

Test Maturity Model *integrated* (TMMi) – Background and the state of the nation tour

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Listen | Challenge | Understand | Interpret | Create

Why does testing need to be better?

- 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 firework (1996)
- Therac 25 radiation overdosing (1985)
- Russian missile near miss (1983)
- Airbus A380 incompatible software (2006)
- Patriot Missile System Dhahran (1991)
- Mars Climate Orbiter & Polar Lander (1998)

Because software fails and we need to be as efficient as possible in trying to stop these!

How – there is a lot out there!

- Test Process Improvement (TPI)
- Critical Test Process (CTP)
- Systematic Test and Evaluation Process (STEP)
- Test Organisation Maturity(TOM)
- Test Improvement Model (TIM)
- Software Quality Rank (SQR)
- Test Maturity Model (TMM)

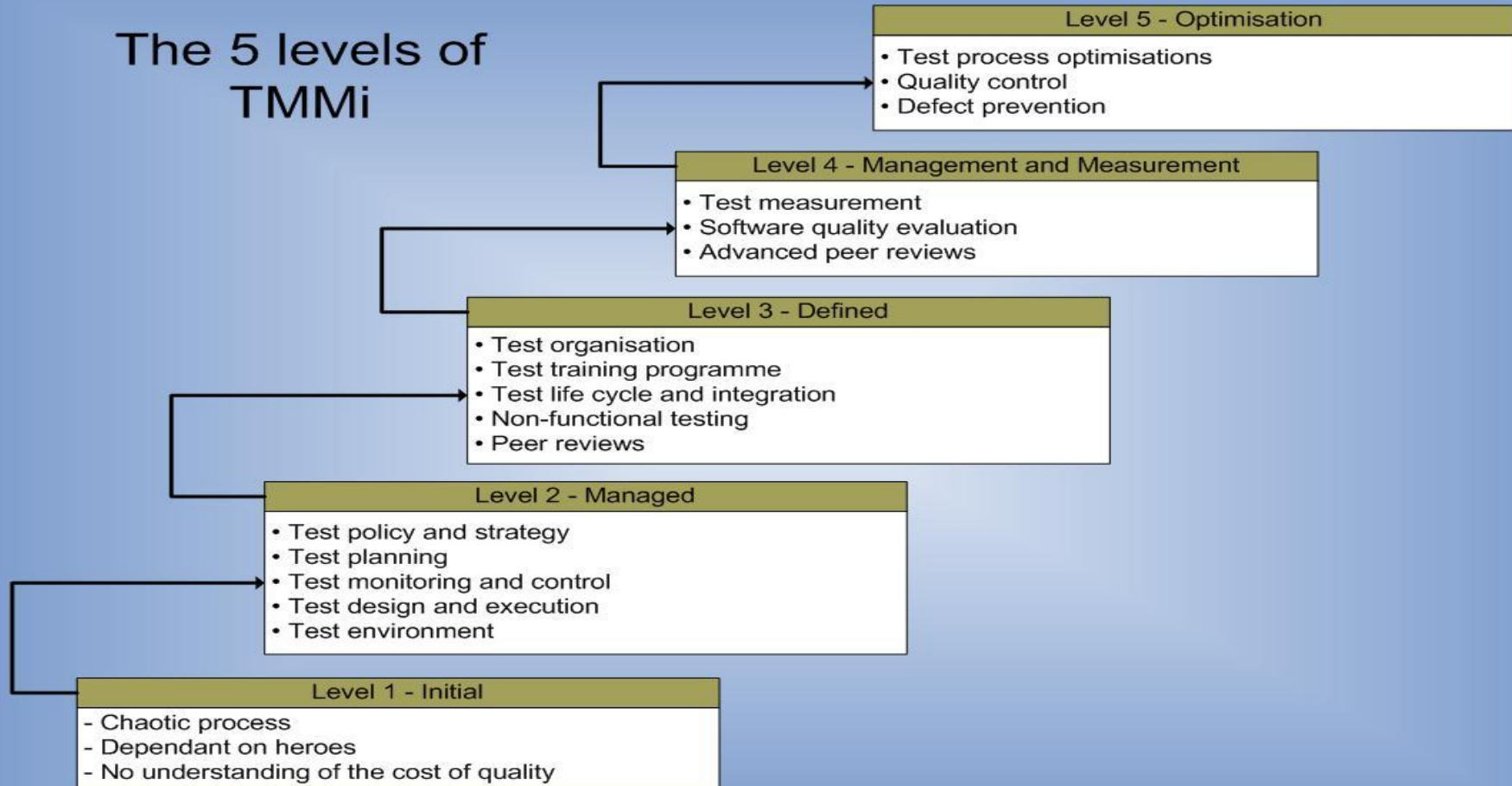
- And Test Maturity Model integrated(TMMi)

