



The **system development life cycle** framework provides a sequence of activities for system designers and developers to follow. It consists of a set of steps or phases in which each phase uses the results of the previous one.

The SDLC adheres to important phases that are essential for developers—such as planning, analysis, design, and implementation— This includes evaluation of the currently used system, information gathering, feasibility studies, and request approval. A number of SDLC models have been created, including waterfall, fountain, spiral, build and fix, rapid prototyping, incremental, synchronize, and stabilize. The oldest of these, and the best known, is the waterfall model, a sequence of stages in which the output of each stage becomes the input for the next. These stages can be characterized and divided up in different ways, including the following. A ten-phase version of the systems development life cycle. Preliminary analysis: Begin with a preliminary analysis, propose alternative solutions, describe costs and benefits, and submit a preliminary plan with recommendations.

Conduct the preliminary analysis: Discover the organization's objectives and the nature and scope of the problem under study. Even if a problem refers only to a small segment of the organization itself, find out what the objectives of the organization itself are. Then see how the problem being studied fits in with them.

Propose alternative solutions: Alternate proposals may still come from interviewing employees, clients, suppliers, and/or consultants. Insight may also be gained by researching what competitors are doing.

Cost benefit analysis: Analyze and describe the costs and benefits of implementing the proposed changes. In the end, the ultimate decision on whether to leave the system as is, improve it, or develop a new system will be guided by this and the rest of the preliminary analysis data.

Systems analysis, requirements definition: Define project goals into defined functions and operations of the intended application. This involves the process of gathering and interpreting facts, diagnosing problems, and recommending improvements to the system.

A series of steps followed by the developer include

Collection of facts: Obtain end user requirements through documentation, client interviews, observation, and questionnaires.

Analysis of the existing system: Identify pros and cons of the current system in-place, so as to carry forward the pros and avoid the cons in the new system.

Analysis of the proposed system: Find solutions to the shortcomings described in step two and prepare the specifications using any specific user proposals.

Systems design: At this step, desired features and operations are described in detail, including screen layouts, business rules, process diagrams, pseudo code, and other documentation.

Development: The real code is written here.

Integration and testing: All the modules are brought together into a special testing environment, then checked for errors, bugs, and interoperability.

Acceptance, installation, deployment: This is the final stage of initial development, where the software is put into production and runs actual business.

Maintenance: During the maintenance stage of the SDLC, the system is assessed/evaluated to ensure it does not become obsolete. This is also where changes are made to initial software.

Evaluation. This is where the system that was developed, as well as the entire process, is evaluated. Some of the questions that need to be answered include if the newly implemented system meets the initial business requirements and objectives, if the system is reliable and fault-tolerant, and if it functions according to the approved functional requirements. In addition to evaluating the software that was released, it is important to assess the effectiveness of the development process. If there are any aspects of the entire process (or certain stages) that management is not satisfied with, this is the time to improve.

Disposal: In this phase, plans are developed for discontinuing the use of system information, hardware, and software and making the transition to a new system. The purpose here is to properly move, archive, discard, or destroy information, hardware, and software that is being replaced, in a manner that prevents any possibility of unauthorized disclosure of sensitive data. The disposal activities ensure proper migration to a new system.