

Verification (glossary)

verification

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(1a) *Confirmation, through the provision of objective evidence, that specified (system) requirements have been fulfilled. (ISO/IEC 2008, section 4.38)*

(1b) *Verification is a set of activities that compares a system or system element against the required characteristics. This includes, but is not limited to, specified requirements, design description and the system itself. The system was built right. (ISO/IEC/IEEE 2015, 1, Section 6.4.6)*

(2) *The evaluation of whether or not a product, service, or system complies with a regulation, requirement, specification, or imposed condition. It is often an internal process. Contrast with validation. (PMI 2013)*

(3a) *The process of evaluating a system or component to determine whether the products of a given development phase satisfy the conditions imposed at the start of that phase. (IEEE 1012-2004, 3.1.36)*

(3b) *Process of providing objective evidence that the software and its associated products comply with requirements for all life cycle activities during each life cycle process, satisfy standards, practices, and conventions during life cycle processes, and*

successfully complete each life cycle activity and satisfy all the criteria for initiating succeeding life cycle activities.
(IEEE 829-2008, 3.1.54)

Source

(1) ISO/IEC/IEEE. 2015. *Systems and Software Engineering - System Life Cycle Processes*. Geneva, Switzerland: International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC)/Institute of Electrical and Electronics Engineers (IEEE). ISO/IEC/IEEE 15288:2015 (E).

(2) PMI. 2013. *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*. 5th ed. Newtown Square, PA, USA: Project Management Institute (PMI).

(3) IEEE. 2004. *IEEE Standard for Software Verification and Validation*. Institute of Electrical and Electronics Engineers (IEEE) Standards Association: IEEE 1012-2004.

Discussion

Definition (1a) refers to the outcome of providing evidence that a particular system realization is verified (i.e. Does it satisfy the specified and agreed system requirements?). The word (system) has been added to clarify the definition.

Definition (1b) is based on the introduction to the verification process and refers to the process of achieving verification through a set of activities conducted across a system's life cycle to ensure the system has been built correctly. The term (engineered) system has been added to conform to SEBoK terminology.

Definition (3) refers to verification at the end of each lifecycle stage that confirms that both software and systems have been developed in compliance with all standard practices and rules.

Verification supports the activities and outcome of validation, a process that ensures that the correct system has been built for its intended use (i.e., Does it satisfy the customer and user needs?).

For a full discussion of the role and importance of

verification in systems engineering see the System Verification article.

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