Scope of TMMi Model

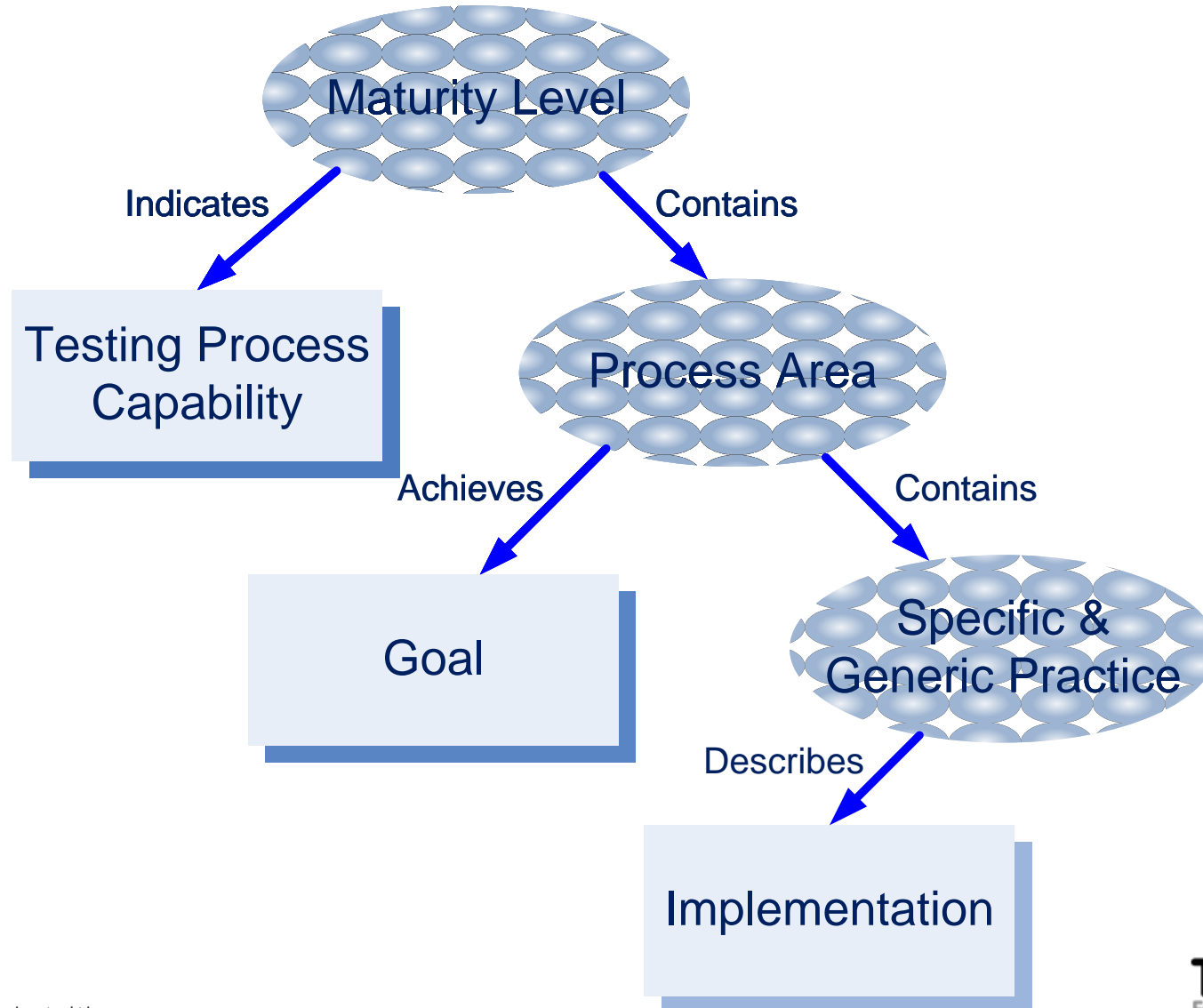
- Supports testing activities and test process improvement in systems engineering and software engineering
- Addresses all test levels
- Provides generic framework as a reference model
- Does not provide an *approach* for test process improvement

The TMMi Maturity Level definitions

The 5 levels of TMMi



TMMi structure



Assessment types

- Informal Assessment
 - Indicative assessment
 - Corroboration not required
 - Does not lead to a formal maturity rating
- Formal assessment
 - Led by a qualified lead assessor
 - Interviews to be corroborated with evidence
 - Leads to accurate and measurable Maturity Level rating

Features of an assessment

- **Repeatability** - Provide a consistency in assessment
- **Target Organisation** - Assessment according to objectives. Can be used to assess a project, team, division or whole organisation
- **Target Processes** - To assess test process maturity across the full software development life cycle
- **Roadmap** – To provide a prioritised roadmap of process improvement together with return on investment information
- **Certification** – To provide certification of compliance to each TMMi Maturity Level
- **Return on Investment** – To provide the return on investment for the recommended improvements from the Roadmap

