

TEST PROCESS IMPROVEMENT

IV&V Australia's test process improvement service is a way for our most experienced consultants to provide a skills transfer from our company to yours - we use our expertise to help you improve yours.

What is Test Process Improvement?

Test process improvement can be as simple as conducting **test strategy reviews** and suggesting improvements, through to establishing a **formal test process improvement program** and working with you to implement it.

We have developed a test **process improvement model** that is centred around increasing levels of **organisational maturity** and the implementation of key test process area **goals** for each level.

Why improve your test process?

- So that testing plays an active role in ensuring that a quality product is being developed
- To help reduce time to market by establishing efficient practices for documenting tests, testing software and providing feedback
- To focus testing activities so that functionality is consistently and effectively evaluated.

How do we improve your test process?

Our test process improvement strategy involves identifying a company's existing test maturity level and then defining a step-by-step improvement process that is consistent with:

- Your company's organisational goals
- The maturity level of the surrounding software development organisation
- The test process goals of your targeted maturity level
- Other similar organisations in your industry and industry standards.

We have developed checklists and worksheets that provide a clear framework for:

- Assessing the current situation
- Deciding what to improve
- Improving it in manageable steps.

What can we do for you?

A road map:

We can assess your organisation's testing maturity and provide you with a road map for step-by-step improvements:

- **Assessments:** Do an assessment of your current practices to establish a baseline and produce a report with an action plan
- **Improvement Plan:** Develop a Test Process Improvement Plan to define a formal process improvement strategy, including improved reporting mechanisms
- **Test process guidelines:** Develop test process guidelines and tailor our IV&V toolkit of templates and checklists to suit your technical and organisational needs
- **Mentoring/resourcing:** Work directly with your projects and business as usual (BAU) releases to help implement the processes and provide additional resources if needed
- **Training:** Conduct workshops with test/QA staff in the new test processes.

A tailored service:

We tailor our services to meet the needs and maturity level of our customers:

- Some of our customers want the **complete service**, from the formal maturity assessment through to implementation of the process improvement on projects and BAU releases
- Others prefer to undertake the process improvement themselves based on our **initial assessment and report**
- Many organisations prefer a level of support that is **somewhere in-between**.

An extended service:

Some organisations also request that we extend our process improvement activity beyond software testing (and our model), to cover broader software verification and validation (V&V) activities such as:

- End-of-phase reviews, and
- General project risk management.

What does our test process improvement model contain?

Five maturity definitions

- *Ad-hoc* (1) – There is no defined activity and tasks are performed as required without a great deal of planning.
- *Foundation* (2) – Some basic processes are followed, however they are not done as part of a structured methodology. The goals at this level are “test-centric”.
- *Controlled* (3) – There is a structured, risk-based testing methodology. The goals at this level are “project/release-centric”.
- *Efficient* (4) – There is a structured process that is done well, with consideration of metrics and best practices. The goals at this level are “organisation-centric”.
- *Optimising* (5) – There is an efficient process that is constantly improved.

An assessment checklist

We conduct interviews with project staff using the TPA Checklist as a guide.

- For each TPA, the checklist defines a number of process characteristics, which represent the goals to be met for successive maturity levels.
- During the interviews we ask your staff to indicate which of the characteristics best reflects their view of their work environment. Their answers are plotted on the Test Maturity Matrix.

An Evaluation Report

At the end of the assessment, we produce an Evaluation Report that contains our findings. It:

- Identifies the current maturity level of each TPA
- Describes the risks associated with the current handling of the TPAs
- Provides recommendations for improvement
- Identifies the benefits you could achieve from making the improvement.

A TPI Action Plan

For customers who wish to undertake a formal test process improvement program with us, we prepare a detailed TPI Action Plan. It identifies:

- The TPI working group
- The organisational goals for the improvement program and the test process goals of the targeted maturity level
- The transition strategy for improvement.

Key test process areas and goals

The model defines 16 key test process areas (TPAs), which have goals for each maturity level. The goals are gradually met as an organisation progresses through the maturity levels:

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|----------------------------------|----------------------------------|
| 1. Scope of methodology | 8. Requirements and traceability |
| 2. Test lifecycle management | 9. Metrics |
| 3. Test involvement on projects | 10. Reporting |
| 4. Strategic test planning | 11. Defect management |
| 5. Estimates and schedules | 12. Inspections/Reviews |
| 6. Test team and test management | 13. Developer testing |
| 7. Test specification techniques | 14. Release and change control |
| | 15. Test tools |
| | 16. Test environment |

A Test Maturity Matrix

The model contains a Test Maturity Matrix that plots which TPA goals your organisation currently meets and highlights your testing maturity level.

- The matrix is a graphical way of expressing the internal priorities and dependencies between the goal stages and the TPAs.
- By plotting the assessment findings on the matrix, we can clearly see:
 - Which goals are currently met,
 - Which goals should be met to complete the current maturity level (ie, where are the gaps), and
 - Which goals to implement to move up to the next level.

Who are our customers?

We have improved the test processes for several large and small software development projects, including:

- Corporate Express
- Woolworths
- Centrelink
- Australian Taxation Office (ATO)
- Department of Immigration and Multicultural and Indigenous Affairs (DIMIA)
- ACT Department of Urban Services
- National Electricity Market Management Company (NEMMCO)
- Invetech
- Redfern Broadband Networks
- JNA Telecommunications
- Chubb Building Automation.