Function (glossary)

From SEBoK

function

(1) A system outcomes which contribute to goals or objectives. To have a function, a system must be able to provide the outcome through two or more different combinations of elemental behavior. (Ackoff 1971)

(2) An action, a task, or an activity performed to achieve a desired outcome. (Hitchins 2007)

(3) A function is defined by the transformation of input flows to output flows, with defined performance. (Created for SEBoK)

(4) A broad work area encompassing multiple related disciplines (e.g., Engineering, Finance, Human Resources, etc.). (Created for SEBoK)

Source


(3) and (4) These definitions were developed for the SEBoK.

Discussion

(1) is the system science definition. All systems have behavior, but to be able to function in a certain way they must have a certain richness of behavior. For example, fight, flight or hide are behaviors; while response to external threats is a function.

(2) is the more traditional Systems Engineering definition, in which functions are identified top down based on needs and then decomposed and allocated to lower level system.

(3) is a HW/SW or human system component definition, describing a function which can be performed by a single part of the system with identified performance.

(4) is a management definiton, describing how similar functions are collected in organizational units.

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