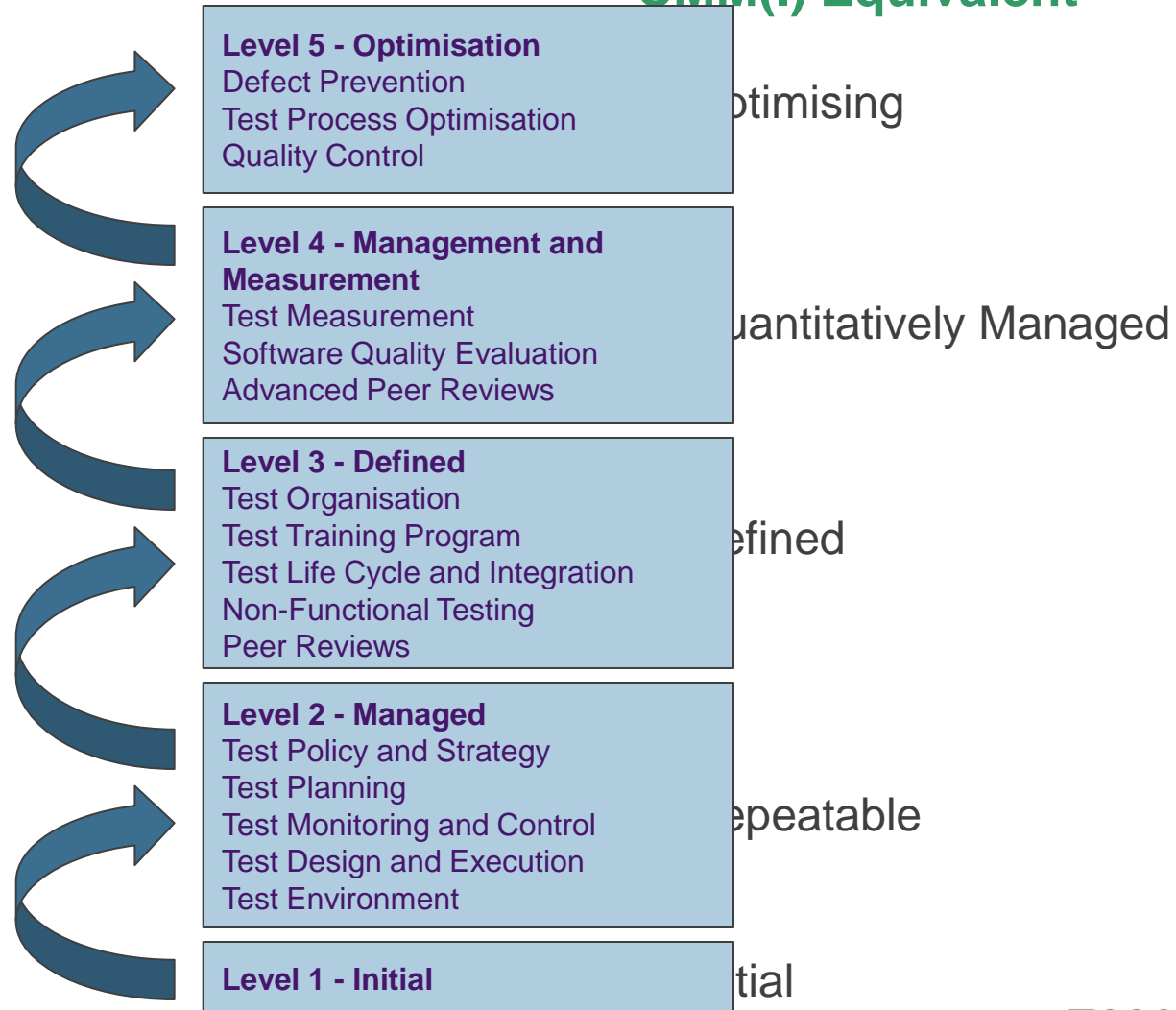
TMMi supports CMMI

- TMMi complements CMMI
- Comparison of TMMi and CMMI Levels 2 and 3 show:
 - TMMi covers test-related quality in much greater detail
 - Nearly half of TMMi is not covered by CMMI
 - Non-test Process Areas and Practices elaborated in CMMI are mostly not repeated in TMMi, only referenced
 - To benefit most at higher levels of TMMi needs strong CMMI-like processes across development
- Value added by TMMi
 - Assesses test more deeply than CMMI
 - Almost 50% of TMMi covers test elements not in CMMI



