

Test Process Improvement; Measurement is Critical to Success!

Presented by:
Brian Wells

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Listen | Challenge | Understand | Interpret | Create

Do we want to
improve?



Should We Care?

- LA Airport flights grounded (2007)
- AT&T take out 1/3 of US 'phones (1990)
- British Passport failure (1999)
- Intel Pentium chip maths division wrong (1993)
- Ariane 501 launch - \$7 billion fireworks (1996)
- Therac 25 radiation overcooling (1985)
- Russian missile near miss (1983)
- Airbus A380 incompatible software (2006)
- Patriot Missile System – Dhahran (1991)
- Mars Climate Orbiter & Polar Lander (1998)

**We need to be as effective
as possible in trying to
stop these!**

You want to do the Right Things in the Right Way

- To be more efficient
- To manage and reduce (mitigate) risks more effectively
- To accelerate time to market
- To reduce delays in the Software Development Life Cycle
- To provide improved career opportunities & working life



Are we good enough?

Assess the Test Capability because...

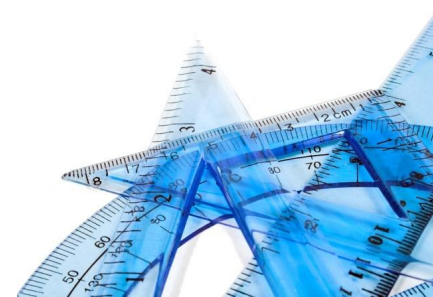
- If you do not know where you are, how do you know where you want to go?

- Assess the capability of your test process!



- Monitor your journey to demonstrate when you arrive where you want to go!

- Establish an appropriate Measurement programme!

