# **Project Design and Management (PDM)**

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A **project**is a one-time activity that produces a specific output and or outcome.

A project is **temporary** in that it has a defined beginning and end in time, and therefore defined scope and resources.

And a project is **unique** in that it is not a routine operation, but a specific set of operations designed to accomplish a singular goal. So a project team often includes people who don’t usually work together – sometimes from different organizations and across multiple geographies.

**Project management**, then, is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.

**Project management** is the planning, organizing and managing the effort to accomplish a successful project.

[**1. The six phases of project management**](https://www.projectmanagement-training.net/1-the-six-phases-of-project-management/)

Dividing a project into phases makes it possible to lead it in the best possible direction. Through this organisation into phases, the total work load of a project is divided into smaller components, thus making it easier to monitor. The following paragraphs describe a phasing model that has been useful in practice. It includes six phases:

1. [Initiation phase](https://www.projectmanagement-training.net/initiation-phase/)
2. [Definition phase](https://www.projectmanagement-training.net/definition-phase/)
3. [Design phase](https://www.projectmanagement-training.net/design-phase/)
4. [Development phase](https://www.projectmanagement-training.net/development-phase/)
5. [Implementation phase](https://www.projectmanagement-training.net/implementation-phase/)
6. [Follow-up phase](https://www.projectmanagement-training.net/follow-up-phase/)

# [Initiation phase](https://www.projectmanagement-training.net/initiation-phase/)

The initiation phase is the beginning of the project. In this phase, the idea for the project is explored and elaborated. The goal of this phase is to examine the feasibility of the project. In addition, decisions are made concerning who is to carry out the project, which party (or parties) will be involved and whether the project has an adequate base of support among those who are involved.

In this phase, the current or prospective project leader writes a proposal, which contains a description of the above-mentioned matters. Examples of this type of project proposal include business plans and grant applications. The prospective sponsors of the project evaluate the proposal and, upon approval, provide the necessary financing. The project officially begins at the time of approval.

Questions to be answered in the initiation phase include the following:

* What is the need?
* Who are we doing this for?
* Who will be affected?
* Is it feasible?
* What are the expected outcomes?
* What will the project accomplish?
* Will it be sustainable? If so, how?
* What resources are needed and do we already have?
* Who are possible partners in this project?
* What are the boundaries of this project (what is outside the scope of the project)?

In the initiation phase, the project partners enter a (temporary) relationship with each other. To prevent the development of false expectations concerning the results of the project, it makes sense to explicitly agree on the type of project that is being started:

* a research and development project;
* a project that will deliver a prototype or ‘proof of concept’;
* a project that will deliver a working product.

The choice for a particular type of project largely determines its results. For example, a research and development project delivers a report that examines the technological feasibility of an application. A project in which a prototype is developed delivers all of the functionalities of an application, but they need not be suitable for use in a particular context (e.g. by hundreds of users). A project that delivers a working product must also consider matters of maintenance, instructions and the operational management of the application.

Many misunderstandings and conflicts arise because the parties that are involved in a project are not clear on these matters. Customers may expect a working product, while the members of the project team think they are developing a prototype. A sponsor may think that the project will produce a working piece of software, while the members of the project team must first examine whether the idea itself is technically feasible.

# [Definition phase](https://www.projectmanagement-training.net/definition-phase/)

After the project plan (which was developed in the initiation phase) has been approved, the project enters the second phase: the definition phase. In this phase, the requirements that are associated with a project result are specified as clearly as possible. This involves identifying the expectations that all of the involved parties have with regard to the project result. How many files are to be archived? Should the metadata conform to the Data Documentation Initiative format, or will the Dublin Core (DC) format suffice? May files be deposited in their original format, or will only those that conform to the Preferred Standards be accepted? Must the depositor of a dataset ensure that it has been processed adequately in the archive, or is this the responsibility of the archivist? Which guarantees will be made on the results of the project? The list of questions goes on and on.

It is important to identify the requirements as early in the process as possible. Wijnen (2004) distinguishes several categories of project requirements that can serve as a memory aid:

* Preconditions
* Functional requirements
* Operational requirements
* Design limitations

Preconditions form the context within which the project must be conducted. Examples include legislation, working-condition regulations and approval requirements. These requirements cannot be influenced from within the project. Functional requirements are requirements that have to do with the quality of the project result (e.g. how energy-efficient must an automobile be or how many rooms must a new building have?). Operational requirements involve the use of the project result. For example, after a software project has been realised, the number of malfunctions that occur must be reduced by ninety per cent. Finally, design limitations are requirements that involve the actual realisation of the project. For example, the project cannot involve the use of toxic materials or international partners for whom it is unclear whether they use child labour.