The TMMi Levels

CMM(I) Equivalent

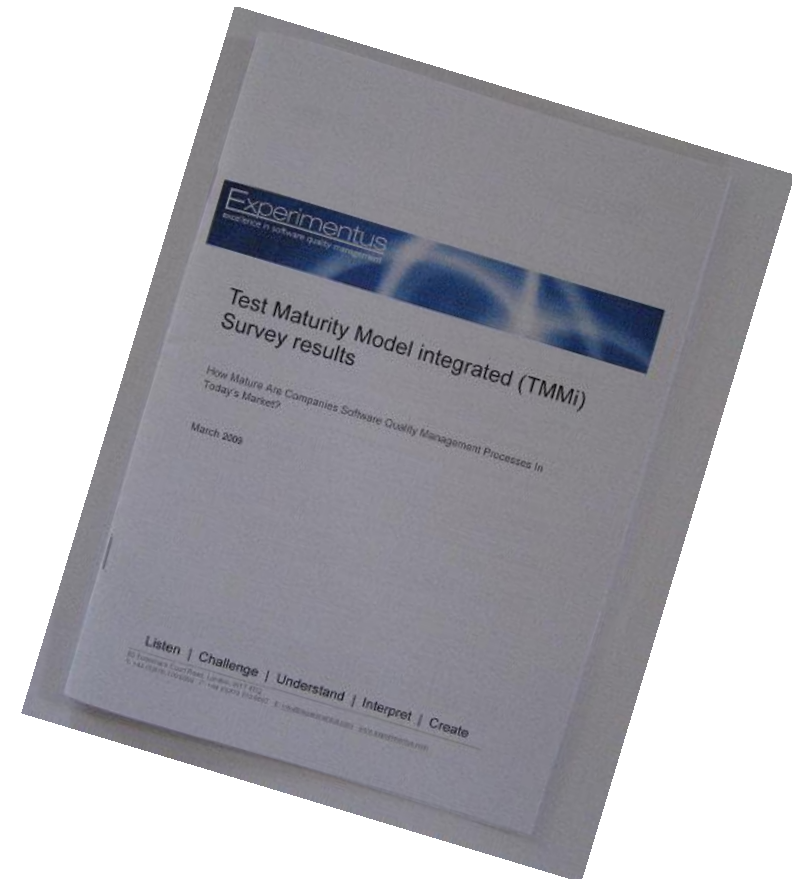




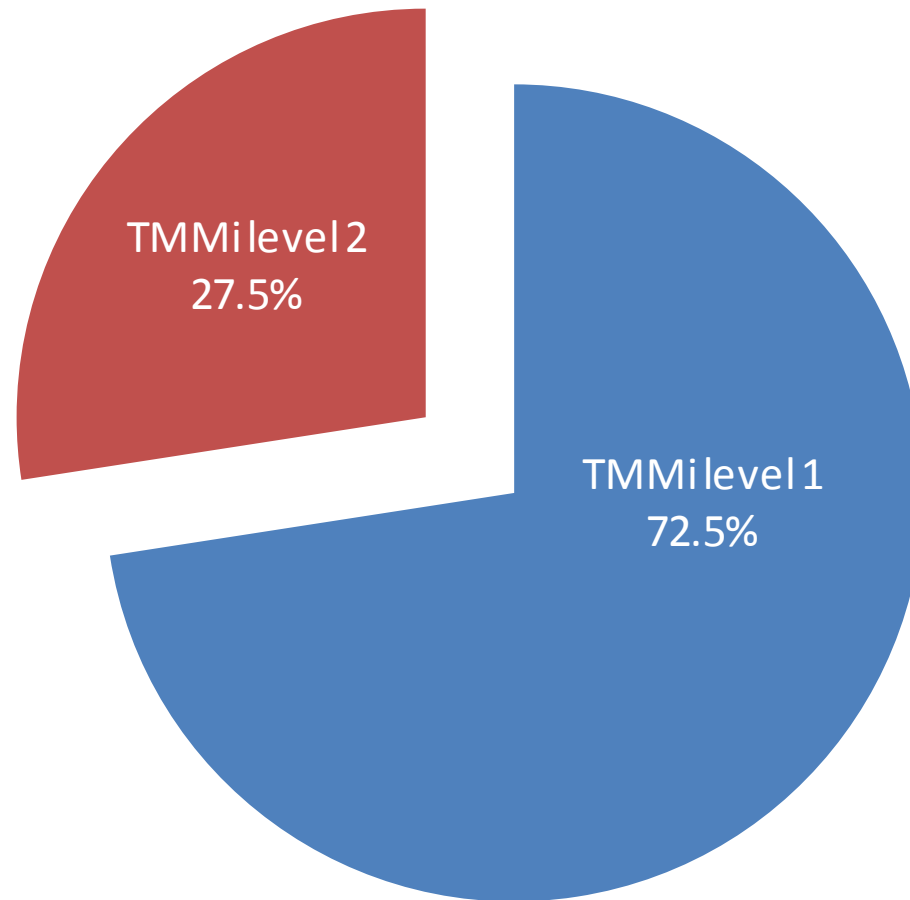
Where is the rest of
the world?

Background

- Experimentus obtains accreditation for its Assessment Method
- The need to understand the industry
- Over 100 respondents
- Many industry sectors represented
- Respondents based in 4 different continents



Overall results

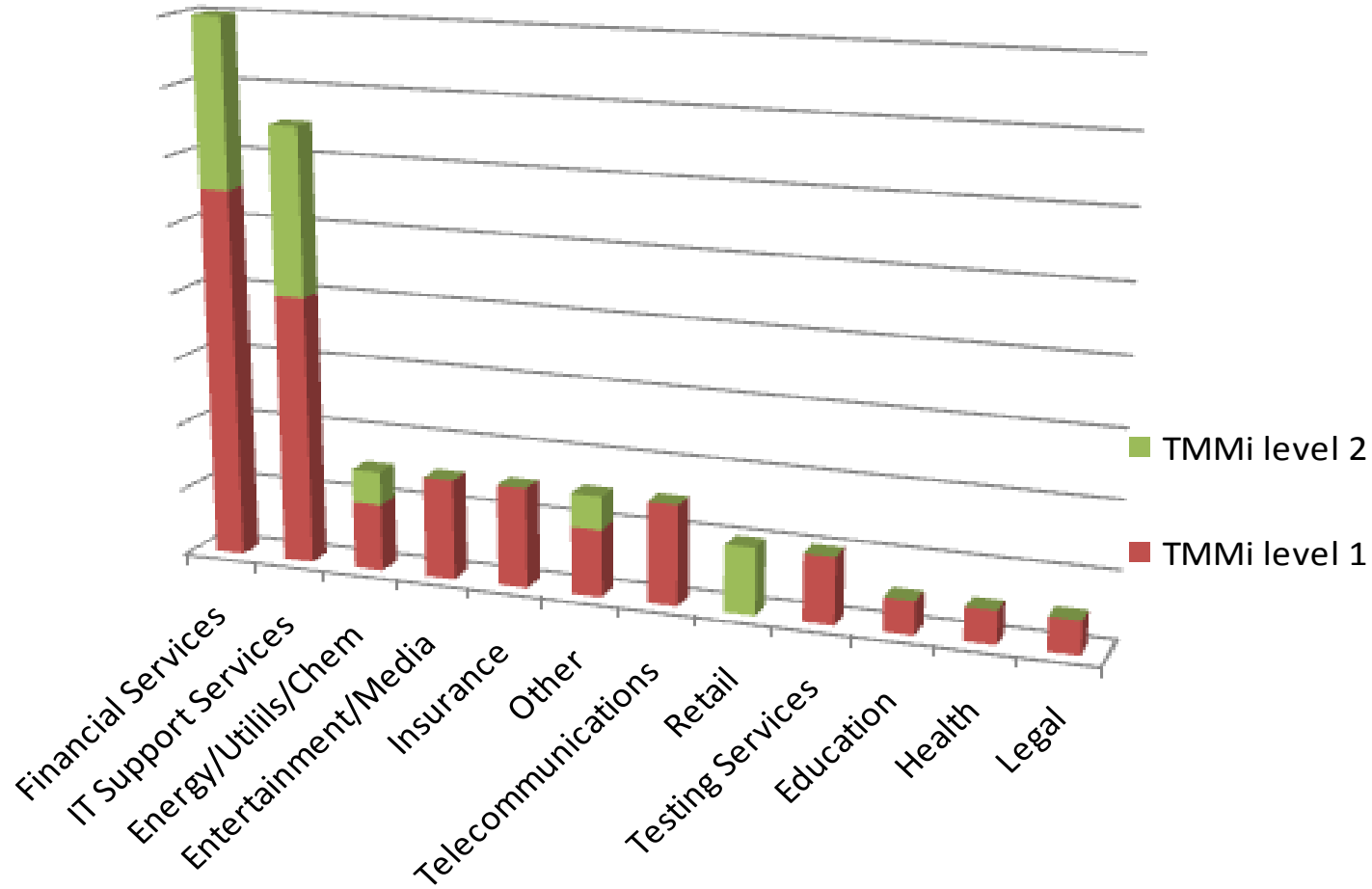


A reminder of what level 1 means

- Little process
- Delivery of good testing depends on people who know what they are doing (and they may all be doing something different to understand each other's approach)
- The classic hero culture where the hero is indispensable