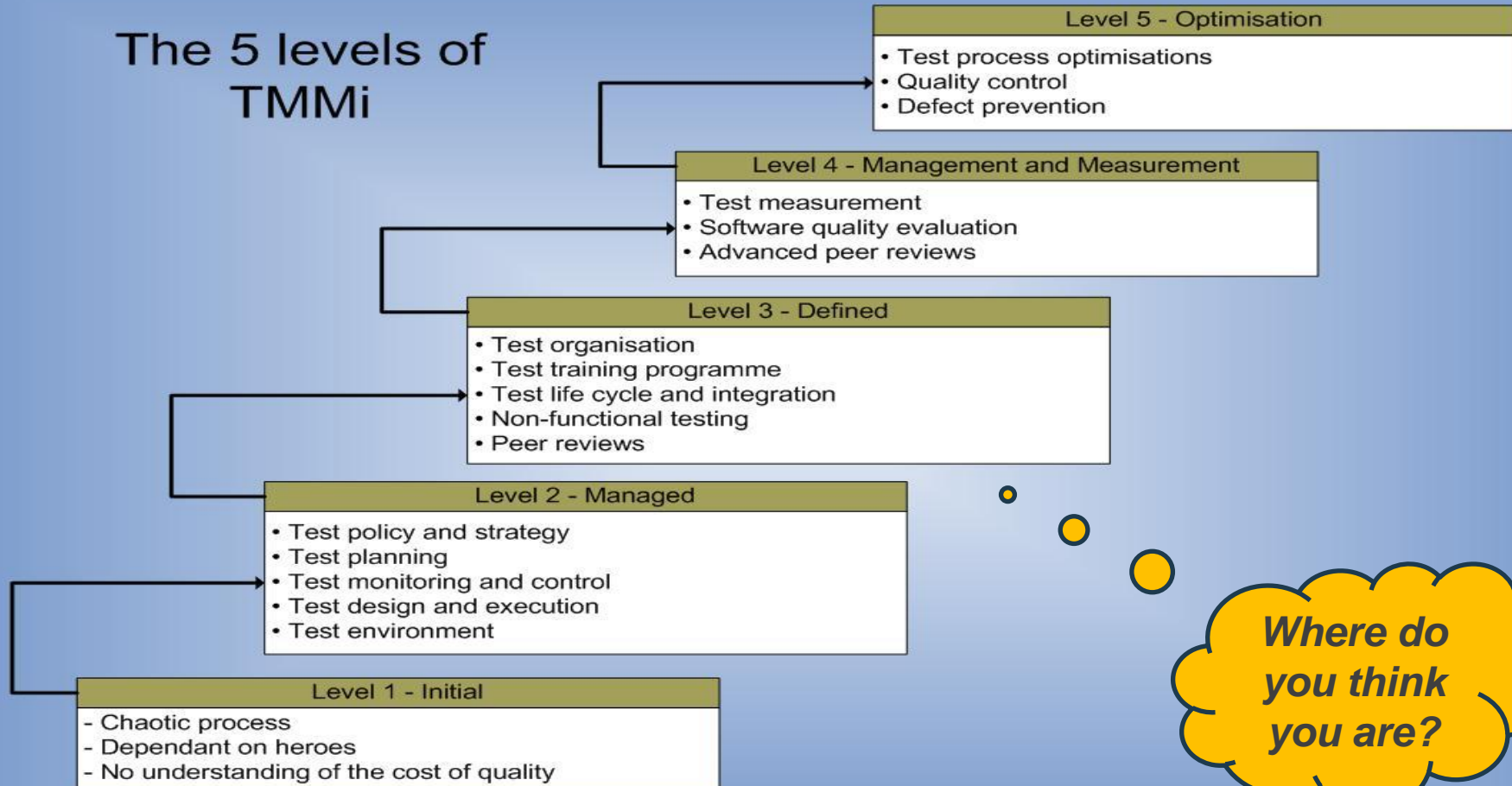


The Purpose & Scope of the TMMi Model

- To be a standard reference model to assess Test Process Maturity across full Software Development Life Cycle (SDLC)
 - Testing Strengths and Best Practices and Risks
 - A realistic programme of Test Process Improvements based on the maturity levels
 - Facilities governance, measurement and accreditation (of processes)
- It supports software testing in systems engineering and software engineering disciplines addressing all levels of testing
 - Both low-level testing and high-level dynamic testing are within scope
- It provides a generic framework as a reference model for test process improvement
- It does not provide a process for test process improvement

The TMMi Maturity Level Definitions

The 5 levels of TMMi



Where do you think you are?

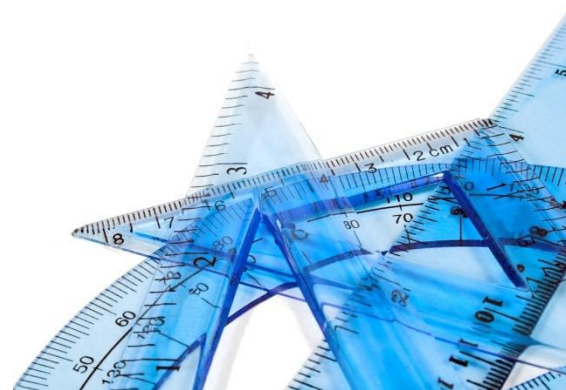
Assess your Process using TMMi

- Fully evaluate the capability of your test processes
 - Against TMMi standard reference model
 - Identify Strengths & Weaknesses
 - Becomes your draft Process Improvement Plan



Agree Change Programme

- Analyse each identified weakness
 - Does it align with strategic business objectives?
 - Will it add value to our organisation/offerings?
- Build a Business case to implement changes that add value
 - Change for change's sake is useless?
- Identify potential benefits expected to accrue from each change
 - Clearly state what added value is desired
 - Balance this against the cost to change

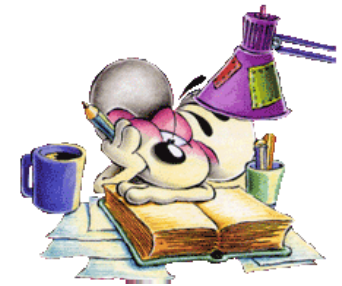


Potential Benefits and Implementation Summary

PIP ID	PIP Summary	Estimate Person/Days	Estimate 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	1,110,621	993,621
Confidence Factor		95%		1,055,090	
Implementation factor		50%	175,500		
ADJUSTED NET POTENTIAL BENEFITS					879,590

The DIM Method!

- D(efine)
 - Identify measurement scales and thresholds for each expected benefit
 - Part of full metrics programme
 - Plan to monitor changes and expected results!
- I(mplement)
 - Ensure full awareness and training provided
 - Ensure raw data is stored and utilised
- M(easure)
 - Ensure analysis and reporting is undertaken at all levels
 - Regularly report progress of change implementation at all levels
 - Measure change benefits against planned



The Metrics Pyramid

Measurement programme, Test Policies, Goals, Thresholds

Test Activity & Project Dynamic
Monitoring & Reporting

Programme
/Organisation level
Historical Analysis &
Reporting

Process &
Quality
Analysis

Benefits
Realised?

An Example

Does it work?

- Formal TMMi Assessment of large financial organisation in 2007
- 15 Test Process Improvement Changes agreed covering:
 - Test Organisation and resources
 - Test framework and approach definition
 - Risk based test approach
 - Fault tracking and metrics programme
- ROI calculations identified net potential savings in excess of £2 million once fully implemented
- Measurement programme implemented immediately
 - ***Each*** Change had measurement identified ***and*** expected results

