

UDesign Glossary

Benchmarking – The study of a competitor's process/product, technology or business practices in order to improve the performance of one's own process/product.

Benchmarking Research – A process for rapidly learning the essence of a desired field of knowledge. (Often with an interest in finding its boundaries.)

Candidate Concepts – Complete solutions to the given problem that exhibit a variety of approaches, from which a “best” concept can be chosen. (See Pugh Method.)

Constraints – Features dictated by a physical limit, government regulation, or industry standard. Cannot be traded like a want. (See Needs, Wants)

Criteria – Categories for Wants and Constraints in addition to the usual performance and cost categories, e.g., economic; environmental; sustainability; manufacturability; ethical; health and safety; social; and political.

Customer – Person who cares about project results, and may represent a class of such people. (See Sponsor below.)

Design Specifications – Set of metrics and target values used in design. (See Metrics and Target Values.)

Metrics – standards of measurement, like a ruler measures length, and a stopwatch measures time. (not to be confused with “Metric System” of units.) Used to convert customer wants into engineering quantities that can be measured, calculated, and verified.

Needs – The collection of all wants and constraints. (See Constraints, Wants)

Pugh Method of Concept Selection – Powerful method for choosing the “best” concept among competing candidates. Method developed by S. Pugh (Total Design, Addison-Wesley, 1990), and is incorporated into UDesign. (See UDesign, Candidate Concepts)

Requirements (as categorized by Kano, et al, 1994)

Expected – Those that customers assume are present.

Revealed – Those that customers discuss when describing improvements.

Exciting – Those that cause a customer to say WOW!

Rubric – A set of rules, especially for assessment clarity.

Sponsor – Person who is supporting the project. (A super Customer, to whom the design team is responsible for project deliverables.)

Target Value – A value or range of values of a metric needed to make a design successful.

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UDesign – A spreadsheet-based management tool for organizing and processing the information needed to make compromise decisions in engineering design. (After D. P. Clausing, Total Quality Development, ASME Press, 1993)

Wants – Features desired by customers, but able to be traded for something else.