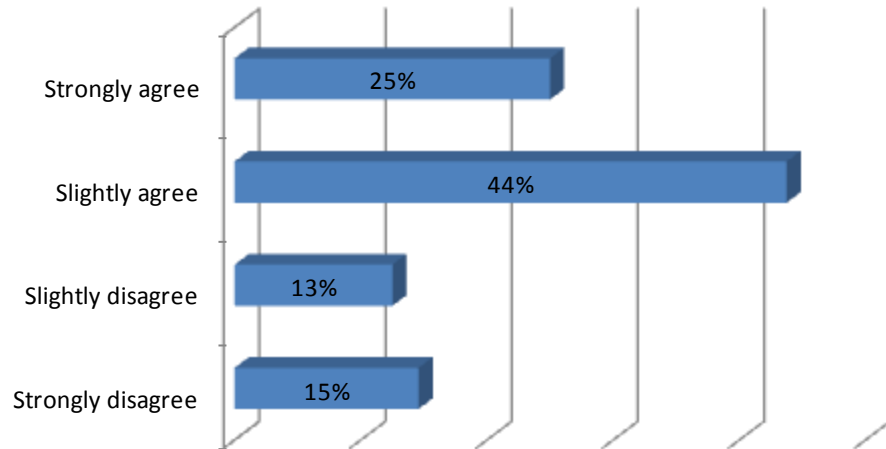
By industry sector



The results in detail

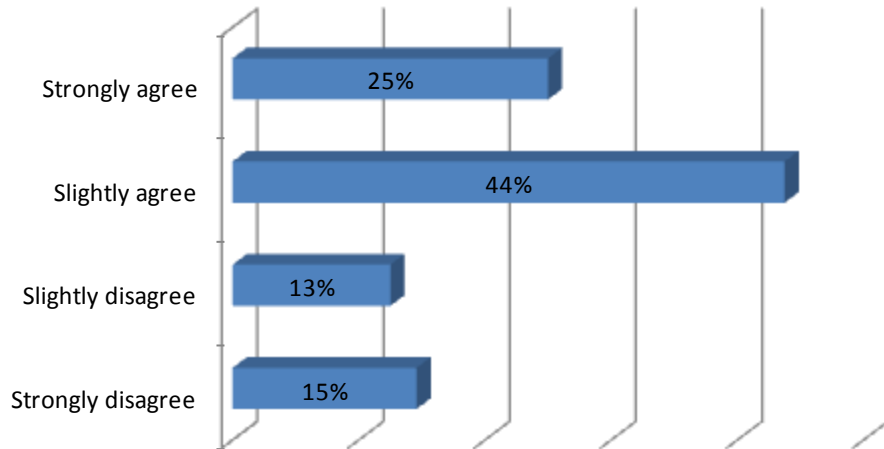
Test policy and risk

A test policy has been established

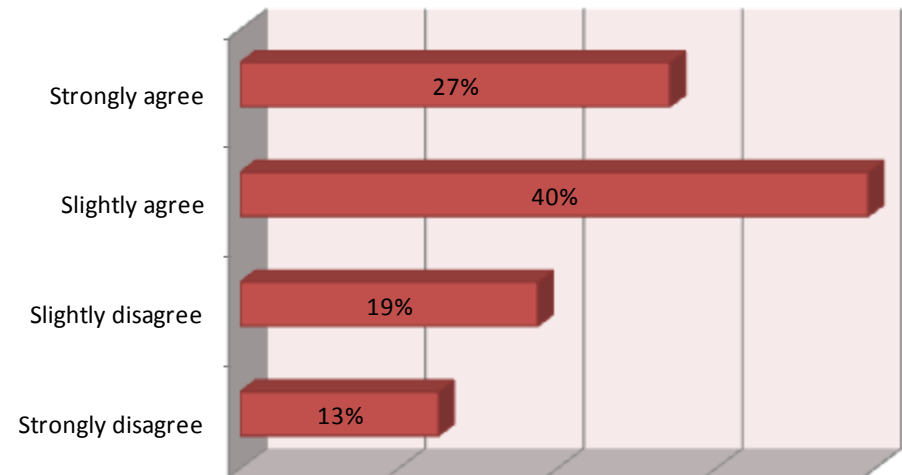


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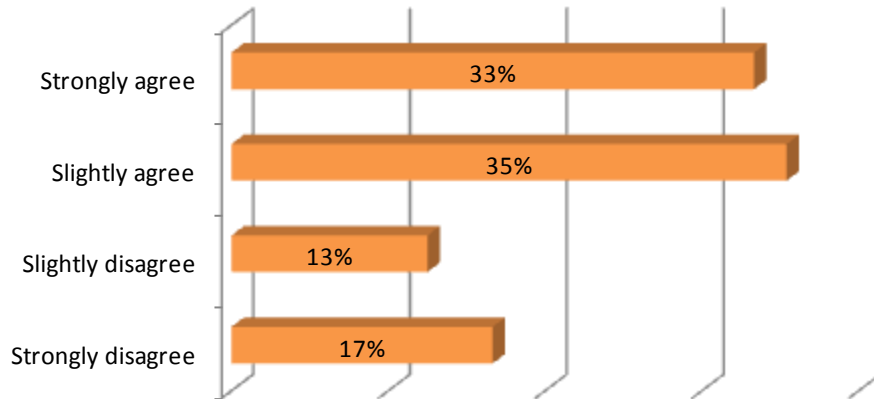


