

## **Role of Design systems in information system development process**

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**Introduction.** The information system development process consists of several complicated steps that are needed to be accomplished in order to fulfill the needs of users. One of the steps is a UI design development that is considered as the essential one in the whole development process [1].

Nowadays more and more commercial companies that are developing information systems for B2C customers spend their money on the qualitative UI design. According to the UK Design Council, the companies from the «S&P 500» list that spend money on quantitative design gain no less than 187% profits increase [2]. In order to accomplish the aim of spending less money on UI design and therefore gaining more profits, the Design systems should be introduced into the companies. Design systems help to support, chaperone and effectively scale the IT solution of the companies.

**Study objectives.** To observe the development of UI design with help of a Design systems, to determine the role of such system in such phases of the development process as analysis, design, delivery, and support.

**Problem statement.** Design systems in information system development have not received full coverage in any foreign papers available, most of them providing description of some specific aspects of developing the Design system itself, neither has the place of such systems in the development process as a whole been defined.

**Basic definitions of research.** In the research, the waterfall methodology in solution delivery and development is used. The waterfall methodology is the linear approach that has all the steps of the development in sequence. The steps are: *analysis* (gathering and formalizing of business requests, models, rules etc.), *design* (formalizing of the system and functional requirements, user needs, design architecture, UI design etc.), *developing*, quality assurance *testing* and *support*.

The Design system is a combination of ready-to-use UI design elements, the representation of those elements in the code, the rules collection of use of those elements and library of styles. This type of system allows supporting the systemic and coherent order of each element, from a single button up to the whole single page application.

**Basic result.** The basic major result of the study is represented as the description of the suggested use of the Design system on each step of the waterfall development process. The detailed description is represented in the table below.

Table 1. — Role of the Design system on each step of the waterfall dev. process

<b>Step</b>	<b>Design system function</b>
<b>Analysis</b>	Design system does not take shape yet. The UI/UX specialists begin to collect the information on brand styles, style guides and brand books.
<b>Design*</b>	While business analysts begin to develop such documents as functional design specifications, the UI designers should work together with the business analysts in order to provide the relevant mockups to a customer. While they provide the mockups, the UX/UI specialists should develop the Design system itself.
<b>Development</b>	Once the Design phase is over, the Design system should be used in order to correctly develop the system and implement the components.
<b>Testing</b>	While testing, QA specialists should refer to Design system as a source of valid information. If QA specialist finds the gap between the Design system correct %description and solution implementation in the scope of any element, then he or she should consider this gap as a bug.
<b>Support</b>	In the Support phase of the project, the Design system should be supported so the new features can be added smoothly.

\* — Here “Design” does not relate to UI/UX design. It means the functional and architectural design (making the project).

To sum up, the role of the Design system in the information system waterfall development process is reviewed: each phase of the waterfall process has been mapped to the Design system function on that step. The problem of the currently available research’s on Design systems formulated, basic definitions on the topic are provided, the business justification for the Design system in the development process is given.

### Literature sources

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