



White Paper

Verification and Validation of Systems

Software Verification and Validation (V&V) is the process of ensuring that software being developed or changed will satisfy functional and other requirements (validation) and each step in the process of building the software yields the right products (verification).

Verification and Validation

Good corporate governance and sound systems engineering practice suggest that the use of competent and independent third party resources to identify potential technical and operational risks can contribute to their minimisation through sound technical advice and services. Further, the right approach to verification and validation can significantly reduce the risk of failure and assist to ensure that systems meet specifications and operational requirements.

The Right Approach

By focussing on confirmation, by examination and identification of objective evidence, of the efficiency and effectiveness of system development activities and outcomes organisations will achieve better solutions.

Verification

Verification activities focus on confirmation that the function and performance requirements and specification have been fulfilled, or put simply, that "the system is built right". Ideally, the verification process focuses on:

- test and evaluation of systems against functional and performance requirements;
- a technical review and inspection of the system, including system coding and day to day operation of the system, to determine the effectiveness of the systems' design and construction in meeting its function and performance requirements and specifications;
- identification and documentation of performance issues and, if possible, the technical or process causes of these issues; and
- identification of options for addressing technical or process issues, including the provision of cost and work estimates to resolve the issues.

Validation

Validation processes focus on confirmation that the requirements of the system have been fulfilled correctly and completely, or in other words, the "right system is built." Connexion use the validation processes to

determine whether the system fulfils its specific intended use. Typically, the validation process will focus on:

- assessment of the degree of compliance of the system with applicable policies, procedures and guidelines (eg Chief Executive Instructions (CEI's) and any business rules from which the system was developed;
- a review of system user requirements and validation that the system meets these needs;
- review of the system architecture, design and construction to advise of any efficiency gains that can be made;
- development of recommendations to improve system architecture or to address performance or useability issues; and
- identification of options for the longer-term development and/or improvement of the system.

Outputs/Deliverables

The aim of V&V activities is to ensure that the technical implementation and design of systems meets the specifications and operational requirements.

Typically, the following outputs:

- System and software test plans
- System and software test reports, including inspection, review and audit reports
- Software quality assurance reports
- Verification and validation plans
- Verification and validation audit/review reports that include the results of functional and performance tests in areas including:
 - Code stability and code utilisation %
 - If standard coding practices are being followed
 - Integration capability of the application into a network environment
 - Potential impact of release on existing applications
 - That the application built actually fulfils the requirements (or not)
 - Performance of the application under load and stress
 - Performance of the code down to the line

Contact us

If you would like to discuss the many ways Connexion will help revolutionise your world, please contact our team.



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