p>IMP Initiate – Measure – Prioritise , Plan and Define</p>	<p>RO Redefine Operate</p>	<p>VE Validate Evolve</p>
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To Measure!

How to approach measuring?

- § Agree what message needs to be delivered
- § Keep It Simple, Short (KISS), relevant and easy to capture the information
- § Use Goal, Question, Measure (GQM) approach
 - Add scales and thresholds
- § Define a data catalogue, owners, repositories
- § Define the collection and analysis procedures
- § Define the presentation and reporting requirements
 - Produce regular output reports to demonstrate progress – give explanations to results to ensure the right message is delivered
 - Consistent interpretation

Working in Practice

The Organisation

- § Major testing services provider located in Europe
- § 90% of employees are test professionals (qualified, experienced, dedicated to test activities)
- § Deliver contract-driven specific test services to all major industry sectors
- § Most services deliver system and system integration test levels
 - 80%+ contracts delivering services via a Test Factory
 - They are not usually involved in other parts of test and delivery life cycle(s)
 - Internal ethos of “just do it” instead of “monitor and learn”
 - A formal, restrained communication and information exchange between organisation and clients
- § The strategic and organisational objective was to achieve TMMi Level 3 certification

The Road Map

- § TMMi Baseline assessment undertaken to Level 3 in March 2010
 - Numerous process gaps evidenced in all process areas for both levels 2 & 3
- § Process Improvement project initiated
 - Involved senior test and quality management resources to demonstrate commitment to the rest of the organisation
 - Aggressive timescales to define and implement improvements were set
 - Assessment provider undertook quality assurance and TMMi progress checkpoint activities
- § Robust approach in line with the IMPROVE model
- § An implementation plan ensured the organisation had implemented in time to be re-assessed in December 2010
 - TMMi Level 3 certification achieved with no issues

Oh to measure!

- § Strategic objective only to achieve certification!
 - No stated requirement to measure before and after implementation of change
 - Measure only because TMMi says so!
- § At March 2010, only 2 Key Performance Indicators were defined
 - Service Level Agreements stated “ must deliver a) on time and b) on budget”
 - No declared interest in process or product quality
- § No requirement to identify cost of process weaknesses
- § Initial assessment data identified product quality “KPI” as well;
 - Organisation is not paid if ANY severity 1 issues found by client that SHOULD have been found before!

Measurement as implemented

- § Using GQM, defined 6 internal KPI's with thresholds;
 - Requirements Coverage – requirements planned to be tested & successfully tested
 - Quality of Incidents found – what level of duplication, rejection was evidenced
 - Incidents per Test Cases – good test cases finding incidents
 - Incident detection trend – when in the life cycle does testing find the incidents?
 - Actual vs. Planned test effort and deviation level
 - Test effort per test case
- § Added customer satisfaction data
- § Retained on time and budget contractual SLA's
- § Integrated into test monitoring, control and reporting within delivery projects

