

A Glossary of the Terminology for the Digital Design Professional

Martin Glinz and Kim Lauenroth

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Glossary for the Digital Design Professional

Preface

This glossary defines the core terminology in Digital Design. It complements the Digital Design Professional Syllabus for the Foundation Level [DDP2021] and the handbook of the Digital Design Professional [LaGi+2021]. It is intended as a reference document for professionals in Digital Design, for students or professionals taking a training or a certification exam in Digital Design, and for training providers who give trainings in Digital Design.

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Sources

As Digital Design is a new field, many definitions in this glossary are new. They are based on our experience and on existing terminology in creative design. When defining existing terms such as stakeholder or system, we strived for alignment with the IREB Glossary of Requirements Engineering Terminology [Glin2020]. For terms not defined in that glossary (e.g., client, function or interface), we consulted various sources (e.g., [ErMa2008], [ISO9000], [ISO24765], [ISO19506], [ISO25010], [McEl2017], [RiWe1973]).

However, as there is a lot of variety and inconsistency in the definitions provided by these sources, we did not copy-paste any definitions, but carefully re-formulated all definitions consistently and according to their intended use in Digital Design.

For cross-checking, we also consulted the Merriam-Webster online dictionary (<https://www.merriam-webster.com>) and Wikipedia (<https://en.wikipedia.org>).

Version History

Version	Date	Comment
1.0	2021/06/01	First version of the DDP glossary

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Definition of Terms

Artifact

Synonym for ↑work product.

Client

A person or organization who orders a ↑system or a solution to be built.

Construction (in Digital Design)

1. A description of the technical structure of something
2. The act of creating a construction.

Context

1. In general: The network of thoughts and meanings needed for understanding phenomena or utterances.
2. Especially in Digital Design: The part of the environment of a ↑digital solution or a ↑digital system that is relevant for understanding and realizing a digital solution.

Note

This includes important ↑stakeholders and, in particular, the potential ↑customers and ↑users of the digital system.

Customer

A person or organization who receives a ↑system, a ↑product or a ↑service.

Note

1. In Digital Design, the product or service received is a ↑digital solution. “Receiving” includes both buying a solution or obtaining it for free.
2. Beyond its intended customers, a digital solution may also have *indirect* customers. This is, for example, the case when customers employ a digital solution for improving non-digital services that they provide to their customers.

Design

1. A plan or drawing produced to show how something will look, function or be structured before it is made.
2. The activity of creating a design.

Note

Designing means envisioning and properly describing a desired future by means of ↑design concepts.

Design concept

A description of the design of a ↑digital solution, of a ↑digital system or of an element of a digital solution under the assumption of perfect technology.

Note

Perfect technology means technology that is defect-free and has neither speed nor capacity restrictions.

Device design concept

An ↑element design concept for a hardware device which is part of a ↑digital solution.

Digital (as a noun)

The structure, flow, and transformation of binary data.

Digital design

The creative ↑design of ↑digital solutions.

Digital design brief

The description of the ↑context, vision, ↑scope, and general terms for building a ↑digital solution.

Digital material

The technological means that enable the ↑Digital, that is, the structure, flow, and transformation of binary data.

Digital solution

A ↑socio-technical system that solves a real-world problem with digital means.

Note

A digital solution:

- is primarily realized by a ↑digital system which achieves certain objectives,
- is always contextualized, i.e., it solves a problem in a certain ↑context,
- shapes the context as far as it is within the ↑scope of the digital solution.

Digital system

A technical ↑system that realizes a ↑digital solution in a given context with digital means, that is, by processing, transporting and storing binary data.

Element design concept

The description of the element-relevant objectives, and of the ↑form, ↑function, and ↑quality of an element of a ↑digital solution.

Element evaluation concept

The ↑evaluation concept for an element of a ↑digital solution.

Element realization concept

The description of the technically relevant element objectives, and of the technical ↑form, ↑function, and ↑quality of an element of a ↑digital solution.

Epic

1. In agile development: An abstract description of a ↑stakeholder need which is larger than what can be implemented in a single ↑iteration.
2. In Digital Design: A ↑work item that describes a characteristic of a ↑digital system that provides value for ↑stakeholders

Evaluation

A systematic ↑process for determining the value, quality or appropriateness of something.

Note

In Digital Design, evaluation particularly determines whether a ↑digital solution or a ↑work product used for creating a digital solution actually has the qualities and properties that it should have according to the ↑design concepts and the ↑stakeholders' needs.

Evaluation concept

A description of the ↑evaluation approach for a ↑work product.

Form (in Digital Design)

The elements and the relationships between the elements of a ↑system that constitute the structure of the system.

Function (in Digital Design)

The capabilities provided by an element of a ↑system, by a combination of elements, or by the system as a whole.

Note

The notion of function in design is different from those used in mathematics and computing:

- In mathematics: A mapping between two sets, called domain and range, which associates every element of the domain with at most one element of the range.
- In computing: The transformation of input data into output data.

Hardware interface

An ↑interface between an element of a ↑system and a device.

Note

1. We distinguish *perceivable* hardware interfaces that let ↑users interact with a device and *underlying* hardware interfaces, where a system element interacts with a device in a way that is not perceivable for the users of the system.
2. In ↑digital systems, hardware interfaces include, for example, displays, audio input and output, and communication hardware.

Interface

A shared boundary across which information is passed.