A risk assessment is performed to identify critical areas for testing



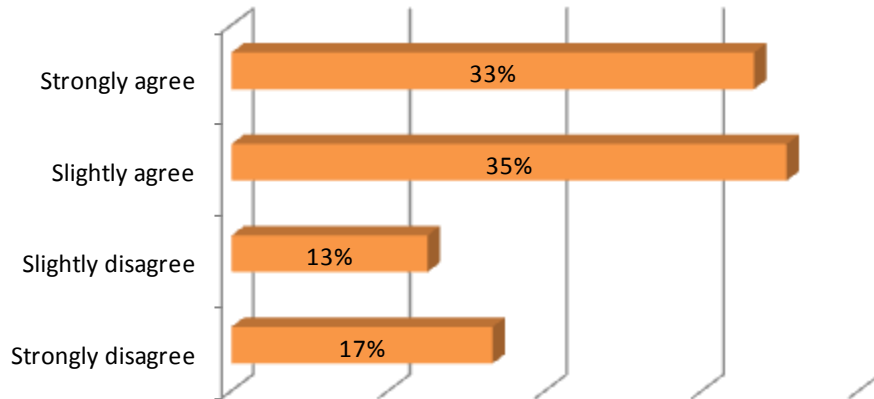
Test strategy vs. test design

**Organisation/programme-wide test strategy
has been established and deployed**

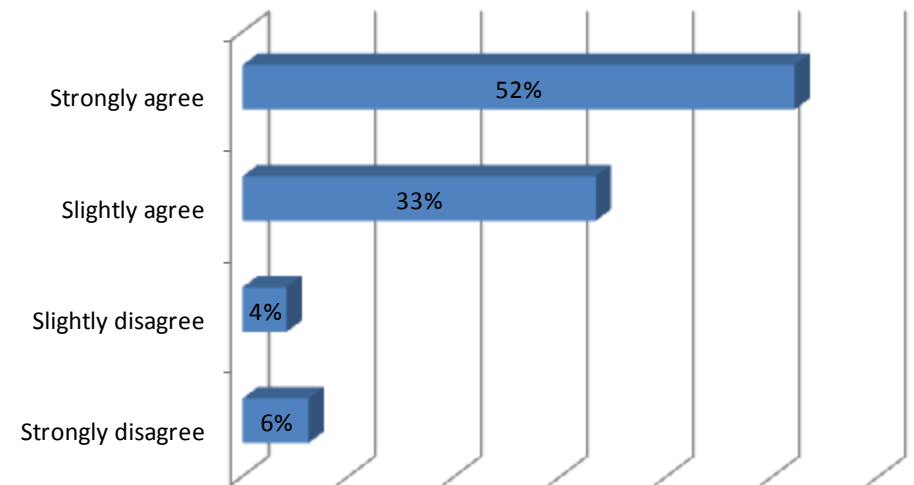


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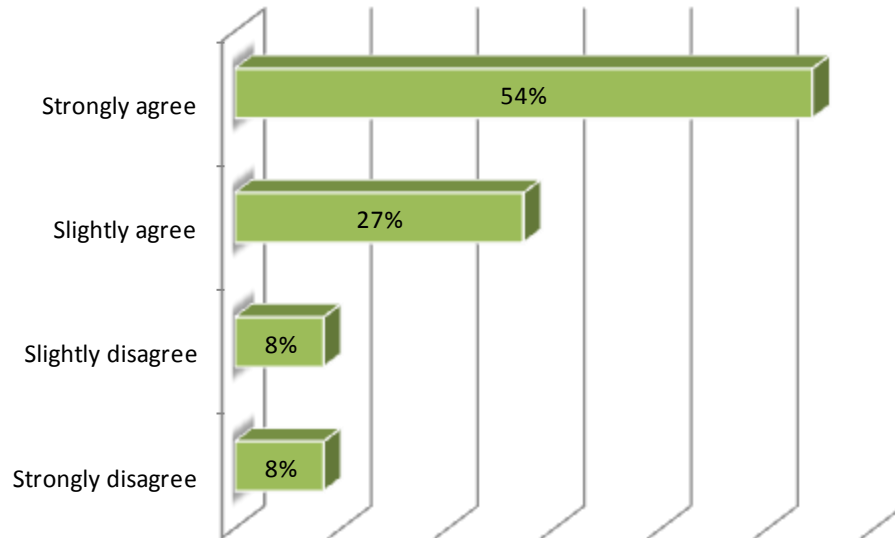