It is very important that all parties that are involved in the project are able to collaborate during the definition phase, particularly the end users who will be using the project result. The fact that end users are often not the ones that order the project perhaps explains why they are often ignored. The client, who pays for the project, is indeed invited to collaborate on the requirements during the definition phase. Nonetheless, the project result benefits when its future users are also invited. As a point of departure, it is helpful to make a habit of organizing meetings with all concerned parties during the definition phase of a project.

Ultimately, a list of definitive requirements is developed and presented for the approval of the projects decision-makers. Once the list has been approved, the design phase can begin. At the close of the definition phase, most of the agreements between the customer and the project team have been established. The list of requirements specifies the guidelines that the project must adhere to. The project team is evaluated according to this list. After the definition phase, therefore, the customer can add no new requirements.

# [Design phase](https://www.projectmanagement-training.net/design-phase/)

The list of requirements that is developed in the definition phase can be used to make design choices. In the design phase, one or more designs are developed, with which the project result can apparently be achieved. The project supervisors use these designs to choose the definitive design that will be produced in the project. This is followed by the development phase. As in the definition phase, once the design has been chosen, it cannot be changed in a later stage of the project.

# [Development phase](https://www.projectmanagement-training.net/development-phase/)

During the development phase, everything that will be needed to implement the project is arranged. Potential suppliers or subcontractors are brought in, a schedule is made, materials and tools are ordered, instructions are given to the personnel and so forth. The development phase is complete when implementation is ready to start. All matters must be clear for the parties that will carry out the implementation.

In some projects, particularly smaller ones, a formal development phase is probably not necessary. The important point is that it must be clear what must be done in the implementation phase, by whom and when.

# [Implementation phase](https://www.projectmanagement-training.net/implementation-phase/)

The project takes shape during the implementation phase. This phase involves the construction of the actual project result. Programmers are occupied with encoding, designers are involved in developing graphic material, contractors are building, the actual reorganization takes place. It is during this phase that the project becomes visible to outsiders, to whom it may appear that the project has just begun. The implementation phase is the doing phase, and it is important to maintain the momentum.

At the end of the implementation phase, the result is evaluated according to the list of requirements that was created in the definition phase. It is also evaluated according to the designs. This phase is complete when all of the requirements have been met and when the result corresponds to the design.

Those who are involved in a project should keep in mind that it is hardly ever possible to achieve a project result that precisely meets all of the requirements that were originally specified in the definition phase. Unexpected events or advancing insight sometimes require a project team to deviate from the original list of requirements or other design documents during the implementation of the project. This is a potential source of conflict, particularly if an external customer has ordered the project result. In such cases, the customer can appeal to the agreements that were made during the definition phase.

As a rule, the requirements cannot be changed after the end of the definition phase. This also applies to designs: the design may not be changed after the design phase has been completed. Should this nonetheless be necessary (which does sometimes occur), the project leader should ensure that the changes are discussed with those involved (particularly the decision-makers or customers) as soon as possible. It is also important that the changes that have been chosen are well documented, in order to prevent later misunderstandings. More information about the documentation of the project follows later in this handbook.

# [Follow up phase](https://www.projectmanagement-training.net/follow-up-phase/)

Although it is extremely important, the follow-up phase is often neglected. During this phase, everything is arranged that is necessary to bring the project to a successful completion. Examples of activities in the follow-up phase include writing handbooks, providing instruction and training for users, setting up a help desk, maintaining the result, evaluating the project itself, writing the project report, holding a party to celebrate the result that has been achieved, transferring to the directors and dismantling the project team.

The central question in the follow-up phase concerns when and where the project ends. Project leaders often joke among themselves that the first ninety per cent of a project proceeds quickly and that the final ten per cent can take years. The boundaries of the project should be considered in the beginning of a project, so that the project can be closed in the follow-up phase, once it has reached these boundaries.

It is sometimes unclear for those concerned whether the project result is to be a prototype or a working product. This is particularly common in innovative projects in which the outcome is not certain. Customers may expect to receive a product, while the project team assumes that it is building a prototype. Such situations are particularly likely to manifest themselves in the follow-up phase.

The motto, “Think before you act” is at the heart of the six-phase model. Each phase has its own work package. Each work package has its own aspects that should be the focus of concentration. It is therefore unnecessary to continue discussing what is to be made during the implementation phase. If all has gone well, this was already determined in the definition phase and the design phase.