Note

In ↑digital solutions, interfaces may exist, for example, between:

- components of a ↑digital system,
- an element of a digital system and a device,
- an element of a digital system and its ↑user(s).
- a digital system and a neighboring system which is not part of the digital solution.

Iteration

1. In general: The repetition of something, for example, a procedure, a process or a piece of program code.
2. In agile development: A timeboxed unit of work in which a development team implements an increment to the ↑system under development.

Persona

A fictitious character representing a group of people with similar needs, values and habits who are expected to use a ↑system or benefit from it in a similar way.

Process

A set of interrelated activities performed in a given order to process information or materials.

Problem

A difficulty, open question or undesirable condition that needs investigation, consideration, or solution.

Note

In Digital Design, we distinguish between tame problems and wicked problems:

- A *tame problem* is a problem that is well defined with clear and stable requirements.
- A *wicked problem* is a problem that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements.

Product owner

A person responsible for a product in terms of functionality, value and risk.

Prototype

1. In manufacturing: A piece which is built prior to the start of mass production.
2. In software and systems engineering: A preliminary, partial realization of certain characteristics of a ↑system.
3. In design: A preliminary, partial instance of a design solution.

Note

In Digital Design, prototypes are used according to definition 3 above. They can serve as

- a manifestation of ideas for a future ↑digital solution,
- a model for later stages or the final version of a digital solution,
- a means for obtaining early feedback from ↑stakeholders.

Quality (in Digital Design)

1. In general: The degree to which a set of inherent characteristics of an item fulfills requirements.
2. In systems and software engineering: The degree to which a ↑system satisfies stated and implied needs of its ↑stakeholders.
3. In design processes: The selection of those system elements and relationships from a universe of design options that are best suited to satisfy the needs of the ↑users of a system.

Note

1. In Digital design, “item” in the sense of Definition 1. pertains to the elements, relationships and capabilities of a system, as well as to the interaction between them.
2. Digital Design must handle quality in the sense of all of three definitions given above:
 - The inherent characteristics of elements, relationships or capabilities of a system have to be defined explicitly, so that quality can be evaluated.
 - Digital systems and solutions must satisfy the needs of their stakeholders.
 - In the design process, quality emerges by analyzing and researching the design space for a given problem and selecting the best suited options.
3. Quality in the above sense means fitness for intended use. This is in contrast to the colloquial notion of quality which is typically connoted with goodness or excellence.

Realization (in Digital Design)

1. The actual implementation of something.
2. The act of creating a realization.

Realization concept (in Digital Design)

A description of a ↑digital solution with real technology.

Scope (of a digital solution)

The range of things that can be shaped and designed when building a ↑digital solution.

Note

Describing the scope of a digital solution also includes important constraints, such as technological and functional limits.

Socio-technical system

A ↑system spanning software, hardware, people and organizational aspects.

Software design concept

An ↑element design concept for an element of a ↑digital solution that is realized with software.

Software interface

An ↑interface between a software element of a ↑system and an element of the same system or of another system.

Solution design concept

The description of the goals, the business model and the overall idea of a ↑digital solution.

Solution evaluation concept

The ↑evaluation concept for a ↑digital solution.

Stakeholder

A person or organization who influences a ↑system's requirements or who is impacted by that system.

Note

In Digital Design, the stakeholders' requirements influence a ↑digital solution. Furthermore, they may be impacted by a digital solution.

Story map

A two-dimensional arrangement of ↑user stories.

Note

The horizontal dimension describes the narrative flow of the system, while the vertical dimension provides details for each part of the narrative flow.

System

1. In general: A principle for ordering and structuring.
2. In engineering: A coherent, delimitable set of elements that – by coordinated action – achieve some purpose.

System design concept

The description of the system-relevant objectives, and of the overall ↑form, ↑function, and ↑quality of a ↑digital system.

System evaluation concept

The ↑evaluation concept for a ↑digital system.

System realization concept

The description of the technically relevant system objectives, and of the overall technical ↑form, ↑function, and ↑quality of a ↑digital system.

Use case (in Digital Design)

A set of possible interactions between a ↑user and an element of a ↑system that provide a benefit for the user(s) involved.

User

A person who uses the functionality provided by a ↑system.

Note

1. When building a system, the prospective users of the system are ↑stakeholders.
2. When building a ↑digital solution, users may be part of the solution to the extent that the digital solution changes the users' behavior and habits.

3. A digital solution may also include non-human players who act in the role of a user, for example, animals, plants or autonomous robots.

User interface

An ↑interface for the exchange of information between a ↑user and a ↑system.

Note

1. A user interface may include both hardware (e.g., displays, loudspeakers, or keyboards) and software (e.g., menus, dialog boxes, or speech recognition)
2. In Digital Design, user interfaces belong to the ↑form of a digital solution. However, the design of a user interface includes ↑form and ↑function, in particular, the structure and dynamics of information exchange, as well as ↑quality, in particular, usability and user experience.

User story

A description of a need from a ↑user's perspective together with the expected benefit when this need is satisfied.

Note

A user story constitutes a ↑work item in which a user's need is realized.

Work item

A coherent and documented unit of work.

Note

User stories, element evaluation tasks or defect fixing tasks are examples of work items.

Work product

A recorded, intermediate or final result generated in a work ↑process.

Synonym: ↑Artifact

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