Test scripts are developed, documented and prioritised



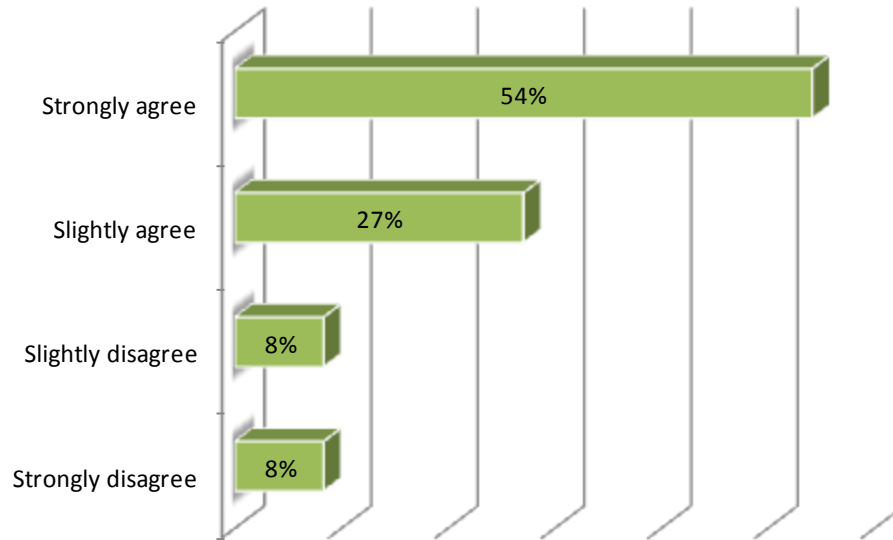
Test planning and estimation

A test plan is established and maintained

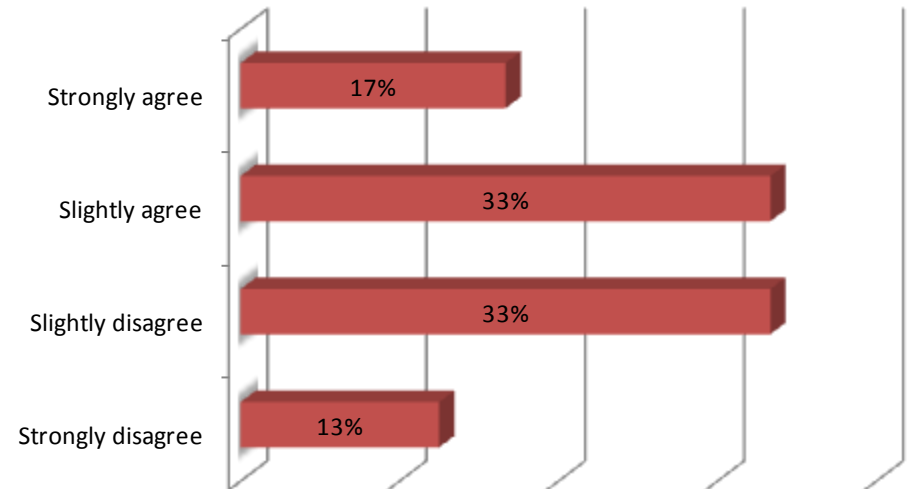


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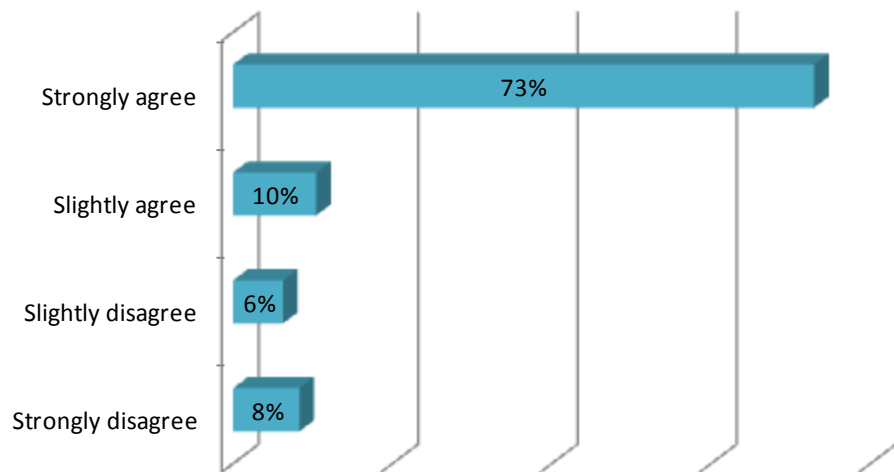