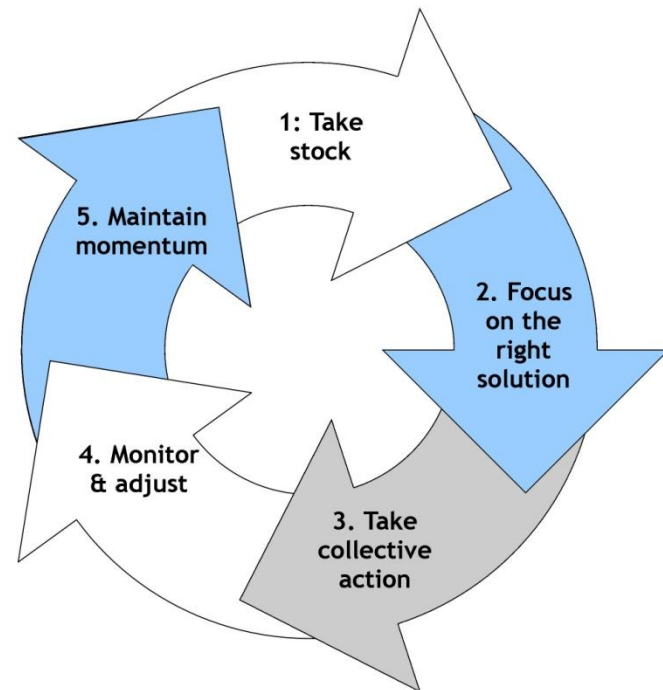


Risk Based Test Change

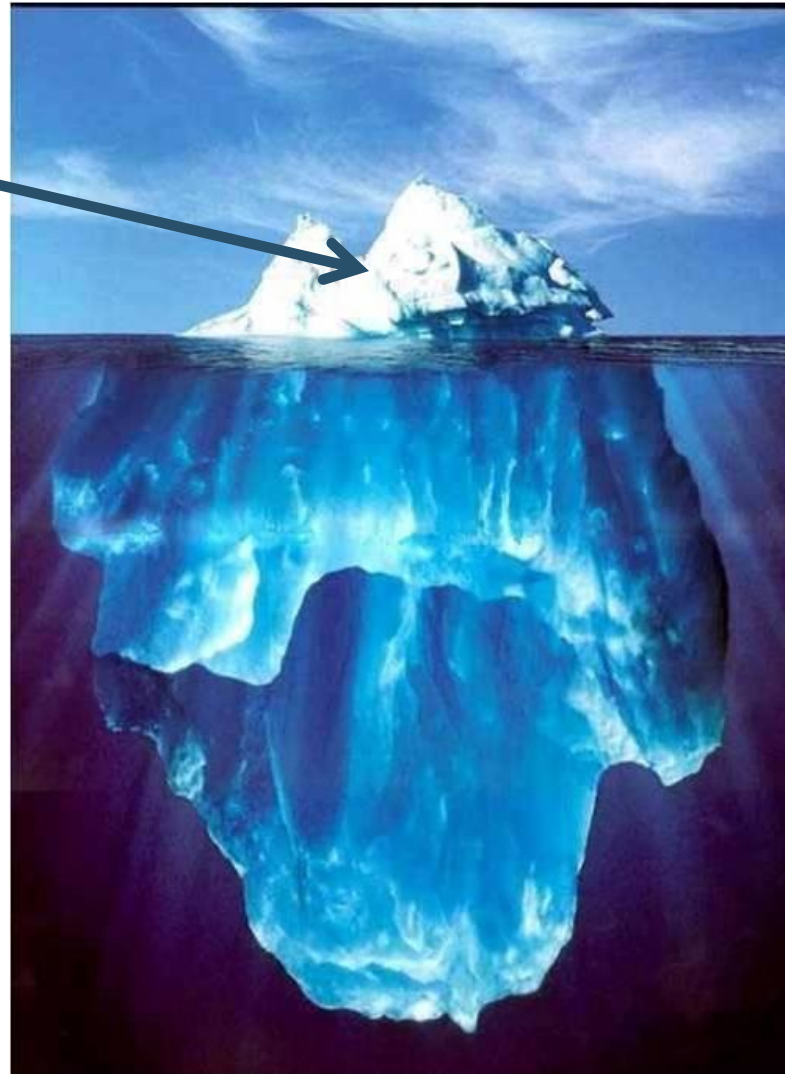
- Pilot project – 3rd phase of delivery of similar size and complexity as previous 2 phases:
 - Reduced Test resource estimates by 32% over previous phases
 - Reduced estimated test completion by 1 week
 - Measured Defect Detection Percentage (DDP), resource utilisation
- Actual results indicated:
 - Actual Test resource usage was 28% less than previous projects
 - Test activities completed 2 weeks earlier than planned
 - DDP before code/build increased by 29%
- AND
 - Quality improved in Production by 2.4%
 - Development delivered almost 3 weeks ahead of schedule into test

And 18 months on....

- Anticipated net “savings” of £2 million
- Measurement programme demonstrates:
- 76% of defined anticipated benefits have been achieved overall
- IT delivery capacity has increased by 14% with no increase in spend
 - Equates to more than £3 million



So Where are you and where do you want to be?



Your “known knowns”



“known unknowns”
Or
“unknown unknowns”?

Thank you

Brian Wells

info@experimentus.com

+44(0)207 871 2300

www.experimentus.com

www.tmmifoundation.org

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