DDP

Digital Design Professional

Digital Design Glossary

English Version

Original English version
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About the Author

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He received a diploma degree in Mathematics in 1977 and a Dr. rer. nat. in Computer Science in 1983, both from RWTH Aachen University. Before joining the University of Zurich, he worked in industry for ten years, where he was active in software engineering research, development, training, and consulting. He retired in summer 2017, but he is still active in Requirements Engineering research, education, and service.

Martin Glinz has over 35 years of experience in Requirements Engineering, both academic and industrial. He is on editorial boards and program committees of major journals and conferences in software and requirements engineering and served as general chair, program chair, steering committee chair and organizer for the top international conferences in his field. He is a full member of the International Requirements Engineering Board (IREB), where he chairs the IREB Council. He received the ACM SIGSOFT Distinguished Service Award and the IEEE International Requirements Engineering Conference Lifetime Service Award in 2016 and the IEEE International Requirements Engineering Conference Most Influential Paper Award in 2017.

Preface

This glossary defines the core terminology in Digital Design. Translation to other languages are available at www.digitaldesign.org. However, the definitions of the terms remain in English to avoid translation ambiguities. The glossary complements the Digital Design Professional Syllabus for the Foundation Level [DDP2023] and the handbook of the Digital Design Professional [LGea2023]. 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.

Acknowledgements

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Version History

Version	Date	Comment
1.0.0	June 1, 2021	First version of the DDP glossary
1.0.1	July 30, 2021	Updated format and added navigable references
1.1.0	March 2022	Updated definition of "Context in Digital Design"
1.2.0	October 1, 2023	Update of the following terms to reflect the updated DDP syllabus and handbook version 2.0: Construction, Design concept, Digital Design, Realization, Realization concept.
1.2.1	January 31, 2024	Updated to the new corporate design

Table of Content

1 Definitions of Terms

All the terms listed are key terms that must be known for the DDP Foundation Level.

Term (English)	Definition
Artifact	Synonym for ↑work product.
Client	A person or organization who orders a ↑system or a solution to be built.
Construction (in Digital Design)	The creation of the realization concept of a digital solution that will create the desired transformation.
Context	▪ In general: The network of thoughts and meanings needed for understanding phenomena or utterances. ▪ Especially in Digital Design: The part of the environment of a ↑digital solution or a ↑digital system that is relevant for understanding and building 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** ▪ In Digital Design, the product or service received is a ↑digital solution. "Receiving" includes both buying a solution or obtaining it for free. ▪ Beyond its intended customers, a digital solution may also have indirect customers. This can be the case, e.g., when customers employ a digital solution for improving non-digital services that they provide to their customers
Design	▪ A plan or drawing produced to show how something will look, function or be structured before it is made. ▪ The activity of creating a design. **Note** Designing means envisioning and properly describing a desired future by means of ↑design concepts.

Term (English)	Definition
Design concept	A description of the design of a ↑digital solution, of a ↑digital system or of an element of a digital solution.
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 and holistic ↑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.

Term (English)	Definition
Epic	▪ In agile development: An abstract description of a ↑stakeholder need which is larger than what can be implemented in a single ↑iteration. ▪ 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.

Term (English)	Definition
Hardware interface	An ↑interface between an element of a ↑system and a device. **Note** ▪ 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. ▪ 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	▪ In general: The repetition of something, for example, a procedure, a process or a piece of program code. ▪ 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.

Term (English)	Definition
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.
Process	A set of interrelated activities performed in a given order to process information or materials.
Product owner	A person responsible for a product in terms of functionality, value and risk.
Prototype	▪ In manufacturing: A piece which is built prior to the start of mass production. ▪ In software and systems engineering: A preliminary, partial realization of certain characteristics of a ↑system. ▪ 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.

Term (English)	Definition
Quality (in Digital Design)	▪ In general: The degree to which a set of inherent characteristics of an item fulfills requirements. ▪ In systems and software engineering: The degree to which a ↑system satisfies stated and implied needs of its ↑stakeholders. ▪ 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** 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. 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. 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)	▪ The implementation of a digital solution according to the defined design concepts and realization concepts. ▪ The act of creating a realization.
Realization concept (in Digital Design)	A description of the technical realization of a ↑digital solution.
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.

Term (English)	Definition
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	▪ In general: A principle for ordering and structuring. ▪ 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.

Term (English)	Definition
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** ▪ When building a system, the prospective users of the system are ↑stakeholders. ▪ 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. ▪ 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** ▪ A user interface may include both hardware (e.g., displays, loudspeakers, or keyboards) and software (e.g., menus, dialog boxes, or speech recognition). ▪ 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.

Term (English)	Definition
Work product	A recorded, intermediate or final result generated in a work ↑process. Synonym for ↑Artifact.

2 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 much 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).

3 References

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