Test estimation based on a repeatable process is used



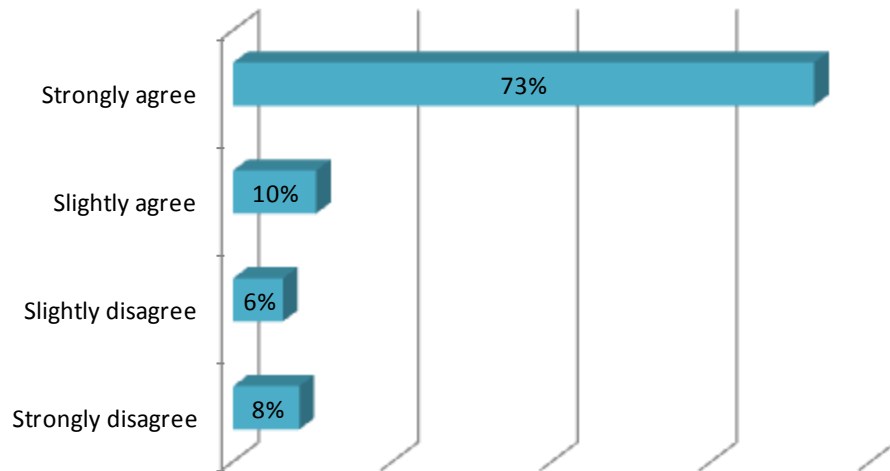
Defect management vs. metrics

Incident classification scheme and process implemented

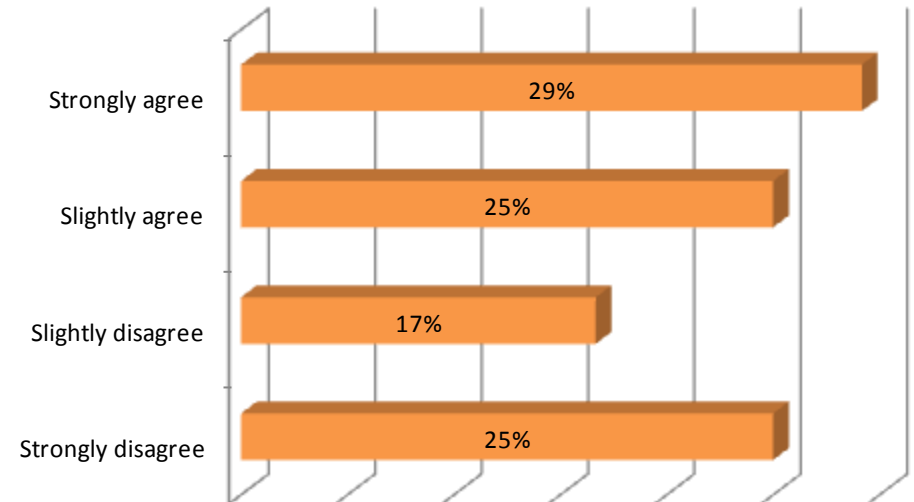


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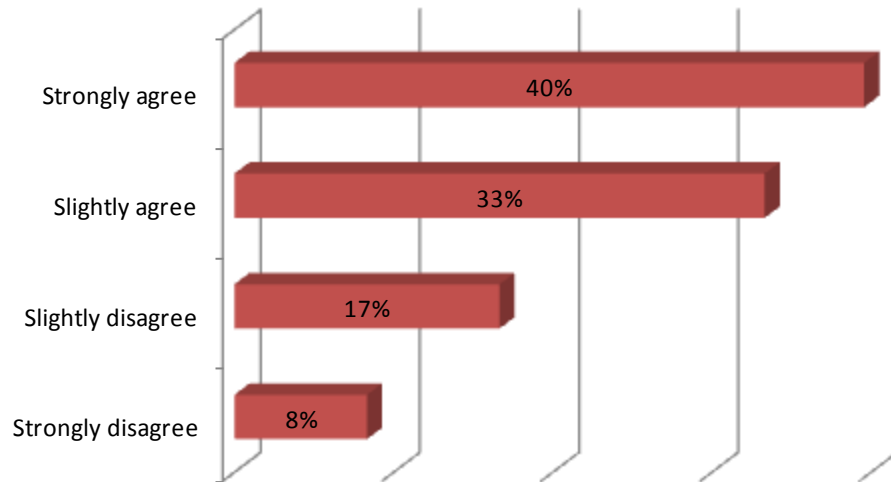


Performance indicators have been established and deployed

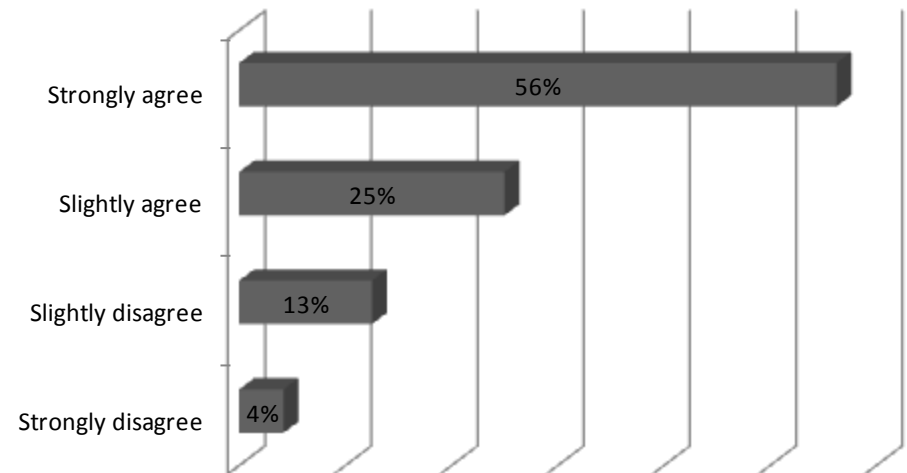


Test environments

Test environments are specified early and their availability is ensured

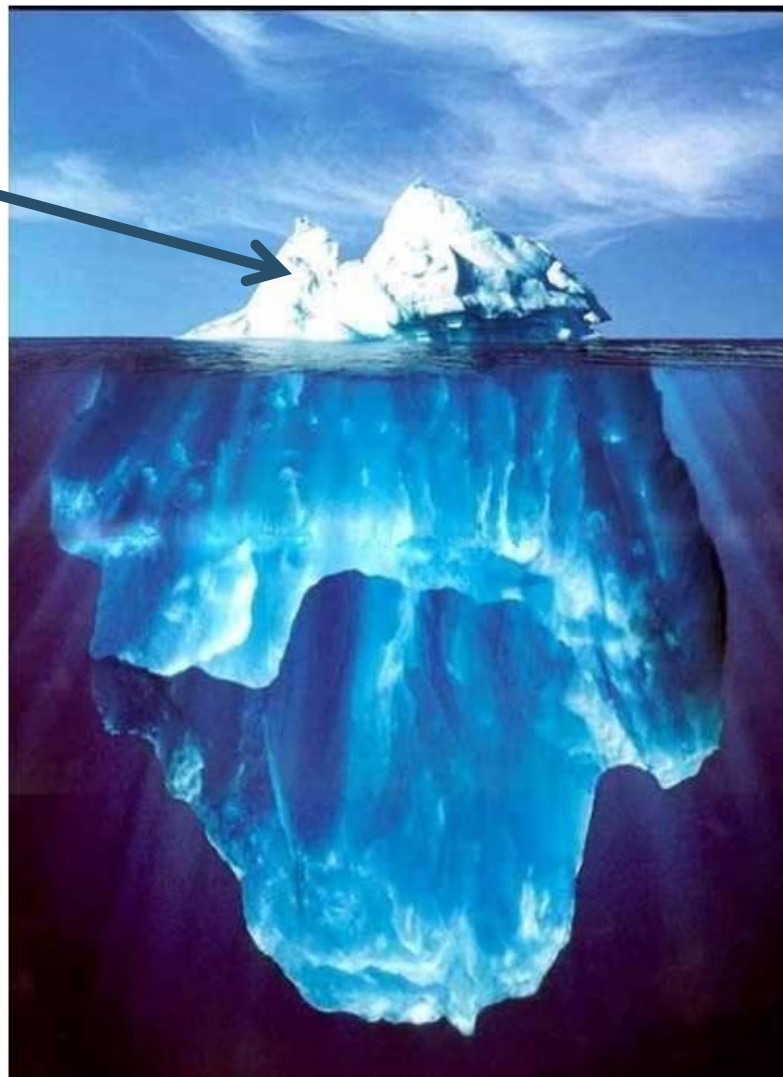


For later test stages the test environment is as "real life" as possible



Summary

Testers are here



They have a long way to go

Financial benefits

Potential Benefits & Implementaiton 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	1,110,621	993,621
Confidence Factor		95%		1,055,090	
Implementaiton factor		50%	175,500		
ADJUSTED NET POTENTIAL BENEFITS					879,590

Thank you

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