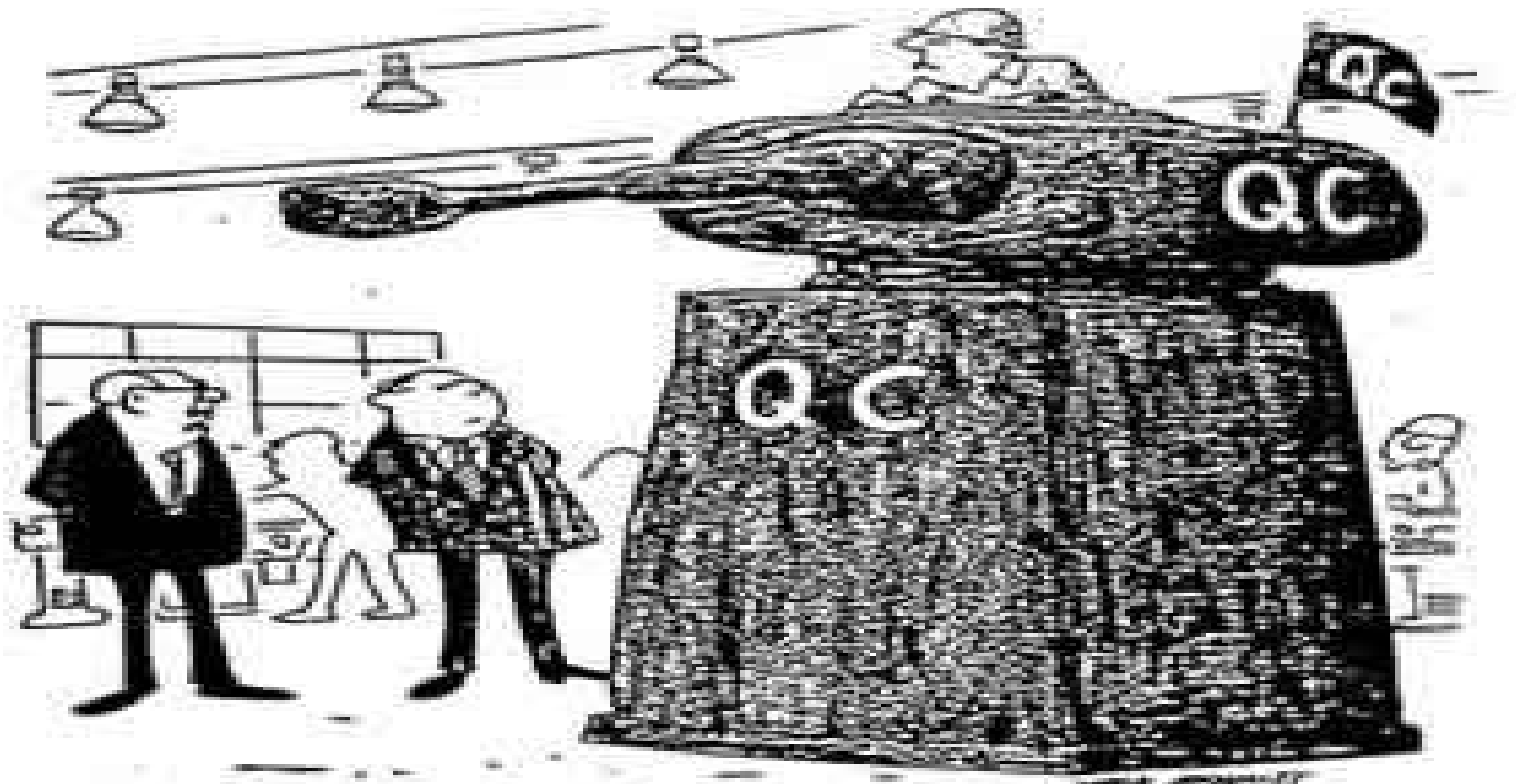
And.....

- § The organisation achieved certification on time
- § They also used the KPI data to observe that in the first 6 months of 2011:
 - Test case specification
 - § Efficiency had increased 8% between January and June
 - § Effectiveness had increased 11% between January and June
 - Test case execution
 - § Efficiency had increased 5% between January and June
 - § Effectiveness had increased 5% between January and June
 - Quality of test cases had increased 9%
 - Quality of issues detected had increased 6%

They also think that client relationships have become more open and positive and the post delivery “negotiations” are much easier

And the message is?

§



AT FIRST WE THOUGHT WE MIGHT HAVE
OVERDONE IT. BUT THE RESULTS HAVE
BEEN DRAMATIC !

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Thank you

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§ The TMMi Foundation:

- Maintains ownership of the TMMi® model and the management of the ongoing intellectual property rights
- Creation and management of an independent, central data repository and provision of industry and other analysis services
- Provision of an independent accreditation process for TMMi® assessment methods and Assessor resources
- Provision of a public forum of interested parties

§ For more information, visit www.tmmifoundation.org

TMMi® Foundation Contacts

- § Full information on the work of the Foundation can be found on www.tmmifoundation.org
- § If interested in becoming a member of the Foundation (currently free registration), please email your details to info@tmmifoundation.org
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