

Information engineering

FEASIBILITY STUDY

The SDLC Phase 1: Project identification and selection/feasibility

The outcome of this first step, problem identification, is a written **statement of scope and objectives**.

This brief document outlines the analyst's understanding of:

- the **problems** with the current system;
- the **scope** of the new system;
- the **objectives** of the new system, based on the requirements stated by users and management;
- the **constraints** imposed on the new system;
- any broad, **preliminary ideas**/solutions that seem evident;
- the **next stage** in the SDLC, e.g. feasibility study;
- who, in the client organisation, will supervise and **authorise** the project.

The SDLC Phase 1: Project identification and selection/feasibility

- The purpose of this document is to get user and management involvement and feedback.
- People respond to written statements. They ask for clarification; they correct any obvious errors or misunderstandings.
- This is why a clear statement of scope and objectives is important.
- Although this stage of the SDLC can be brief, lasting a day or two, or less, it is essential that the users, management and the analyst agree on a general direction very early in the project.
- A misunderstanding of the problem definition virtually guarantees that the new system will fail to solve the problem.

The SDLC Phase 1: Feasibility Study

- Projects come from many different sources and for many reasons.
- Not all should be selected for further study.
- The organisational *impact* of the proposed change must be considered.

The SDLC Phase 1: Feasibility Study

Five criteria for project selection/rejection:

1. The project must have management backing (they will pay the bill).
2. Appropriate timing of project commitment – is it the right time to install or change systems?
3. The project should help the organisation achieve its business objectives, otherwise there is no point in doing it.
4. Can the project be done within the resources available to the analyst and organisation?
5. Is the project worth doing when compared to other projects?

The SDLC Phase 1: Feasibility Study

- It is still necessary to determine if the selected projects are feasible.
- The feasibility study is not a full-blown systems study.
- It must be highly time-compressed, because many projects will be requested and only a few can or should be selected.

The SDLC Phase 1: Feasibility Study

The following process may be used:

1. The study begins with a series of interviews to clarify the scope and objectives.
2. The analyst must also study the existing system to gain a *basic* knowledge of what the system entails (the *how* of *now*).
3. To create a new, better system that performs the same functions, a use case diagram diagram is constructed, showing the key activities, but not identifying how they are performed or by whom (the *what* of *now*).

The SDLC Phase 1: Feasibility Study

4. Return to users to confirm or amend the analyst's view of the system, and possibly **redefine the scope and objectives of the project**.
5. Establish **alternative solutions** for the defined problem and analyse each solution in terms of **feasibility**. Three tests of feasibility are normally conducted: technical, operational and economic feasibility.
6. Produce a **report** of the findings for management's consideration, detailing the analyst's recommendation, with justification. Management will decide whether or not to proceed with (and allocate funds) to the project.

The SDLC Phase 1: Feasibility Study

The three tests of feasibility

A project must be feasible in three ways to merit further development.

- Technical feasibility (can it be done?)
- Operational feasibility (should it be done?)
- Economic feasibility (the cost-benefit analysis)

The SDLC Phase 1: Feasibility Study

Technical feasibility (can it be done?)

Is the proposed solution capable of being implemented using available resources (hardware, software and other equipment). Can resources be upgraded or added-on to? Is the particular technology available, or in existence? Success might depend on:

- *Volume* of transactions which can be processed within a given time
- *Capacity* to hold files or records of a certain size.
- *Response times* (how quickly the computer does what you ask it to do, how up-to-date the information must be).
- *Number of users* that can be supported without deterioration in the other criteria.

The SDLC Phase 1: Feasibility Study

Operational feasibility (should it be done?)

If a solution makes technical sense but **conflicts with the way the organisation does business**, the solution is not feasible. Operational feasibility is dependent on the human resources available for the project and the strength of user acceptance or resistance to the proposed system. Thus an organisation might reject a solution because:

- it forces a change in management responsibilities, status and chains of command;
- users like the existing system (it's the way we've always done things!) and will make difficult the implementation of the new system;
- demotivational effects of redundancies, retraining and reorganisation
- user resistance to the new system poses a threat to industrial relations.

The SDLC Phase 1: Feasibility Study

COST	EXAMPLES
<i>Equipment</i>	• Computer and peripherals • Ancillary equipment • Initial supplies (disks/tapes/paper, etc.)
<i>Installation</i>	• New buildings, if necessary • Computer room (wiring, a/c, etc.) • New furniture (to house equipment)
<i>Development</i>	• SAD costs (e.g. programming) • Software and consultancy work • Changeover from old to new system • File conversion • Disruption

Economic feasibility (the cost-benefit analysis)

COST	EXAMPLES
<i>Personnel</i>	• Staff training • Staff recruitment/relocation • Staff salaries and pensions • Redundancy payments • Overheads
<i>Operating</i>	• Consumable materials (tapes, disks, stationery, etc.) • Maintenance costs of hardware (replacement parts, upgrading, troubleshooting) • Accommodation • Heating/power/insurance/telephone • Standby arrangements in case the system breaks down
<i>Social</i>	• Impact of redundancies

The SDLC Phase 1: Feasibility Study

The **benefits** from a proposed system must also be evaluated.

Tangible benefits provide direct monetary savings for the organisation

These might include:

- **Savings** because the **old system** will no longer be operated, e.g. staff costs, consumable materials.
- Extra **savings or revenue** benefits because of the improvements that the **new system** should bring. E.g. access to new markets and hence more sales revenue; better stock control/ fewer stock losses from obsolescence and deterioration; further savings in staff time; savings in office space which can be rented out or used for other revenue-earning opportunity.
- **One-off revenue** benefits from the sale of old equipment which is no longer required.

The SDLC Phase 1: Feasibility Study

Intangible benefits do not have a direct monetary value but improve the company's operations in some other way

These might include:

- Greater customer satisfaction and loyalty, arising from a more prompt service
- Improved staff morale from working with a 'better' system.
- Improved security of information.
- Better decision-making is hard to quantify, but may result from better IRS, DSS or EIS.