Return on Investment (ROI) on Independent Verification and Validation (IV&V)

Researcher: Wei Wei. Sponsor: Dr. Kathy Weaver.

Introduction

The concept of Independent Verification and Validation (IV&V) is not strange and it is well known as part of any significant IT projects. For now, more and more companies would like to employ IV&V, especially in mission-critical projects.

Purpose: to prove that IV&V is worthy and useful to be carried on, especially in financial way and let all of leaders and managers know that. Two aspects, either the monetary aspect in cashes saved or intangible aspect in the improvement of transparency, would be shown in ROI.

IV&V

Requirements Phase

• System Reqts Analysis
• S/W Reqts Analysis
• Interface Analysis
• Process Analysis
• Technical Reviews & Audits

Design Phase

• Design Analysis
• Interface Analysis
• Test Program Analysis
• Supportability Analysis
• Process Analysis
• Technical Reviews & Audits

Code Phase

• Code Analysis
• Test Program Analysis
• Supportability Analysis
• Process Analysis
• Technical Reviews & Audits

Test Phase

• Test Program Analysis
• Independent Test
• Supportability Analysis
• Process Analysis
• Technical Reviews & Audits

Verify

Verify

Verify

Factors Analysis

The critical factor that will determine IV&V implementation goes smoothly is that if there is sufficient fund or not.

Technical

• Better software/system Performance
• Higher Confidence in Software Reliability
• Compliance between Specs & Code
• Criteria for Program Acceptance

Conclusion

Management

• Better Visibility into Development
• Better Decision Criteria
• Second Source Technical Alternative
• Reduced maintenance cost
• Reduced Frequency of Operational Change

Empirical Research

Georgia Technology Authority: IV&V gained an estimated sum about $29.6 million, approximately 14 times as investment in 2008.

Prashant: IV&V could lower the potential value added perspective in managing costly and unnecessary customizations.

Dabney: direct IV&V ROI was 10.1 and 11.8 respectively and IV&V was cost effective. IV&V cost usually fluctuates between 5-10% of the total cost of an IT project. These studies indicate that the ROI on IV&V investments can be 2 to 10 times the investment in IV&V activities.

References